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z mednarodno udeležbo
Slovenian Congress of Ophthalmology
with international participation
Rikli balance Hotel, Bled
11.–13.5.2023

ZBORNIK POVZETKOV
BOOK OF ABSTRACTS

Združenje oftalmologov Slovenije

Očesna klinika,
Univerzitetni klinični center Ljubljana

14. SLOVENSKI OFTALMOLOŠKI KONGRES Z MEDNARODNO UDELEŽBO
14TH SLOVENIAN CONGRESS OF OPHTHALMOLOGY WITH INTERNATIONAL PARTICIPATION
RIKLI BALANCE HOTEL, BLED
11. - 13. 5. 2023

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SLOVENIAN SOCIETY OF OPHTHALMOLOGY

OČESNA KLINIKA, UNIVERZITETNI KLINIČNI CENTER LJUBLJANA
DEPARTMENT OF OPHTHALMOLOGY, UNIVERSITY MEDICAL CENTRE LJUBLJANA

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Spoštovane kolegice in kolegi, dragi gostje!

Dobrodošli na lepem Bledu na 14. Slovenskem oftalmološkem kongresu z mednarodno udeležbo, ki po 5 letih ponovno poteka v živo.
Veseli nas, da ste se odzvali v tako velikem številu, še posebej z aktivnim sodelovanjem, saj je bilo oddanih več kot 110 strokovnih prispevkov.
Prizadevali smo si sestaviti strokoven in družaben program, tako da boste imeli priložnost srečati kolegice in kolege, ki se ukvarajajo z različnimi področji oftalmologije. Prijetno druženje bo tudi spodbuda za izmenjavo izkušenj in razprav v oftalmološkem kliničnem in raziskovalnem delu.
V letošnjem programu smo poskušali oftalmološke teme zajeti čim bolj celovito, ob velikem zanimanju pa smo ohranili leta 2021 prvič uveden „tekmovalni program“ naših mlajših kolegov specializantov.
Posebna zahvala gre odličnim vabljenim predavateljem, vsem predavateljem in soavtorjem, ki prispevate k dobremu strokovnemu programu. Še posebej smo se potrudili napraviti kongres dostopen in privlačen tudi mladim kolegom, ki bodo tradicijo sodelovanja nadaljevali tudi v prihodnje.

Organizatorji se zahvaljujemo za podporo vsem sponzorjem in razstavljalcem, brez katerih tega dogodka ne bi mogli uresničiti.

Še enkrat, iskrena hvala vsem sodelujočim in veselimo se, da vas lahko pozdravimo na Bledu in vas povabimo na pripravljen strokovni in družabni program.

Dear colleagues, dear guests!

A warm welcome to the 14th Slovenian Congress of Ophthalmology with international participation, which after 5 years is again live at the beautiful venue of Bled.
We are pleased to see so many of you, especially the high number of active participants with more than 110 abstracts submitted. We have tried to arrange the scientific and social programme in such a way that you can meet colleagues and friends from all fields of ophthalmology in a relaxed atmosphere. We hope that this will stimulate the exchange of experiences and discussions in your clinical work and research in ophthalmology.
In the congress programme we have tried to cover ophthalmology topics comprehensively and, due to the great interest, to keep the competition programme of our young residents, which was first introduced in 2021.
Special thanks to the outstanding invited speakers and all presenting authors and co-authors who contributed to the stimulating scientific programme. We have tried to make the conference accessible and attractive for our young colleagues who will continue this tradition in the future.

The organisers would also like to thank all the sponsors and exhibitors, without whom this event could not have been held.

Once again, we sincerely thank all participants and look forward to welcoming you in Bled and inviting you to the planned scientific and social programme.

Predsednica Združenja oftalmologov Slovenije
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Head of the department of Ophthalmology, UMC, Ljubljana
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ZBORNIK POVZETKOV
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CILJI OPERACIJE STRABIZMA PRI ODRASLIH PACIENTIH
OBJECTIVES OF STRABISMUS SURGERY IN ADULT PATIENTS

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NAMEN: Škiljenje se pojavi ko se poruši binokularno sodelovanje para oči in očesni osi nista več poravnani. Pri odraslih pacientih je lahko posledica neporavnanosti oči iz otroštva, operacije v otroštvu, vendar je prišlo do sekundarnega odklona očesa. Lahko pa se škiljenje pojavi kasneje v življenju zaradi poškodbe orbite, glave ali/in možganov, nevroloških obolenj, stanja po cirkulatornih incidentih v možganih, ki so posledica obolenja kardiocirkulatornega sistema. Škiljenje je lahko tudi posledica infektivnih obolenj centralnega živčnega sistema, pojava metastaz v centralnem živčnem sistemu, posledica avtoimunega obolenja ščitnice z orbitopatijo. Očesna obolenja in poškodbe oči prav tako lahko vodijo v porušeno binokularno sliko in škiljenje. Škiljenje pa ni le socialno nesprejemljivo, temveč povzroča dvojno sliko in v nekaterih primerih nagib glave. Slednje pa vodi v bolečine v vratu in hrbtenici. Vse pa vodi v slabšo delavno sposobnost in v posameznih primerih so tudi osebno prizadeti.

METODE: Na Očesni kliniki smo v letu 2022 opravili 57 operacij škiljenja pri odraslih pacientih. Razvrstili smo jih po diagnozah in tipih operacij.

REZULTATI: Glede na operacije smo jih razvrstili na tiste pri katerih je bilo pričakovati binokularno funkcijo, tiste, ki so si želeli operacije le iz socialne sprejemljivosti in tiste, ki so bili operirani zaradi prisotnosti dvojnega vida v primarni poziciji.

ZAKLJUČEK: Operacija strabizma pri odraslih pacientih lahko vpliva na njihovo funkijo binokularnega vida in/ali le tega povrnemo. Ni pa zanemarljiv vpliv na socialno vključenost pacienta. Pri pacientih z kompenzatorno držo glave se izboljšajo simptomi bolečin v vratu.

PURPOSE: Strabismus occurs when the binocular cooperation of a pair of eyes breaks down and the eye axes are no longer aligned. In adult patients, it may be due to misalignment of the eyes from childhood, surgery in childhood, but a secondary deviation of the eye has occurred. However, squinting can appear later in life due to damage to the orbit, head and/or brain, neurological diseases, conditions after circulatory incidents in the brain, which are the result of diseases of the cardiocirculatory system. Squinting can also be the result of infectious diseases of the central nervous system, the occurrence of metastases in the central nervous system, the result of autoimmune thyroid disease with orbitopathy. Eye diseases and eye injuries can also lead to a distorted binocular image and squinting. Squinting, however, is not only socially unacceptable, but causes double vision and, in some cases, tilting of the head. The latter leads to pain in the neck and spine. However, everything leads to a lower working capacity and in individual cases they are also personally affected.

METHODS: In 2022, we performed 57 squint operations on adult patients at the Eye Clinic. We classified them according to diagnoses and types of operations.

RESULTS: According to the operations, we classified them into those in whom binocular function was expected, those who wanted the operation only for social acceptance and those who were operated on due to the presence of double vision in the primary position.

CONCLUSION: Strabismus surgery in adult patients can affect their binocular vision function and/or only restore it. However, the impact on the patient's social inclusion is not negligible. In patients with compensatory head posture, symptoms of neck pain improve.

OBRAVNAVA PACIENTOV Z VERTIKALNIM STRABIZMOM V AMBULANTI ZA ORTOPTIKO IN STRABOLOGIJO, NA OČESNI KLINIKI, UKC LJUBLJANA V LETU 2022

TREATMENT OF PATIENTS WITH VERTICAL STRABISMUS AT THE ORTHOPTICS AND STRABOLOGY DEPARTMENT OF THE EYE HOSPITAL, UNIVERSITY MEDICAL CENTRE LJUBLJANA, IN 2022

Silvija Delfin

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NAMEN: Pregled najbolj pogostih stanj, ki privedejo do vertikalnega strabizma s poudarkom na kliničnih znakih, ki omogočajo diferenciacijo med oblikami.

METODE: Opravljena je bila analiza pacientov obravnavanih zaradi vertikalnega strabizma v ambulanti za ortoptiko in strabologijo na Očesni kliniki, UKC Ljubljana v letu 2022. Predstavljene so najbolj pogoste oblike vertikalnega strabizma s poudarkom na kliničnih znakih, ki pripomorejo pri razlikovanju vrste vertikalnega strabizma.

REZULTATI: Najbolj pogoste oblike vertikalnega strabizma v obravnavani skupini so bile sledeče.

Konkomitantne vertikalne deviacije z manjšimi koti (1-2Δ) so pogoste v splošni populaciji in pogosto asimptomatske. Višji deviacijski koti lahko povzročajo astenopijo in diplopijo.

Primarna hiperfunkcija zgornje ali spodnje poševne mišice (m. Obliquus oculi) pogosto spremlja horizontalni strabizem in povzroča vertikalno deviacijo z značilnim nagibom glave.

Pareza trohlearnega živca (lat. N. Trohlearis) je najbolj pogosta oblika paralitičnega vertikalnega strabizma. Značilni klinični znaki so hipertropia prizadetega očesa in ipsilateralen nagib glave.

Disociacijska vertikalna deviacija (DVD) je stanje pri katerem pride do vertikalnega odklona očesa v času fiksacije z drugim očesom. DVD zelo pogosto spremlja infantilni strabizem (tako infantilno ezotropijo kot eksotropijo) in hipokorigirano hipermetorpijo pri določenih vrstah konvergentnega strabizma.

Pareza vertikalnih ravnih mišic (m. rectus superior/inferior).

Brown sindrom povzroča mehanska restrikcija v področju trohlee, kar onemogoča drsenje tetive zgornje poševne mišice v tem področju, s posledično omejeno elevacijo in addukcijo na isti strani. Najbolj pogosto gre za kongenitalno okvaro, redkeje pa gre za pridobljeno obliko kot posledica travme ali vnetja.

Duanov sindrom zaznamuje omejena abdukcija, enoftalmus ob addukciji, ožanje očesne reže ob addukciji in vertikalni odklon ob addukciji.

Restriktivni vertikalni strabizem lahko nastane kot posledica frakture orbitalnega dna, primarne fibroze očesnih mišic, ščitnične orbitopatije, brazgotinjenja po predhodni operaciji strabizma, miotoksičnosti lokalnih anestetikov.

ZAKLJUČEK: Vertikalni strabizem je lahko posledica različnih stanj in patologij. Prepoznava in razlikovanje različnih oblik vertikalnega strabizma omogoča ustrezno izbiro terapije. Med obravnavanimi primeri je pogosto prišlo do izboljšanja stanja ob izvajanju vaj za uravnoteženje zunanjih očesnih mišic. V kolikor pa le te niso uspešne oz. ne zadostujejo, pride v poštev kirurška intervencija.

PURPOSE: Review of the most common conditions leading to vertical strabismus with emphasis on clinical signs that allow differentiation between the types.

METHODS: An analysis of cases treated for vertical strabismus at the orthoptic and strabusmus department of Eye Hospital, University Medical Centre of Ljubljana in 2022 has been performed. The most common types of vertical strabismus within the treated patients have been identified, with additional emphasys on specific clinical signs that enable the distinction between the different types of vertical strabismus.

RESULTS: The most common causes of vertical strabismus within the treated group are listed below.

Concomitant vertical deviations with a smaller deviation angle are common within the general population and often asymptomatic. Larger angle deviations can cause astenopia and diplopia.

Hyperfunction of the superior or inferior oblique muscle causes a vertical deviation with a typical head tilt and is often associated with horizontal deviations.

Trochlear nerve palsy represents the most common type of paralytic vertical strabismus and is characterized by hipertropia of the affected eye with an ipsilateral head turn.

Dissociated vertical deviation (DVD) is characterized by the vertical deviation of the non fixating eye. DVD is often associated with infantile strabismus (both convergent and divergent) and with the hipocorrection of hypermetropia in some types of convergent types of strabismus. Vertical rectus palsy (superior and inferior)

Brown Syndrome is caused by a restriction within the trochlea, which impedes the sliding of the superior oblique muscle tendon and causes restrictions in elevations and adduction. It is usually congenital, but it can rarely be caused by trauma or inflammation.

Duane syndrome is characterized by a restriction in abduction, enophthalmos and narrowing of the eye lids during adduction of the affected eye, and possible vertical deviation during adduction.

Restrictive vertical strabismus can be caused by lower orbital wall fracture, primary fibrosis of extraocular muscles, thyroid orbitopathy, scarring due to previous surgery, miotoxicity of local anesthetics.

CONCLUSION: Vertical strabismus can be caused by different pathologies. The identification and differentiation of the different types of vertical strabismus enables the most adequate choice of treatment.

INTERMITENTNA EKSOTROPIJA IN PREPREČEVANJE PORASTA KRATKOVIDNOSTI V OTROŠTVU IZ VIDIKA STRABOLOGA

INTERMITTENT EXOTROPIA AND MANAGEMENT OF PROGRESSIVE MYOPIA IN CHILDHOOD AND WHAT DOES IT MEAN FOR STRABISMUS SPECIALIST

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NAMEN: Predstaviti obvladovanje porasta kratkovidnosti v otroštvu ter vpliv le-te na kontrolo intermitentne eksotropije, esoforije ali esotropije.

METODE: V eni izmed zadnjih PEDIG (Pediatric Eye Disease Investigating Group) raziskav so ugotavljali, da porast kratkovidnosti pri mlajših otrocih lahko prehodno ugodno vpliva na kontrolo in zmanjšanje eksodeviacije (zlasti pri intermitentni eksotropiji), po drugi strani pa poslabša esodeviacijo. V obdobju med letoma 2017 in 2019 je potekala IXT 5 randomizirana klinična raziskava PEDIG raziskovalne skupine, ki je ocenjevala učinkovitost in varnost zdravljenja z očali s previsoko minus dioptrijo za zdravljenje intermitentne eksotropije. Izvedena je bila na populaciji otrok starih med 3 in 10 let. Prva skupina 196 otrok je 12 mesecev nosila -2,50 D čez refraktivno vrednost izmerjeno v cikloplegiji, nato nadaljne 3 mesece -1,25 D čez refraktivno vrednost izmerjeno v cikloplegiji, potem so 3 mesece nosili svojo korekcijo izmerjeno v cikloplegiji. Druga skupina 190 otrok je nosila optično korekcijo izmerjeno v cikloplegiji in brez dodane minus dioptrije. (JAMA Ophthalmology 2021).

REZULTATI: Po 12 mesecih nošnje očal s previsoko minus dioptrijo je prišlo do začasne kontrole intermitentne eksotropije na daljavo, vendar po prekinitvi zdravljenja učinek ni trajal. V skupini s previsoko minus dioptrijo je imelo petnajstkrat več otrok porast kratkovidnosti za več kot 1 dioptrijo (D).

Porast kratkovidnosti poslabša esotropijo in esoforijo. Zanimivi so izsledki raziskav, ki so beležili znatno povečanje kratkovidnosti v času COVID pandemije (t.i. karantenska kratkovidnost). Glavni razlogi za porast kratkovidnosti so bili krajši čas preživet na prostem in daljši čas preživet pred zasloni. Pri otrocih do osmega leta starosti o kirurškem zdravljenju eksotropije razmišljamo, kadar je prisotna manifestna eksotropija več kot 10 PD (dioptrij prizem) na daljavo in bližino ali če gre za intermitentno eksotropijo z izgubo globinskega vida. PEDIG raziskovalna skupina je v klinični raziskavi IXT 2 ugotovila, da je spontano poslabšanje eksodeviacije redko in če ne pride do manifestnega odklona ali izgube globinskega vida predlagajo opazovanje.

ZAKLJUČEK: Kratkovidnost poraste normalno do - 0,5 D letno. Do leta 2050 napovedujejo, da bo 50 % svetovnega prebivalstva kratkovidnega in kar 10 % svetovnega prebivalstva zelo kratkovidnega (več kot -6 D). Obstajajo dokazi, da lahko upočasnimo napredovanje kratkovidnosti, če dlje časa preživimo na prostem in če zmanjšamo čas pred zasloni. Prav tako lahko upočasnimo napredovanje kratkovidnosti z uporabo leč z večsegmentnim defokusom, z mehkimi multifokalnimi lečami, z ortokeratologijo in z nizkimi odmerki 0,01 % atropina (»WSPOS Myopia Consensus Statement 2023«).

PURPOSE: To represent the assessment and management of myopia progression in childhood and how it affects patients with intermittent exotropia and patients with esophoria or esotropia. Myopia is the world's commonest refractive error. The incidence is increasing worldwide and becoming an important public health concern.

METHODS: Increasing myopia in younger children can help control exodeviations (especially in intermittent exotropia). On other hand, it can make an esodeviation worse. Between the years 2017 and 2019, there was conducted Pediatric Eye Disease Investigating Group (PEDIG) randomized clinical trial that evaluated the effectiveness and safety of over-minus spectacle therapy for the treatment of intermittent exotropia (IXT 5). It was conducted on children aged between 3 and 10 years of age. 196 children were 12 months wearing -2,50 D over minus, then 3 months -1,25 D over minus, then over minus stopped. 190 children were not wearing over-minus spectacles based on full cycloplegic refraction. (JAMA Ophthalmology 2021).

RESULTS: There was a temporary improvement in distance intermittent exotropia control with over-minus lenses at 12 months but the effect did not last once the lenses were stopped. The over-minus group had 15 times more myopic shift; in those children with baseline myopia, there was even higher myopia progression.

Myopia destabilizes control of esotropia/esophoria. Myopia will progress until the growth of a child ceases.

Therefore there is an increase in intermittent diplopia and as deviation increases, it will become more difficult to control. There has been a significant increase in myopia during the COVID lockdown (Quarantine myopia) with the increased myopic shift. The main reasons were less outdoor activity and increased screen time. We have to be critical about early intervention with intermittent exotropia, especially with younger children, and consider treatment with constant exotropia of more than 10 PD (prism diopters) exotropia distance and near or with loss of stereo acuity (IXT 2 PEDIG clinical trial). They concluded that with observation only, deterioration in the younger and older group of children was rare.

CONCLUSION: Normal progression of myopia is approximate - 0,5 D each year. The onset of myopia at an earlier age is more likely to give a higher refractive myopic error. By the year 2050, it is expected that 50 % of the world's population will be myopic and 10% of the world's population will be highly myopic. There is evidence that we can slow down the myopia progression with increased time spent outdoors, by trying to reduce screen time, with defocus-incorporated multisegment spectacle lenses, soft multifocal lenses, orthokeratology, and low dose 0,01% Atropine (WSPOS Myopia Consensus Statement 2023).

REZULTATI OCT-ANGIOGRAFIJE PRI OTROCIH Z UNILATERALNO ANIZOMETRIČNO AMBLIOPIJO

OCT ANGIOGRAPHY FINDINGS IN CHILDREN WITH UNILATERAL ANISOMETRIC AMBLYOPIA

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NAMEN: prospektivne raziskave je prikazati rezultate OCT-angiografije pri otroci z enostransko anizometrično ambliopijo ne glede na vrsto refrakcijske motnje z razliko vsaj 4 diotrije ali več med normalno vidnim in slabovidnim očesom. Cilj je raziskave je bil ugotoviti ali obstaja razlika v gostoti žil v povrhnjih delih mrežnice med dobrovidnim in slabovidnim očesom kakor tudi v velikosti avaskularne foveolarne cone.

METODE: V raziskavo smo vključili vse otroke stari od 7 do 16 let, ki so se zdravili v Kabinetu za ortoptiko in pleoptiko na Oddelku za očesne bolezni UKC Maribor v letih 2020 do 2022 zaradi unilateralne anizometrične ambliopije. 14 otrok je izpolnjevalo vključitvene kriterije. Za analizo povrhnjega kapilarnega pleteža (SCP), obseg fovealne avaskularne cone (FAZ) in debelino makule smo uporabili visokoločljivostni OCT Cirrus 5000 z OCT angiografijo AngioPlex. Za statistično analizo rezultatov med slabovidnim in normalno vidnim očesom smo uporabili parni t-test ali Wilcoxov signed-rank test (P<0,05) .

REZULTATI: povprečna starost otrok je bila 13 let ± 2,9, razpon od 8 do 17 let. Večina otrok (85,7%) je bila fantov. Kapilarna gostota povrhnjega pleteža ni pokazala statistično pomembne razlike med slabovidnim in kontrolnim očesom (P=0,328). Tudi primerjava področja avaskularne cone med obema očesoma ni bila statistično pomembna (P<0,808). Prav tako se ni statistično pomembno razlikovala debelina makule (P<0,291).

ZAKLJUČEK: Rezultati raziskave kažejo, da pri otrocih z unilateralno anizometročno ambliopijo ni bilo statistično pomembne razlike v gostoti povrhnjega kapilarnega pleteža, v velikosti avaskularne cone in debelini mrežnice med slabovidnim in normalno vidnim očesom. Naša raziskava ni potrdila rezultate nekaterih prejšnjih raziskav, da je pri slabovidnem očesu prisotna manjša gostota kapilarne mreže. Za potrditev naših izsledkov so potrebne še dodatne raziskave z večjim številom otrok.

PURPOSE: The purpose of the prospective study is to show findings of OCT angiography in children with unilateral anisometric amblyopia, regardless of the type of refractive disorder, with a difference of at least 4 diopters or more between the amblyopic and the fellow eye. The research aimed to find out whether there is a difference in vascular density and size of the foveal avascular zone in the superficial capillary plexus.

METHODS: In research, we included all children who are from 7 to 16 years old and are being treated in the Office for Orthoptics and Pleoptics at the Department of Ophthalmology, UKC Maribor in the years 2020 to 2022 due to unilateral anisometric amblyopia. 14 children met the criteria. A Cirrus 5000 high-resolution OCT with AngioPlex OCT angiography was used to analyze the superficial capillary plexus (SCP), size of the foveal avascular zone (FAZ), and macula thickness. The paired t-test or Wilcox signed-rank test (P<0.05) was used for statistical analysis of each parameter between the amblyopic and fellow eye.

RESULTS: Mean child age was 13 years ± 2.9 and ranged from 8 to 17 years. Most of the children (85.7%) were boys. Vascular density of the superficial plexus did not show statistically significant differences between the visually impaired and control eyes (P=0.328). The comparison of the avascular cone area between the two eyes was also not statistically significant (P<0.808). There was also no statistically significant difference in macular thickness (P<0.291).

CONCLUSION: Findings of the research show that there were no statistically significant differences in the density of the superficial capillary plexus, in the size of the avascular cone, and in the thick retinas between the amblyopic and fellow eye in children with unilateral anisometric amblyopia. Our research did not confirm the results of some previous studies that a lower density of the capillary network is present in the visually impaired eye. Further studies with larger number of children are necessary to confirm our results.

NEOBIČAJNA PREHODNA MOTNJA VIDA V AMBULANTI ZA BOLEZNI MREŽNICE: MIOKIMIJA ZGORNJE ZUNAJOČESNE POŠEVNE MIŠICE - PRIKAZ PRIMERA

UNUSUAL TRANSIENT VISUAL DISTURBANCE IN MEDICAL RETINA CLINIC: MYOKYMIA OF THE SUPERIOR OBLIQUE MUSCLE – CASE REPORT

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NAMEN: Prikazati klinični primer bolnice z miokimijo zgornje zunajočesne poševne mišice, ki je bila napotena v ambulanto za bolezni mrežnice Očesne klinike UKC Ljubljana.

METODE: 55-letna gospa je bila novembra 2022 napotena v ambulanto za bolezni mrežnice zaradi skoraj eno leto trajajočih občasnih enostranskih motenj vida. Z natančno anamnezo smo izvedeli, da gospo moti občasno tresenje slike desnega očesa. Tresenje se pojavlja v različnih časovnih obdobjih tekom dneva, poslabša ali izzove ga pogled v levo ali desno. Stanje se poslabša tudi pri močni osvetlitvi. Podobnih težav z levim očesom nima. Že avgusta 2022, ko je bila gospa na pregledu v nevrološki ambulanti, je navajala desnostransko tresenje slike, ob tem pa tudi tri leta trajajoče glavobole. CT glave, z izjemo blagega sinusitisa, ni pokazal posebnosti. Sicer se gospa zdravi zaradi arterijske hipertenzije.

REZULTATI: Ob pregledu na biomikroskopu smo večkrat za kratek čas opazili fin drobnonihajni rotatorni nistagmus na desnem očesu, ob tem je gospa povedala, da se ji slika trese. Na levem očesu nistagmusa nismo opazili. Bolnica je dvakrat tresenje desnega očesa celo sama izzvala. Pregled sprednjih očesnih delov in zadnjega segmenta ni pokazal patoloških sprememb. Vsa opravljena slikovna diagnostika mrežnice (OCT, IR, AF, OCT-EDI, OCTA, FA in ICGA) je bila v mejah normale. Ob enostranskem finem rotatornem nistagmusu smo posumili na miokimijo zgornje poševne zunajočesne mišice, ki je redka entiteta. Večinoma se pojavlja pri sicer zdravih ljudeh, vendar so možni tudi resnejši vzroki (bolezenske spremembe v poteku IV. možganskega živca in njegovega jedra), zato je gospa opravila tudi nevroradiološko diagnostiko (MR in MRA glave), ki ni pokazala posebnosti.

ZAKLJUČEK: Pogosto za postavitev pravilne diagnoze, tudi redke bolezni, zadostujeta natančna anamneza in klinični pregled. Diagnostične preiskave so v pomoč pri iskanju vzroka in/ali izključitvi resnejših obolenj.

PURPOSE: To present a patient with myokymia of the superior oblique muscle who was referred to medical retina clinic at the Eye Hospital, University Medical Centre Ljubljana.

METHODS: A 55-year-old woman was referred to medical retina clinic in November 2022 because of transient visual disturbances in the right eye lasting for almost a year. Detailed clinical history revealed transitory shaking of the right eye image. The image oscillation occurred at different times of the day and she could provoke shaking of the image when looking to the left or to the right. Shaking of the right image also got worse in bright light. She denied any similar problems with the left eye image. In August 2022, she has been examined by a neurologist because of the shaking of the right eye image and headaches that had been going on for three years. A CT scan of the head was unremarkable except for mild sinusitis. She is healthy except for being treated for arterial hypertension.

RESULTS: During biomicroscopy examination, a fine, oscillating rotatory nystagmus of the right eye was observed few times. The nystagmus was present for a short period of time and patient reported shaking of the image at that time. There was no nystagmus of the left eye. On two occasions she could provoke the nystagmus by herself. Except for nystagmus, the ophthalmological examination was unremarkable. The imaging diagnostics (OCT, IR, AF, OCT-EDI, OCTA, FA, and ICGA) showed no abnormalities. With unilateral fine rotatory nystagmus, we suspected myokymia of the superior oblique muscle. This rather rare entity usually occurs in otherwise healthy people. However, more serious diseases should also be taken into account (pathology in the course of the 4th cranial nerve and its nucleus). To exclude possible serious causes of myokimia, neuroradiological diagnostics (MR and MRA of the head) has also been performed and showed no abnormalities.

CONCLUSION: In many cases, a detailed history and clinical examination is enough to diagnose a certain, even rare, condition. Diagnostic procedures help us to detect the cause and/or exclude serious conditions.

ZDRAVLJENJE SLABOVIDNOSTI S POMOČJO RAČUNALNIŠKE APLIKACIJE

TREATMENT OF AMBLYOPIA WITH A SOFTWARE APPLICATION

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NAMEN: Ambliopija oz. slabovidnost, je unilateralno ali redko bilateralno nevrorazvojno stanje , ki se kaže s slabo vidno ostrino, v sicer zdravem očesu s prisotnostjo ambliogenega dejavnika. Dolgo je veljalo, da je ambliopijo možno zdraviti le pri otrocih, vedno bolj se ugotavlja, da lahko s primernim načinom zdravljenja dobimo dobre rezultate tudi pri odraslih. Nova oblika zdravljenja, z dobrimi rezultati, tako pri otrocih, kot tudi v odrasli dobi, je AmblyoGo. Prednost programa je, da temelji na razvoju tako imenovanega binokularnega vida, ponuja možnost aktiviranja in izboljšanja tudi globinskega vida.

METODE: Opravljene se bile že številne študije, pripravili smo pregled le-teh. Ena izmed njih je tudi retrospektivna študija v kateri se je analiziralo 161 otrok, ki so opravili trening s programom Bynocs AmblyoGo, v času od januarja 2019 do januarja 2022. Rezultati so pokazali, da se je vidna ostrina slabovidnega očesa močno izboljšala po zdravljenju , povprečno za skoraj 4 vrstice po LogMAR tabeli. Prišlo je tudi do izboljšanja binokularne fuzije za približno 1,55. Procent pacientov, pri katerih stereopsija ni bila merljiva se je iz 65.8% znižal na 11.8%.

REZULTATI: Predstavili bom naše izkušnje z AmblyoGo pri dveh pacientkah. Prva pacientka je 13-letna ženska, s hipermetropijo in astigmatizmom (DO: +5,75 -1,50/170; LO:+6,25 -1,50/160). Vidna ostrina slabovidnega očesa (levega) je bila pred zdravljenjem 0,25 po Snellenu, globinski vid ni bil razvit. Po 12 tednih terapije se je vidna ostrina izboljšala na 0,4 po Snellenu, razvila je tudi globinski vid 1200 sec of arc. Druga pacientka je 16-letna ženska, z miopio in astigmatizmom slabovidnega desnega očesa (DO:-5,00 -1,75/170; LO: 0,00). Vidna ostrina slabovidnega očesa je bila pred zdravljenjem 0,3 po Snellenu, globinski vid ni bil razvit. Po 6 tednih terapije se je vidna ostrina izboljšala na 0,5 po Snellenu, razvila je tudi globinski vid 1200 sec of arc in fuzijo. Terapija se pri obeh dekletih nadaljuje, saj se še vedno kažejo izboljšanja.

ZAKLJUČEK: AmblyoGo je nova oblika zdravljenja ambliopije, z dobrimi rezultati, pri različnih starostnih skupinah (od otrok do odraslih). Prednost programa je, da temelji na razvoju tako imenovanega binokularnega vida, ponuja možnost aktiviranja in izboljšanja tudi globinskega vida.

PURPOSE: Amblyopia is a unilateral or rarely bilateral neurodevelopmental condition that manifests itself with poor visual acuity in an otherwise healthy eye with the presence of an amblyogenic factor. For a long time, it was believed that amblyopia could only be treated in children, but it is increasingly recognized that good results can also be obtained in adults with appropriate treatment. A new form of treatment with good results, both in children and in adults, is AmblyoGo. The advantage of the program is that it is based on the development of so-called binocular vision and offers the possibility of activating and improving depth vision.

METHODS: Many studies have already been carried out; we have prepared an overview of them. One of them is a retrospective study in which 161 children who underwent training with the Bynocs AmblyoGo program were analyzed between January 2019 and January 2022. The results showed that the visual acuity of the visually impaired eye improved significantly after treatment, on average for almost 4 lines according to the LogMAR table. There was also an improvement in binocular fusion of about 1.55. The percentage of patients in whom stereopsis was not measurable decreased from 65.8% to 11.8%.

RESULTS: I will present our experience with AmblyoGo in two patients. The first patient is a 13-year-old woman with hypermetropia and astigmatism (DO: +5.75 -1.50/170; LO: +6.25 -1.50/160). Visual acuity of the low-sighted eye (left) was 0.25 according to Snellen before treatment, depth vision was not developed. After 12 weeks of therapy, visual acuity improved to 0.4 according to Snellen, she also developed depth vision of 1200 sec of arc. The second patient is a 16-year-old woman with myopia and astigmatism of the low-sighted right eye (DO: -5.00 -1.75/170; LO: 0.00). Visual acuity of the visually impaired eye was 0.3 according to Snellen before treatment, depth vision was not developed. After 6 weeks of therapy, visual acuity improved to 0.5 Snellen, she also developed depth vision of 1200 sec of arc and fusion. Therapy continues for both girls as they continue to show improvement.

CONCLUSION: AmblyoGo is a new form of treatment for amblyopia, with good results, in different age groups (from children to adults). The advantage of the program is that it is based on the development of so-called binocular vision and offers the possibility of activating and improving depth vision.

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EFFECT OF DEFOCUS INCORPORATED MULTIPLE SEGMENTS (DIMS) SPECTACLE ON MYOPIA PROGRESSION / AXIAL LENGTH GROWTH IN CHILDREN: A RETROSPECTIVE ANALYSIS IN A GERMAN REAL-LIFE CLINICAL SETTING

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This retrospective analysis shows the first real-life data from the European region on myopia therapy with DIMS lenses.

Overall, in 50% of the cases the therapy goal of physiological axial length growth was achieved. Children with shorter baseline axial lengths (e.g. baseline axial lengths below the 98 th percentile) appear to have less axial length growth after one year of therapy and therefore better therapy effect. However, this finding was not consistent in both sexes. Possible differences between the sexes still need to be further evaluated. Likewise, the topic of relative peripheral refraction should receive more attention to verify whether it is a predictive factor that a practitioner can use to decide whether a single therapy is sufficient or whether a combination therapy is preferable at the beginning of any myopia therapy.

INTRAOPERATIVA OPTIČNA KOHERENTNA TOMOGRAFIJA SPREDNJEGA SEGMENTA PRI ENDOTELNI TRANSPLANTACIJI ROŽENICE

ANTERIOR SEGMENT INTRAOPERATIVE OPTICAL COHERENT TOMOGRAPHY IN ENDOTHELIAL KERATOPLASTY

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NAMEN: Izhod endotelne transplantacije z Descemetovo membrano (*ang*. Descemet membrane endothelial keratoplasty – DMEK) z uporabo intraoperative optične koherentne tomografije sprednjega segmenta (iOCT).

METODE: Retrospektivna kohortna klinična raziskava bolnikov, ki so imeli DMEK z uporabo iOCT na Univerzitetni očesni kliniki, UKC Ljubljana v obdobju od januarja do decembra 2022. Zbrali smo podatke o predoperativni diagnozi in vidni ostrini, opravili smo OCT roženice (Heidelberg Engineering, Heidelberg, Nemčija). Kirurški poseg DMEK je potekal v lokalni ali splošni anesteziji standardizirano. Med posegom smo za prikaz orientacije presadka uporabili iOCT. Poseg smo zaključili s tamponado presadka s plinom in pooperativnim pozicioniranjem bolnika. Pooperativno smo beležili potrebo po dodajanju plina, obračanju presadka, čas do zbistritve roženice ter najboljšo korigirano vidno ostrino in centralno debelino roženice po 1 mesecu.

REZULTATI: Vključenih je bilo 30 zaporednih bolnikov z diagnozo endotelna roženična distrofija Fuchs (n=24) ali bulozna keratopatija (n=6). Predoperativna vidna ostrina je bila 0.02 do 0.5 po Snellenu, predoperativni OCT roženice je pokazal zadebelitev ali edem. iOCT je bil opravljen po vstavitvi presadka v sprednji prekat, ob manipulaciji presadka ponavljan do doseženega prikaza navzgor uvihanega roba presadka, v taki poziciji je bil presadek razpet in tamponiran. Dodajanje plin po operaciji je bilo potrebno pri 6 očeh (20%), v 1 primeru dvakrat; in sicer zaradi delnega odstopa presadka v spodnjem ali temporalnem delu. Obračanja presadka ni bilo potrebno v nobenem primeru. Roženica se je zbistrila v 1-10 dneh po posegu. Po enem mesecu je najboljša korigirana vidna ostrina znašala povprečno 0.8 po Snellenu (0.5-1.0, vključeni bolniki z drugo patologijo oči), povprečna centralna debelina roženice je znašala 564 mikrometrov, SD 34.

ZAKLJUČEK: iOCT omogoča neposreden in neinvazivnen vpogled v položaj in orientacijo DMEK presadka med operacijo, kar vpliva na krajši čas operacije z manj manipulacije presadka, boljši izhod in zmanjšanje potrebe po dodatnem obračanju presadka po operaciji. Dodajanje plina je bilo potrebno ob slabšemu pozicioniranju bolnika ali manjši začetni tamponadi, vendar ni podaljšalo rehabilitacije ali vplivalo na končni izid.

PURPOSE: outcome of endothelial keratoplasty DMEK (ang. Descemet membrane endothelial keratoplasty) with the use of anterior segment intraoperative optical tomography (iOCT).

METHODS: Retrospective cohort study of patients undergoing DMEK with iOCT at the University Eye Hospital, University Clinical Centre Ljubljana in the period of January to December 2022. Preoperative diagnosis and best corrected visual acuity (BCVA) were collected, and OCT of the cornea (Heidelberg Engineering, Heidelberg, Germany) obtained. A standardised DMEK in general or local anaesthesia was performed with the use of iOCT. Postoperatively, the re-bubble rate and graft manipulation attempts were followed, as well as time to cornea clearance, and BCVA and central corneal thickness 1 month postoperatively.

RESULTS: There were 30 subsequent patients (30 eyes) with Fuchs endothelial corneal dystrophy (n=24) or pseudophakic bullous keratopathy (n=6) included in the study. The preoperative BCVA was 0.02 - 0.5, Snellen, preoperative corneal OCT proved oedema or thickening. During DMEK procedure the iOCT was used for graft orientation at insertion and during graft manipulation until the up facing ends visualised. In such position the graft was extended and tamponaded, the patient was asked to position face up after the surgery. The re-bubble was needed postoperatively in 6 eyes (20%) due to inferior and/or temporal graft detachment; in 1 eye twice. Graft manipulation was not needed in any case. The cornea become clear in 1-10 days in all eyes. Mean BCVA 1 month after DMEK was 0.8, Snellen (0.5-1.0, patients with eye pathology were included), and mean central corneal thickness was 564 micrometres, SD 34.

CONCLUSION: iOCT offers immediate, live and non-invasive imaging of the DMEK graft position during the surgery, which results in shorter surgical time, less graft manipulation, better surgery outcome and no need for graft rotation after the surgery. The 20% re-bubble rate, which however did not impact the time of recovery or visual outcome, was due to suboptimal patient positioning after the surgery and/or smaller volume gas tamponade.

DOLGOROČNI REZULTATI DESCEMETOREKSE BREZ PRESADITVE ENDOTELA (DWEK) PRI FUCHSOVI ENDOTELNI ROŽENIČNI DISTROFIJI

LONG-TERM RESULTS OF DESCEMETORHEXIS WITHOUT ENDOTHELIAL KERATOPLASTY (DWEK) IN FUCHS' ENDOTHELIAL CORNEAL DYSTROPHY

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NAMEN: Poročati o dolgoročni varnosti in učinkovitosti descemetorekse brez presaditve endotela – DWEK (*ang*. Descemetorhexis Without Endothelial Keratoplasty) pri Fuchsovi endotelni distrofiji roženice – FECD (*ang*. Fuchs' endothelial corneal dystrophy).

METODE: Retrospektivna raziskava skupine primerov zaporednih posegov DWEK od julija 2019 do decembra 2021. Vključeni bolniki so imeli zmerno obliko FECD s centralno prisotnimi konfluentnimi gutami in edemom. Poseg je bil izveden s centralno descemetorekso premera 2,5-4,5 mm. V štirih primerih je bila hkrati opravljena fakoemulzifikacija z vstavitvijo hidrofobne intraokularne leče. Postoperativno bolniki niso prejemali ripasudila (zaviralca Rho-kinaze). Pred posegom in po njem smo izmerili najboljšo korigirano vidno ostrino (BCVA), centralno debelino roženice (CCT)/pahimetrijo, opravili centralno in periferno spekularno mikroskopijo ter ocenili prosojnost roženice.

REZULTATI: V raziskavo je bilo vključenih deset očes devetih bolnikov (8 žensk) z medianim časom spremljanja 25,5 (16-45) mesecev. Pri 6 očeh je bila izvedljiva periferna spekularna mikroskopija, ki je pri vseh pokazala periferno prisotnost posameznih gut in mediano vrednost periferne gostote endotelnih celic 1325 celic/mm^2 (699-2511). Pri sedmih očeh je prišlo do zbistritve roženice, pri čemer se je centralna debelina roženice – CCT (*ang*. central corneal thickness) zmanjšala za 119 µm od začetne. Povprečna BCVA se je izboljšala z začetne 0,3 na 0,6 po Snellenu. Ob koncu sledenja je mediana vrednost centralne gostote endotelnih celic znašala 713 celic/mm^2 (599-758). Pri treh očeh se roženica ni zbistrila, povečal se je centralni edem roženice s povprečnim porastom CCT za 133 µm. Pri teh očeh je bila zato opravljena endotelna presaditev roženice - DMEK (*ang*. Descemet Membrane Endothelial Keratoplasty).

ZAKLJUČEK: DWEK brez uporabe ripasudila je pri izbranih bolnikih s FECD tudi ob prisotnosti perifernih gut varen in uspešen poseg ter tako predstavlja možnost začasne ali trajne odložitve endotelne presaditve roženice.

PURPOSE: To report long-term results of safety and efficacy of Descemetorhexis Without Endothelial Keratoplasty (DWEK) in Fuchs' endothelial corneal dystrophy (FECD).

METHODS: Retrospective case series study of consecutive DWEK procedures performed from July 2019 to December 2021. All enrolled patients had moderate FECD with central confluent guttae and edema. Central 2.5-4.5 mm descemetorhexis was performed. In 4 cases the procedure was combined with phacoemulsification and hydrophobic intraocular lens implantation. There was no ripasudil (Rho-kinase inhibitor) applied postoperatively. Best-corrected visual acuity (BCVA), central corneal thickness (CCT)/pachymetry, and central and peripheral specular microscopy was performed pre- and postoperatively and corneal clearance was evaluated.

RESULTS: Ten eyes of 9 patients (8 female) were included with a median follow up of 25.5 (16-45) months. In 6/10 eyes peripheral specular microscopy could be performed, the median peripheral endothelial cell density (ECD) was 1325 cells/mm^2 (699-2511) and they all showed peripheral guttae. In 7 eyes corneal clearance was recorded, with a mean CCT change of -119 µm from baseline. Improvement in mean BCVA was from 0.3 baseline to 0.6 (Snellen decimal). Median central ECD at the end of follow up was 713 cells/mm^2 (599-758). In 3 eyes the cornea failed to clear, the corneal edema worsened with a mean CCT increase of 133 µm from baseline and they underwent Descemet membrane endothelial keratoplasty.

CONCLUSION: DWEK without ripasudil supplementation is a safe and successful intervention in selected patients with FECD even in the presence of peripheral guttae. It can delay or even avoid corneal endothelial transplantation.

PRESADITEV ROŽENIC NA OČESNI KLINIKI UNIVERZITETNEGA KLINIČNEGA CENTRA LJUBLJANA V EVROPSKEM REGISTRU PRESADITEV ROŽENIC IN CELIC

EYE HOSPITAL UNIVERSITY MEDICAL CENTRE LJUBLJANA CORNEAL TRANSPLANTATION IN THE EUROPEAN CORNEA AND CELL TRANSPLANTATION REGISTRY

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NAMEN: Predstaviti podatke dvoletnega sledenja slovenskih bolnikov v Evropskem registru presaditev roženic in celic (ECCTR, *ang*. European Cornea and Cell Transplantation Registry).

METODE: Podatke o prejemnikih, darovalcih roženic, poteku operacij in sledenju bolnikov, ki jih v spletnem registru ECCTR sistematično prospektivno zbiramo na Očesni kliniki Unverzitetnega kliničnega centra Ljubljana, smo analizirali in prikazali za obdobje od januarja 2019 do decembra 2020.

REZULTATI: V opazovanem obdobju je bilo opravljenih 162 presaditev roženice. Skladno z evropskimi podatki je bila tudi pri nas najpogostejša indikacija za presaditev roženice Fuchsova endotelna distrofija. Najpogostejši način transplantacije je bila endotelna keratoplastika s presaditvijo endotela in Descemetove membrane (*ang*. Descemete membrane endothelial keratoplasty - DMEK) - 51%, sledila je penetrantna keratoplastika – 43%. Srednja starost donorjev je bila 67 let, starost prejemnikov pa 70 let. Srednja vrednost korigirane vidne ostrine (CDVA, *ang*. corrected distance visual acuity) na očesu pred operacijo je bila 0,32 po Snellenu, pri 28% očes pa je CDVA predoperativno znašala 0,5 ali več. Po presaditvi roženice je srednja vrednost CDVA znašala 0,5, po DMEK pa 0,8. Srednja gostota endotelnih celic presadka pred operacijo je bila 2708 celic/mm^2; po dveh letih spremljanja pa ne glede na vrsto posega 1680 celic/mm^2. Letna incidenca odpovedi presadka na bolnika je znašala 0.04, pri čemer je prevladovala primarna odpoved presadka.

ZAKLJUČEK: Podatki o presaditvah roženice in sledenju naših bolnikov, zbrani v evropskem registru ECCTR v obdobju od januarja 2019 do decembra 2020, kažejo na uspešnost roženičnih presaditev pri nas in primerljivost z evropskimi podatki tako glede na tkivo, kot glede na poseg. Izstopa visok odstotek posteriornih lamelarnih keratoplastik in dober izhod vidne ostrine. Upad endotelnih celic je sprejemljiv in primerljiv z evropskimi podatki; za iskanje faktorjev vpliva in znižanje upada so potrebne dodatne analize tkiva, postopkov in pooperativnih protokolov.

PURPOSE: To present a two-year follow-up of Slovenian patients in the European Cornea and Cell Transplantation Registry (ECCTR)

METHODS: Data of the patients, corneal donors, surgical procedures, and follow-up after corneal transplantation at the Eye Hospital University Medical Centre Ljubljana were prospectively collected and analysed in the ECCTR online registry for the time period from January 2019 to December 2020.

RESULTS: In the two-year observation period 162 surgeries were performed. Consistent with the European data, the most common indication for corneal transplantation at our institution was Fuchs' endothelial corneal dystrophy. The most common surgical procedures was Descemete membrane endothelial keratoplasty (DMEK) – 51%, followed by penetrant keratoplasty – 43%. Median donor and recepient age was 67 and 70 years, respectively. Median preoperative corrected distance visual acuity (CDVA) was 0.32 Snellen chart, and in 28% of eyes it was 0.5 or more. Postoperatively, median CDVA was 0.5, CDVA after DMEK being 0.8. Median endothelial cell density of corneal grafts was 2708 cells/mm^2 preoperatively and, independently of the corneal surgery type, 1680 cells/mm^2 after a two-year follow-up. The incidence rate of graft failures per person year was 0.04, mostly due to a primary graft failure.

CONCLUSION: The data analysis of the corneal transpantation surgery and follow-up of our patients in the ECCTR from January 2019 to December 2020 shows sucessful procedures in Slovenian patients and comparable results to European data conserning tissue and surgical procedures. There were seen a high percentage of posterior lamellar corneal transplantation surgery and good visual outcomes. Endothelial cell loss (ECL) is acceptable and comparable to the European data; to identify the factors and lower the ECL, further analysis of the tissue, procedures, and postoperative protocols are needed.

REFRAKTIVNI IZIDI IN VIDNA OSTRINA PO DMEK PRI PSEVDOFAKIH PACIENTIH S FUCHSOVO ENDOTELNO DISTROFIJO ROŽENICE

REFRACTIVE OUTCOMES AND VISUAL ACUITY AFTER DMEK IN PSEUDOPHAKIC PATIENTS WITH FUCHS' ENDOTHELIAL CORNEAL DYSTROPHY

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NAMEN: Oceniti refraktivne in roženične spremembe pri psevdofakih pacientih po primarni presaditvi Descemetove membrane in endotela (DMEK) zaradi Fuchsove endotelne roženične distrofije (*ang.* FECD).

METODE: Pregledali smo medicinsko dokumentacijo 17 zaporednih psevdofakih pacientov s simptomatsko dekompenzacijo endotela roženice (stopnja 2-3) zaradi FECD, pri katerih je bila narejena primarna DMEK operacija s strani istega kirurga (P.S.) med junijem 2016 in julijem 2020. Vključeni so bili bolniki z 1 letom spremljanja po DMEK-u brez predhodnih roženičnih operacij, bolezni mrežnice, glavkoma ali uveitisa. Primarni rezultat raziskave je bila refrakcija 1 in 12 mesecev po operaciji. Sekundarni rezultati so bili sprememba v ostrini vida, keratometrija, pahimetrija in gostota endotelijskih celic (*ang*. ECD).

REZULTATI: Časovni interval med predhodno operacijo sive mrene in DMEK-om je bil 18 mesecev (razpon od 5 do 60 mesecev). Pred DMEK operacijo (+0,08±1,2D), po enem (+0,03±1,0D) in 12. (+0,16±1,0D) mesecih se povprečne vrednosti refraktivne napake niso statistično pomembno spremenile. Najboljša korigirana vidna ostrina se je pomembno izboljšala: z 0,4 ± 0,3 logMAR pred DMEK-om na 0,04 ± 0,03 logMAR po 12. mesecih ($p < 0,001$, ANOVA). Povprečna debelina roženice se je pomembno zmanjšala s 672,8 ± 49,7 µm na 528,6 ± 54,4 µm po enem mesecu in 523,9 ± 47,1 µm po 12. mesecih ($p < 0,001$, ANOVA). Povprečne spremembe v sprednji keratometriji se po enem letu niso pomembno spremenile. Povprečna ECD po 12. mesecih je bila 2043 ± 486 celic/mm^2, brez primarnih odpovedi presadka.

ZAKLJUČEK: Kljub minimalni težnji k hipermetropnem refraktivnem pooperativnemu premiku, spremembe v sfernem ekvivalentu niso bile statistično značilne; tako je bil po primarnem DMEK-u pri psevdofakih pacientih dosežen dober refraktivni izid in pooperativna vidna ostrina.

PURPOSE: To evaluate refractive and corneal changes in pseudophakic patients undergoing primary Descemet membrane endothelial keratoplasty (DMEK) for Fuchs' endothelial corneal dystrophy (FECD).

METHODS: Medical records of 17 consecutive pseudophakic patients with symptomatic corneal endothelial decompensation (grade 2-3), who underwent primary DMEK for FECD performed by 1 surgeon (P.S.), between June 2016 and July 2020 were reviewed. Inclusion criteria were a minimum follow-up time of 1 year after DMEK, absence of previous corneal surgery, preoperative retinal disease, glaucoma or uveitis. The primary outcome was refraction at months 1 and 12 after surgery. Secondary outcomes were visual acuity, keratometry, pachymetry and endothelial cell density (ECD).

RESULTS: The median time interval between previous cataract surgery and DMEK was 18 months (range 5 to 60 months). The mean refractive error changes preoperatively (+0.08±1.2D), at 1 (+0.03±1.0D) and 12 (+0.16±1.0D) months were statistically not significant. Best corrected distance visual acuity was improved significantly: from 0.4 ± 0.3 logMAR to 0.04 ± 0.03 logMAR at 12 months ($p < 0.001$, repeated measures ANOVA). Mean corneal thickness decreased significantly from 672.8±49.7 µm to 528.6±54.4 µm at 1 month and 523.9±47.1 µm at 12 months ($p < 0.001$, repeated measures ANOVA). No statistically significant mean anterior keratometry changes were seen after 1 year. Mean ECD after 12 months was 2043±486 cells/mm^2, no primary graft failures occurred.

CONCLUSION: Despite a slight tendency toward a postoperative hyperopic shift, changes in spherical equivalent were not statistically significant and good refractive accuracy and visual acuity was obtained after primary DMEK in pseudophakic patients.

POSEBNOSTI PENETRANTNE KERATOPLASTIKE PRI KERATOGLOBUSU

PENETRATING KERATOPLASTY IN KERATOGLOBUS

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Keratoglobus je redka rožnična ektazija, ki je opredeljena predvsem z difuznim tanjšanjem in kroglastim izbočenjem roženice. Kirurško zdravljenje pri takšnih primerih je zahtevnejše, potrebne so določene modifikacije penetrantne keratoplastike. Posebnosti posega bomo predstavili na podlagi kliničnega primera 41-letnega moškega s stabilnim keratoglobusom na levem očesu in slabo vidno ostrino (štetje prstov 1m). Pri keratoplastiki smo uporabili večji (8,5mm) transplantat, z ekscentričnim položajem, s tem smo zajeli najbolj prizadeto stanjšano področje. Poleg gosteje razporejenega tekočega šiva smo v spodnjem temporalnem kvadrantu nastavili še 3 dodatne posamezne šive z 10/0 najlonsko nitjo. 2 dni pooperativno je prišlo do hipotonije in splitvitve sprednjega prekata, kar smo premostili s še enim enojnim šivom na področju puščanja. Drugih zapletov ni bilo. 6 mesec pooperativno je vidna ostrina 0,32 brez korekcije, z ugodnim roženičnim profilom za opasovanje poltrde leče in nadaljnjo izboljšanje vidne ostrine.

Penetrantna keratoplastika z večjim transplantatom ima pomembno vlogo pri kirurški obravnavi keratoglobusa, pri tem je še posebej pomembna tehnika stabilizacije presadka na periferno stanjšano roženico in sklero.

Keratoconus is a rare corneal ectasia, mainly characterized by diffuse thinning and spherical protrusion of the cornea. Surgical treatment for such cases is more challenging, and certain modifications to penetrating keratoplasty are required. The specifics of the procedure will be presented based on the clinical case of a 41-year-old man with stable keratoglobus in the left eye and poor visual acuity (counting fingers at 1m). In the keratoplasty, we used a larger (8.5mm) transplant with an eccentric position, thus covering the most affected thinning area. In addition to the densely arranged running suture, we also placed three additional individual sutures with 10/0 nylon thread in the lower temporal quadrant. Two days postoperatively, there was hypotony and splitting of the anterior chamber, which we overcame with another single suture in the leakage area. There were no other complications. Six months postoperatively, the visual acuity was 0.32 without correction, with a favorable corneal profile for fitting a rigid gas-permeable contact lens and set for further improvement in visual acuity.

Penetrating keratoplasty with a larger transplant plays an important role in the surgical management of keratoconus, where stabilizing the graft to the peripheral thin cornea is especially critical.

TRANSPLANTACIJE AMNIJSKE MEMBRANE PRI OBRAVNAVI BOLNIKOV Z ROŽENIČNO PATOLOGIJO ALI BOLEZNIJO OČESNE POVRŠINE – PREGLED

USE OF AMNIOTIC MEMBRANE TRANSPLANTS FOR CORNEAL INDICATIONS - REVIEW

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NAMEN: Pregled indikacij za, uspešnost operacij in število ponovitev transplantacije amnijske membrane pri bolnikih z roženično patologijo ali boleznijo očesne površine.

METODE: Retrospektivna raziskava bolnikov, ki so imeli transplantacijo z amnijsko membrano zaradi sprememb roženice ali bolezni očesne površine na Očesni Kliniki, Univerzitetni klinični centerLjubljana v letih 2022-2023. Po pregledu podatkov je bilo v analizo vključenih 37 bolnikov, 38 oči, ki so imeli enkrat ali večkrat (opravljenih 63 operativnih posegov) transplantacijoz amnijsko membrano. Pregledali smo indikacije za operacijo in ponovitve operacij, potrebe po dodatnem zdravljenju in izhod z zacelitvijo ali potrebo po tektonski transplantaciji roženice.

REZULTATI: Najpogostejša indikacije za amnijsko membrano so bile: bolezen roženice v 80 % [63], bolezni očesne površine in adneksov v 15 % [12]. Ponovni posegi oz. presaditve amnijske membrane so bile potrebne le pri boleznih roženice - pri 22 % [14] bolnikov, in sicer zaradi dislokacije membrane, večkratno (>dvakrat) operacijo pa je potrebovala skoraj polovica teh bolnikov.

ZAKLJUČKI: Pripravki amnijske membrane so presadki alogenega tkiva, ki se pogosto uporabljajo v oftalmologiji zaradi svojih regenerativnih lastnosti, zmanjševanja površinskega vnetja, brazgotin in bolečine. Presaditve amnijske membrane smo v opazovanem obdobju na naši ustanovi najpogosteje izvedli zaradi naslednjih patologij roženice: perzistentna roženična razjeda in kemična poškodba očesa. Pogosto so zaradi dislokacije membrane ali potrebe po podaljšanem delovanju potrebne ponovitve. V opazovanem obdobju je prišlo do zacelitve, s čimer smo preprečili urgantno tektonsko keratoplastiko. Trije pacienti so kljub zdravljenju potrebovali urgentni PKP, pri dveh pa je bila opravljena evisceracija zaradi napredovalega vnetja.

PURPOSE: Amniotic membranes grafts (AMG) are allogenous tissue grafts used abundantly in ophthalmology for its regenerative properties, reducing surface inflammation, scarring and pain. We present a review of indications, the frequency of primary surgery success and the need for repetitive surgeries in order to objectify patient burden due to amniotic transplant surgery for corneal disease,

METHODS: Retrospective analysis of patients records in the years of 2022-2023 that underwent any kind of ophthalmological procedure for corneal pathology with amniotic membrane in the University Eye Clinic Ljubljana. After review of patient data a total of 37 patients were included in the analysis. Patients underwent 63 surgical procedures with amniotic membrane transplants.

RESULTS: The most common indication for amniotic membrane is corneal disease. Repetitive amniotic membrane transplantation was needed for corneal disease indication in 22% of these patients, namely due to graft detachment and the surgery was repeated more than 2 times in almost half of these patients.

CONCLUSION: Amniotic membrane transplants are often used for corneal indications, where repetitive surgeries are often needed and are a useful therapeutic approach in preventing more invasive surgical treatment, such as emergency keratoplasty or evisceration.

MRT – MULTISPEKTRALNA REFRAKTIVNA TOPOGRAFIJA
MRT – MULTISPECTRAL REFRACTIVE TOPOGRAPHY

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NAMEN: Na primerih želim predstaviti novo tehnologijo za merjenje perifernega defokusa na mrežnici. Ta tehnologija bo verjetno vplivala na izboljšano diagnozo in zdravljenje naraščajoče kratkovidnosti.

OPIS: Multispektralna fundus kamera MSI C2000 (THONDAR, Kitajska) je sposobna meriti periferno refrakcijsko topografijo (MRT) mrežnice. Te meritve nam dajo refrakcijsko stanje mrežnice.

Multispektralna refrakcijska topografija (MRT) je nov instrument, ki uporablja multispektralno slikovno tehnologijo z računalniškim izračunom globine, multispektralne slike, ki jih zajame leča, primerja in analizira, dejanske lomne vrednosti vsakega pikla, da se lahko uporablja ustreznen izračun topografije.

PRIMERI: Predstavil bom grafične in numerične vrednosti refrakcijskih topografskih kart oči z emetropijo, kratkovidnostjo, visoko kratkovidnostjo in po laserski refraktivni operaciji.

PURPOSE: I want to present a new technology for measuring peripheral defocus on the retina using examples. This technology is likely to influence the improved diagnosis and treatment of increasing myopia.

DESCRIPTION: Multispectral fundus camera MSI C2000 (THONDAR, China) is capable to measure peripheral refractive topography (MRT). These measurements give us the refractive state of the retina.

Multispectral refractive topography (MRT) is a new instrument that uses multispectral imaging technology through a computer depth calculation, the multispectral images captured by the lens can be compared and analyzed, and the actual refractive values of each pixel can be used to draw the corresponding topographic map.

EXAMPLES: I will present graphical and numerical values of refractive topography maps in emmetropic, myopic, high myopic and post laser refractive surgery eyes.

SODOBNI PRISTOP ZDRAVLJENJA KERATOKONUSA Z ROŽENIČNIM CROSS-LINKINGOM

CORNEAL CROSS-LINKING FOR TREATMENT OF KERATOCONUS: STATE OF THE ART

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NAMEN: Predstaviti značilnosti sodobnega zdravljenja keratokonusa z metodo roženični cross-linking (CXL), indikacije, protokole in naše izkušnje.

METODE: Retrospektivna analiza določenih značilnosti pacientov, ki so bili zaradi keratokonusa operirani z metodo CXL v Očesni centru Irman med letoma 2007 in 2022. Uporabljali smo različne protokole CXLa, pri katerih smo v vseh primerih odstranili epitel (epi-off): (1) standardni Dresdenski protokol (30 min 3 mW/cm^2 UVA), (2) pospešeno obliko CXL (10 minut 9 mW/cm^2 UVA), (3) debelini roženice prilagojen CXL pri tanjših roženicah ter (4) pospešeni CXL + , kjer se poleg CXL opravi še delna (±topografsko vodena) regularizacija roženice z excimer laserjem. Opazovali smo spremembe v vidni ostrini, najtanjši debelini roženice, največji ukrivljenosti roženice (Kmax) ter kazalnikom Belin-Ambrósio indeks deviacije (Bad D) v času pred in po opravljeni operaciji, da bi ugotovili vpliv posega na vidno funkcijo in stabilnost roženice.

REZULTATI: V analizo je bilo zajetih 199 pacientov starih med 11 in 53 let, ki smo jim zaradi napredovanja keratokonusa opravili CXL na 305 očeh. Najboljša korigirana vidna ostrina se je v povprečju ohranila ali izboljšala glede na predoperativno vrednost pri 86 % pacientov. Debelina roženice se ob zadnji kontroli ni pomembno spremenila glede na izhodišče pred operacijo. Opazili smo trend zmanjševanja Kmax in indeksa BAD D.

ZAKLJUČEK: CXL je metoda, ki omogoča upočasnitev ali ustavitev napredovanja keratokonusa. Vpliva tudi na obliko roženice in vidno ostrino. Različni protokoli CXLa nam danes omogočajo individualen pristop in boljši funkcionalen rezultat.

PURPOSE: To present modern approach to treatment of keratoconus with corneal collagen cross-linking (CXL); indications, evaluation of progression, protocols and experience with CXL in Eye Clinic Irman.

METHODS: Based on retrospective study, where analysis of specific features of patients who were operated with CXL in Eye Clinic Irman between the years 2007 and 2022 was conducted, diagnostic approach, keratoconus progression, follow-up, treatment protocols and results were evaluated. Each patient underwent CXL with epithelial removal (epi-off) using: (1)standard Dresden protocol 30 minutes UVA irradiance at 3 mW/cm^2 , (2) accelerated CXL (10-minute ultraviolet A irradiance at 9 mW/cm^2), (3) thin cornea protocol, where irradiance is adapted to individual corneal stroma thickness and (4) CXL+ protocol, where excimer laser is used to partially regularise corneal surface together with accelerated CXL. Changes in visual acuity, thinnest pachymetry, maximal keratometry (Kmax) and Belin-Ambrosio deviation index (Bad D) were observed to evaluate the effect of CXL on visual function and corneal stability.

RESULTS: 305 eyes of 199 patients aged from 11 to 53 years treated with CXL for keratoconus have been enrolled in our study. Best spectacle corrected visual acuity stayed the same or improved in 86 % of patients. Thinnest pachymetry compared to preoperative values has not changed significantly at the last visit. A trend towards reduction of Kmax and Bad D has been observed.

CONCLUSION: CXL is a method that is effective in stabilising keratoconus. It affects corneal shape and visual function. Individualised protocols may allow greater functional results.

KONFOKALNA MIKROSKOPIJA ROŽENICA: ORODJE ZA ODKRIVANJE IN SLEDENJE NEVRODEGENERACIJE PRI SLADKORNIH BOLNIKIH

CORNEAL CONFOCAL MICROSCOPY: A TOOL FOR DETECTION AND MONITORING OF NEURODEGENERATION IN DIABETES PATIENTS

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NAMEN: Namen raziskave je bil prikazati uporabo in vivo konfokalne mikroskopije roženice (IVKM) za klinično diagnosticiranje nevrodegeneracije pri sladkornih bolnikih.

METODE: Slikanje roženice z IVKM je bilo opravljeno z uporabo Heidelberg tomografa (Heidelberg Engineering, Heidelberg, Nemčija). Slike subbazalnega živčnega pleteža so bile analizirane s programom za analizo živčnih vlaken ACCMetrics (Univerza v Manchestru, Manchester, Združeno kraljestvo) za kvantificiranje: 1. gostote roženičnih živčnih vlaken (CNFD-skupno število glavnih živčnih vlaken na mm^2); 2. gostote razvejanosti roženičnih živčnih vlaken (CNBD-skupno število vej iz glavnih živčnih vlaken na mm^2); 3. dolžine roženičnih živčnih vlaken (CNFL-skupna dolžina glavnih živčnih vlaken na mm^2) in 4. zvitosti živčnih vlaken (TC–koeficient zvitosti živčnih vlaken). Za vse meritve smo izračunali mediane vrednosti in razpon ter jih primerjali.

REZULTATI: V raziskavo smo vključili 9 oči 6 bolnikov s sladkorno boleznijo in blago do zmerno diabetično retinopatijo, mediana starosti je bila 67 (58-73) let. V kontrolno skupinio smo vključili 3 oči (3 zdravi bolniki), mediana starosti je bila 71 (68-81) let. Pri osebah s sladkorno boleznijo smo v primerjavi z zdravimi izmerili manjšo gostoto živčnih vlaken subbazalnega pleteža (CNFD 24,8 (14,9-49,6) vlaken/mm^2, napram 29,7 (14,9-99,2) vlaken/mm^2) in večjo razvejanost (CNBD 44,6 (14,9–54,5) vej/mm^2, napram 19,8 (0–34,7) vej/mm^2). Osebe s sladkorno boleznijo so imele povprečno statistično značilno krajša živčna vlakna (CNFL 12,1 (9,1-55,1) mm/mm^2 kot zdravi (CNFL 33,2 (15,7–69,5) mm/mm^2) (Mann-Whitneyev test, $p<0,05$). Koeficient zvitosti je bil v obeh skupinah v širokem razponu in nespecifičen (TC sladkorni bolniki 0,023-0,154, TC zdravi 0,044-0,091).

ZAKLJUČEK: Pri osebah s saldkorno boleznijo smo v primerjavi z zdravimi z IVKM prikazali manjšo gostoto živčnih vlaken, večjo razvejanost in krajša vlakna subbazalnega pleteža roženice, kar kaže na prisotnost periferne nevropatije. S to klinično priskovalno metodo lahko prikažemo zgodnje stadije periferne diabetične nevropatije, saj je izguba roženičnih živčnih vlaken predstopnja diabetične nevropatije in se poslabša s progresom bolezni. Metaanaliza študij je že podprla uporabo IVKM v kliničnih študijah, koristna pa bi bila tudi za klinično diagnozo, prognozo in spremljanje diabetične polinevropatije; za standardizacijo postopkov so potrebne dodatne raziskave.

PURPOSE: The aim of this study was to demonstrate the use of in vivo confocal corneal microscopy (IVCM) for the clinical diagnosis of neurodegeneration in patients with diabetes.

METHODS: Corneal imaging with IVCM was performed using a Heidelberg tomograph (Heidelberg Engineering, Heidelberg, Germany). Images of the subbasal nerve plexus were analysed using the ACCMetrics nerve fibre analysis software (University of Manchester, Manchester, UK) to quantify: 1. corneal nerve fibre density (CNFD- a total number of main nerves per mm^2); 2. corneal nerve branch density (CNBD- a total number of main nerve branches per mm^2); 3. corneal nerve fibre length (CNFL- a total length of main nerves per mm^2); and 4. corneal nerve fibre tortuosity (TC- tortuosity coefficient). Median values and ranges were calculated for all measurements and compared.

RESULTS: The study included 9 eyes of 6 patients with diabetes and mild to moderate diabetic retinopathy, the median age was 67 (58-73) years. The control group included 3 eyes (3 healthy patients), the median age was 71 (68-81) years. In patients with diabetes, we measured a lower density of subbasal plexus nerve fibres (CNFD 24.8 (14.9-49.6) fibres/mm^2 vs. 29.7 (14.9-99.2) fibres/mm^2) and a higher branch density (CNBD 44.6 (14.9-54.5) branches/mm^2 vs. 19.8 (0-34.7) branches/mm^2) compared to healthy subjects. Patients with diabetes had on average statistically significantly shorter nerve fibres (CNFL 12.1 (9.1-55.1) mm/mm^2) than healthy subjects (CNFL 33.2 (15.7-69.5) mm/mm^2 (Mann-Whitney test, $p<0.05$). The tortuosity coefficient in both groups was within a wide range and non-specific (TC diabetic patients 0.023-0.154, TC healthy subjects 0.044-0.091).

CONCLUSION: In patients with diabetes, IVCM showed a lower density of nerve fibers, higher branch density and shorter fibers of the subbasal corneal plexus, which indicates the presence of peripheral neuropathy. With this clinically relavant method, we can demonstrate the early stages of peripheral diabetic neuropathy, as the loss of corneal nerve fibers is a precursor to diabetic neuropathy and worsens with the progression of the disease. A meta-analysis of the studies has already supported the use of IVCM in clinical studies, and it would also be useful for the clinical diagnosis, prognosis and monitoring of diabetic polyneuropathy. However, further research is needed to standardize procedures.

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KAKO LAHKO IZJEMNO UDOBJE IN STABILNOST TOTAL® TORIČNIH KONTAKTNIH LEČ ZADOVOLJIJO PRIČAKOVANJA VAŠIH PACIENTOV Z ASTIGMATIZMOM TER POHITRIJO IN POENOSTAVIJO PREDPIS

DISCOVER HOW ULTIMATE COMFORT WHEN MEETS ULTIMATE STABILITY IN TOTAL® TORIC LENSES CAN SPEED UP AND SIMPLIFY THE FITTING PROCESS AS WELL AS MEET THE EXPECTATIONS OF THE ASTIGMATIC PATIENTS

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NAMEN: Torični segment kontaktnih leč je v zadnjih letih v porastu. Kar 47 % ametropičnih pacientov ima vsaj na enem očesu cilinder večji od 0,75 in le malo jih je natančno korigiranih. Predstavljeni novi materiali predstavljajo možnost za učinkovito korekcijo astigmatizma.

METODE: Predavanje je povzetek recenziranih raziskav na področju astigmatizma s posebnim poudarkom na materialih delefilcon A in lehfilcon A.

REZULTATI: Po analizi priložnosti za uporabo toričnih kontaktnih leč za zdravnike in paciente se poglobimo v tehnologijo materialov leč, ki nam pokaže pomen površin z vodnim gradientom (Water Gradient®) na udobno nošnjo le teh. Kot dejavnika, ki vplivata na udobje sta izpostavljena stabilnost solznega filma ter zmanjšana adhezija depozitov na leče (bakterih, lipidov, kozmetike). Nato je torična zasnova Precision Balance 8|4® razložena s podatki, ki prikazujejo stabilnost in zelo visok odstotek uspešnosti prvega predpisa. Končno rezultati študij v zvezi z izjemno vlažno površino leče in odlično prepustnostjo kisika vodijo do zaključka, da so predstavljeni materiali kontaktnih leč zelo udobni za uporabnika in zagotavljajo dodatne prednosti s filtri za ultravijolično (UV) ter visokoenergijsko vidno svetlobo (HEVL).

ZAKLJUČEK: Astigmatizem je v porastu in z razvitimi novimi materiali ter tehnologijami je mogoče tudi pacientom z astigmatizmom, ki želijo svoj vid korigirati s kontaktnimi lečami ponuditi zelo učinkovite rešitve.

PURPOSE: The toric segment of contact lenses has been on the rise in recent years. As many as 47% of ametropic patients have a cylinder greater than 0.75 in at least one eye, and only a few of them are accurately corrected. The presented new materials represent a possibility for effective correction of astigmatism.

METHODS: The lecture is a summary of peer-reviewed research in the field of astigmatism with special emphasis on the materials delefilcon A and lehfilcon A.

RESULTS: After analyzing the opportunities for the use of toric contact lenses for doctors and patients, we delve into the technology of lens materials, which shows us the importance of surfaces with a water gradient (Water Gradient®) for comfortable wearing. The stability of the tear film and reduced adhesion of deposits to the lenses (bacteria, lipids, cosmetics) are highlighted as factors affecting comfort. Next, the toric design of the Precision Balance 8|4® is explained with data showing the stability and very high percentage of success of the first fits. Finally, the results of the studies regarding the superior wetted surface of the lens and excellent oxygen permeability lead to the conclusion that the contact lens materials presented are comfortable for the wearer and provide additional benefits with filters for ultraviolet (UV) and high energy visible light (HEVL).

CONCLUSION: Astigmatism is on the rise, and with the development of new materials and technologies, it is now possible to offer very effective solutions to patients with astigmatism who want to correct their vision with contact lenses.

Na povabilo družbe INSPHARMA | Invited by INSPHARMA

IMUNOPATOLOGIJA BOLEZNI SUHEGA OČESA IN MOŽNOSTI TOPIKALNEGA ZDRAVLJENJA

IMMUNOPATHOLOGY OF DRY EYE DISEASE AND CURRENT TOPICAL TREATMENT OPTIONS

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NAMEN: Predstaviti imunopatologijo bolezni suhega očesa (DED, *ang.* Dry Eye Disease) in trenutne možnosti lokalnega zdravljenja.

METODE: Pregled relevantne literature na PubMed.

REZULTATI: DED je multifaktorska bolezen očesne površine za katero je značilna izguba homeostaze solznega filma s spremljajočimi očesnimi simptomi, pri katerih imajo nestabilnost in hiperosmolarnost solznega filma, vnetje in poškodba očesne površine ter nevrosenzorične nepravilnosti etiološko vlogo (*ang.* Tear Film and Ocular Surface Society's International Dry Eye Workshop reports). Vnetje igra ključno vlogo pri patogenezi DED. Tako lahko sprožilni dogodek povzroči izgubo homeostaze solznega filma in aktivira nespecifični prirojeni imunski odziv, kateremu lahko sledi aktivacija pridobljenega imunskega odziva. Iztirjen očesni imunski odziv vzdržuje začaran krog vnetja, kar povzroči poškodbo očesne površine. Terapija DED se prične z vzgojo bolnika, prilagoditvijo dejavnikov okolja, uporabo umetnih solz (brez konzervansov) in nego vek. Če ti začetni ukrepi ne zadostujejo, lahko protivnetna terapija prekine začaran krog DED. Protivnetna zdravila so topični kortikosteroidi, ciklosporin, azitromicin ter sistemski derivati tetraciklinov.

ZAKLJUČEK: Dolgotrajen vnetni odziv na očesni površini, v kolikor ni prekinjen, lahko vodi v kronične bolezenske spremembe na očesni površini. Tako je ustrezna izbira protivnetne terapije ključna za zdravljenje bolnikov z DED.

PURPOSE: To present the immunopathology of dry eye disease (DED) and current topical treatment options.

METHODS: Relevant literature search using PubMed.

RESULTS: DED is a multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles (Tear Film and Ocular Surface Society's International Dry Eye Workshop reports). Inflammation is an important driver of DED pathogenesis. Loss of tear film homeostasis due to an initial insult can initiate a nonspecific innate immune response, which can be followed by a more prolonged adaptive immune response that can result in a vicious cycle of chronic inflammatory DED. Dysregulated ocular immune responses result in ocular surface damage. DED therapy starts with education, modification of environment, topical lubrication (preservative free artificial tears) and lid hygiene. If these initial measures are insufficient, effective anti-inflammatory therapy may help patients exit this cycle. Anti-inflammatories include topical corticosteroids, cyclosporine, azythromycin and systemic tetracycline derivates.

CONCLUSION: Sustained inflammatory response on the ocular surface, if left untreated, can lead to chronic disease. Thus, appropriate anti-inflammatory treatment is key to successful DED management.

Na povabilo družbe Bausch&Lomb | Invited by Bausch&Lomb

ALEZAXIN 0,5 MG/ML KAPLJICE ZA OKO, RAZTOPINA V ENOODMERNEM VSEBNIKU

ALEZAXIN 0.5 MG/ML EYE DROPS, SOLUTION IN SINGLE-DOSE CONTAINER

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UVOD: Alezaxin je nova terapevtska možnost na našem trgu. Aktivna sestavina je azelastinijev klorid (azelastin), derivat ftalazinona, močna dolgodelujoča protialergijska spojina, ki deluje kot selektivni antagonist histaminskih receptorjev H1. Pakiran je v farmacevtski obliki kapljic za oko, v enoodmernem vsebniku, s pH med 5,5 in 6,5 in osmolalnostjo med 250 in 350 mosmol/kg.

PODROČJA UPORABE: Uporablja se za zdravljenje in preprečevanje simptomov sezonskega alergijskega konjunktivitisa (pekoče, solzne in srbeče oči) pri odraslih in otrocih, starejših od 4 let, ter za zdravljenje simptomov nesezonskega (celoletnega) alergijskega konjunktivitisa pri odraslih in mladostnikih, starejših od 12 let. Ni primeren za zdravljenje vnetij oči.

MEHANIZEM DELOVANJA: Mastociti ob stiku z antigenom pospešeno sproščajo vnetno snov histamin in sprožijo imunsko reakcijo. Azelastin deluje prek trojnega mehanizma delovanja. Zavira histaminske receptorje in s tem zmanjšuje alergijske simptome (srbenje, pordelost oči). Hkrati stabilizira imunske celice in zmanjša sproščanje histamina ter ima dodaten protivnetni učinek.

NAČIN UPORABE: Kapljice za oko. Običajni odmerek pri odraslih in otrocih, starih 4 leta in več, je ena kapljica v vsako oko dvakrat na dan. Pri hudih simptomih se lahko uporabijo do štirikrat na dan. Ob pričakovani izpostavljenosti alergenu ga dajemo profilaktično. Uporabljamo ga redno, dokler simptomi ne izginejo. Pri sezonskem in nesezonskem alergijskem konjunktivitisu je zdravljenje omejeno na največ 6 tednov. Kontaktne leče je treba pred kapljanjem odstraniti.

ZAKLJUČEK: Alezaxin kapljice za oko delujejo hitro in zanesljivo proti akutnim simptomom sezonskega in nesezonskega alergijskega konjunktivitisa. Zdravilo je dobro prenosljivo in ima dolgotrajen in zanesljiv učinek. Alezaxin ima antihistaminske učinke, ki zagotavljajo takojšnje olajšanje, stabilizacijo mastocitov ter zaviranje izražanja in aktivacije protivnetnih mediatorjev.

INTRO: Alezaxin is a new therapeutic solution in our market. Active ingredient of azelastine hydrochloride, phthalazinone derivative is classified as a potent long-acting anti-allergic compound with selective H1 antagonist properties. Packed in pharmaceutical form of eye drops solution in single-dose container, with pH between 5.5 and 6.5 and osmolality between 250 and 350 mosmol/kg.

AREAS OF APPLICATION: New option for quick acute help for hay fever, flower pollen, house dust mites, animal hair or other foreign substances that can cause allergic reactions such as burning, watery and itchy eyes. Used for the treatment and prevention of symptoms of seasonal allergic conjunctivitis in adults and children from 4 years of age, as well as for the treatment of symptoms of non-seasonal (perennial) allergic conjunctivitis in adults and adolescents from 12 years. It is not suitable for treating infections of the eye.

MECHANISM OF ACTION: In the case of allergies, mast cells increasingly release the inflammatory messenger substance histamine and thus trigger an immune reaction. Azelastine works through 3-fold mechanism of action. It inhibits the histamine receptors and reduces allergic symptoms (itching, reddening of the eyes). At the same time it stabilizes the immune cells and reduces the release of histamine. Azelastine also works anti-inflammatory.

METHOD OF ADMINISTRATION: For ocular use. The usual dosage in adults and children 4 years and older is one drop in each eye twice daily, although they can be used up to four times a day for severe symptoms. If allergen exposure is anticipated Azelastine should be administered prophylactically, prior to the exposure. Eye drops should be used regularly until the symptoms have disappeared. The duration of any course should be limited to a maximum of 6 weeks in seasonal and nonseasonal allergic conjunctivitis. Contact lenses are to be removed before the dropping. CONCLUSION: Alezaxin eye drops work quickly and reliably against acute symptoms of allergy. It is well-tolerated drug in both seasonal allergic symptoms such as hay fever and non-seasonal allergic conjunctivitis. It has a long-lasting and reliable effect. Alezaxin has antihistaminic effects providing immediate relief, mast cell stabilization and inhibition of expression and activation of anti-inflammatory mediators.

EKSPLANTACIJA LEČE ARTISAN
ARTISAN LENS EXPLANTATION

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NAMEN: Analizirati postoperativne rezultate in zaplete pri pacientih po implantaciji Artisan leče, katerim je bila v Očesnem centru Irman opravljena eksplantacija Artisan leče in operacija zamenjava naravne očesne leče.

METODE: V tej retrospektivni študiji smo pregledali podatke 23 oči (17 zaporednih pacientov od leta 2017 do 2022), pri katerih je bila povprečno 16,4 let po implantaciji Artisan leče opravljena eksplantacija te leče in operacija zamenjava naravne očesne leče. Zanimalo nas je, kakšen vpliv ima taka operacija na gostoto roženičnih endotelnih celic in kakšni so najpogostejši zapleti po operaciji.

REZULTATI: V 9 primerih je bil vzrok za odločitev za operacijo pojav sive mrene, v 10 padec gostote endotelnih celic, v 4 primerih pa oboje. Pri 17 očeh je bil po operaciji prisoten astigmatizem proti pravilu (povprečno -1,80 D). Pri 9 očeh se je po operaciji gostota endotelnih celic znižala. V enem primeru je bila po operaciji potrebna vitrektomija zaradi odstopa mrežnice, v enem primeru se je pojavila epimakularna membrana s trakcijo, v dveh primerih je prišlo do dekompenzacije roženičnega endotela, po kateri je bila potrebna transplantacija roženice.

ZAKLJUČEK: Eksplantacija Artisan leče kombinirana z operacijo zamenjave naravne očesne leče je zahtevna operacija, po kateri pogosto pride do zapletov, najpogosteje do dekompenzacije roženičnega endotela.

PURPOSE: To analyse postoperative results and complications in patients after Artisan lens implantation who underwent Artisan lens explantation and crystalline lens exchange in Eye Clinic Irman.

METHODS: In this retrospective study, data of 23 eyes (seventeen consecutive patients trough years 2017 - 2022) which underwent Artisan lens explantation and crystalline lens exchange on average 16,4 years post Artisan lens implantation were analyzed. Corneal endothelial cell density and complications was evaluated.

RESULTS: The indication for surgery was cataract formation in 9 eyes, drop in endothelial cell count in 10 eyes and both in 4 eyes. Against-the-rule astigmatism was present in 17 post-surgery eyes. Drop in endothelial cell count post-surgery was noted in 9 eyes. In 1 case vitrectomy due to retinal detachment was performed, in 1 case epimacular membrane was noted and in 2 cases corneal transplantation was performed due to corneal endothelial decompensation.

CONCLUSION: Combined Artisan lens explantation and crystalline lens exchange is a demanding surgery often accompanied with complications, most often with corneal endothelium decompensation.

IMPLANTACIJA TORIČNIH INTRAOKULARNIH LEČ BREZ MARKIRANJA OSI IMPLANTACIJE

MARKERLESS TORIC IOL IMPLANTATION

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NAMEN: Prikazati rezultate in kirurške tehnike implantacije toričnih intraokularnih leč (IOL) brez predhodnega označevanja osi postavitve leče in s sistemom projeciranja podatkov v optični kirurški mikroskop.

METODE: 194 oči od 134 bolnikov je bilo vključenih v statistično analizo. Pri vseh bolnikih je bila opravljena operacija sive mrene in implantacija torične IOL v OKC Pfeifer. Ugotavljali smo najbolšo nekorigirano in korigirano vidno ostrino ter velikost rezidualnega astigmatizma. % oči v +/- 0.5D rezidualne sfere, cilindra in sferičnega ekvivalenta je prikazan.

REZULTATI: Povprečna najboljša korigirana vidna ostrina pred operacijo je bila 0.5, po operaciji je bila povprečna najboljša korigirana vidna ostrina 1.0; Predoperativni roženični astigmatizem [DCyl] 1.8, poopertaivni rezidualni astigmatizem [DCyl] - 0.31; pooperativna rezidualna sfera [DSph] +0.15; pooperativni sferični ekvivalent 0.003. 87.87% bolnikov je imelo astigmatizem manjši od 0.5 DCyl, 87.12% jih je bilo v +/- 0.5 Dsph in 86.36% jih je imelo sferni ekvivalent manjši od +/- 0.5D .

ZAKLJUČEK: Po operaciji je bil pooperativni astigmatizem nizek, pri bolnikih, ki so bili operirani z vstavitvijo torične IOL (Zeiss AT TORBI 709 M/MP). Intraokularne leče so izredno natančno ležale v osi želejene implantacije in so bile tudi zelo rotatorno stabilne. Bolniki so imeli odlično pooperativno nekorigirano vidno ostrino.

PURPOSE: To present results and surgical technique using markerless toric IOL alignment and data injection function in patients undergoing toric IOL implantation.

METHODS: 194 eyes of 134 patients are presented. All patients underwent cataract surgery and toric IOL implantation at OKC Pfeifer. Statistical analysis was performed to determine uncorrected and best corrected postoperative visual acuity (UCDVA / BCDVA) and amount of residual astigmatism. % of eyes in +- 0.5D of postop. sphere, spherical equivalent an astigmatism was calculated.

RESULTS: Mean preoperative BCDVA was 0.5, postoperative BCDVA was 1.0; Preoperative corneal astigmatism [DCyl] 1.8, postop. residual astigmatism [DCyl] - 0.31; postop residual sphere [DSph] +0.15; postoperative spherical equivalent 0.003. 87.87% of eyes were within 0.5 DCyl, 87.12% were within +- 0.5 Dsph and 86.36% +- 0.5D of spherical equivalent.

CONCLUSION: The residual postoperative astigmatism was extremely low in patients with corneal astigmatism who underwent cataract surgery and toric IOL (Zeiss AT TORBI 709 M/MP) implantation. Toric lenses were perfectly aligned and showed excellent rotational stability after implantation. Patients uncorrected visual acuity improved significantly and consequently also the quality of life.

DOLGOROČNI REZULTATI PO IMPLANTACIJI UMETNE ŠARENICE Z RAZLIČNIMI KIRURŠKIMI TEHNIKAMI

LONG-TERM RESULTS AFTER ARTIFICIAL IRIS IMPLANTATION WITH VARIOUS SURGICAL TECHNIQUES

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NAMEN: Analizirati klinične rezultate bolnikov pri katerih je bila opravljena rekonstrukcija sprednjega segmenta z implantacijo umetne šarenice (*ang*. AI) z uporabo različnih kirurških tehnik.

METODE: Izvedli smo retrospektivno študijo v kateri smo ocenili klinične rezultate 18 zaporednih pacientov (13 moških in 5 žensk) pri katerih je bila opravljena rekonstrukcija sprednjega segmenta z implantacijo AI (HumanOptics) v afakih ali psevdofakih očeh, bodisi s kapsularno podporo ali brez nje, zaradi delne ali popolne aniridije. Vse bolnike je operiral en sam kirurg z uporabo štirih različnih tehnik: a) implantacija v kapsularno vrečko, b) tehnika štirih šivov, c) modificirana tehnika Canabrava in d) tehnika intraskleralne fiksacije z dvojno iglo. Spremljali smo najboljšo korigirano vidno ostrino, očesni pritisk, centracijo umetne šarenice in estetske rezultate. Z uporabo OCT smo spremljali odsotnost makularne patologije. Bolnike smo spremljali vsaj eno leto in največ 8 let po operaciji (mediana 5,5 leta).

REZULTATI: Najpogostejši indikaciji za implantacijo AI sta bili okvara šarenice zaradi travme (n=16) in prirojena aniridija (n=2). Povprečna najboljša korigirana vidna ostrina pred operacijo je bila 0,2 (logMAR 0,7), očesni pritisk 18 mmHg. Povprečna pooperativna najboljša korigirana vidna ostrina je bila 0,5 (logMAR 0,3), očesni pritisk 16 mmHg. Pooperativni UBM je v večini primerov pokazal ustrezen položaj AI z dobrim estetskim rezultatom. Z OCT nismo odkrili nobene pooperativne makularne patologije. Najpogostejši pooperativni zapleti so bili prehodno povišan očesni pritisk 5/18 (28 %), dekompenzacija roženice 2/18 (11 %), decentracija AI pri 1/18 (6 %), ki smo jo pravilno pozicionirali z nastavitvijo 9,0 polipropilenskih šivov.

ZAKLJUČEK: Implantacija umetne šarenice je varen postopek z dobrim funkcionalnim in estetskim rezultatom. Pomembna je pravilna implantacija umetne šarenice (z ali brez IOL), tako da ni stika med umetno šarenico in ostalimi intraokularnimi strukturami. Pomembno je tudi dolgotrajno spremljanje pacientov in, v kolikor so potrebni, pravočasni dodatni kirurški posegi.

PURPOSE: To analyze clinical outcomes of patients undergoing reconstructive anterior segment surgery with artificial iris (AI) implantation using various surgical techniques.

METHODS: We conducted a retrospective study evaluating clinical outcomes of 18 consecutive patients (13 male and 5 female) undergoing reconstructive iris surgery with the implantation of an AI (HumanOptics) in aphakic or pseudophakic eyes, either with or without capsular support due to partial or total aniridia. All patients were operated by a single surgeon using four different techniques: a) implantation into capsular bag, b) four floating suture technique, c) modified Canabrava and d) dual needle intrascleral fixation technique. BCVA, IOP, AI centration, aesthetic results, absence of inflammation and macular pathology using OCT were evaluated with a follow up of at least one year and up to 8 years postoperatively (median 5,5 years).

RESULTS: The most common indications for AI implantation were iris defects due to trauma (n=16) and congenital aniridia (n=2). Mean BCVA pre-op was 0.2 (logMAR 0.7), with an IOP of 18 mmHg. Mean postoperative BCVA was 0.5 (logMAR 0.3) with an IOP of 16 mmHg. Postoperative UBM showed appropriate AI position with a good cosmetic outcome in most cases. No macular pathology was detected using OCT. The most common postoperative complications were temporary elevated intraocular pressure 5/18 (28%), corneal decompensation 2/18 (11%), AI decentration in 1/18 (6%), which was successfully repositioned by adjusting 9.0 polypropylene sutures.

CONCLUSION: AI implantation is a safe procedure with good functional and aesthetic outcomes. Proper implantation of AI alone or in combination with IOL is essential. There should be no contact between AI and intraocular structures. Long-term monitoring and timely interventions, if indicated, are important.

»PRIROBNICA« - VSESTRANSKO UPORABEN KIRURŠKI TRIK ZA MINIMALNO INVAZIVNO FIKSACIJO NA SKLERO

»THE FLANGE« - A MULTIUSE TRICK FOR MINIMALLY INVASIVE SCLERAL FIXATION

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NAMEN: V zadnjih letih se uporablja tehnika fiksacije intraokularnih leč (IOL) in drugih intraokularnih elementov na sklero s pomočjo tvorbe t.i. »flange-a« (slov. »prirobnice«). Prirobnico ustvarimo s termokavterizacijo PMMA haptik trodelnih IOL ali s kavterizacijo polipropilenske niti. Predstavljamo serijo primerov kjer smo uporabili tehnike s pomočjo prirobnice. S prispevkom bi radi osvetlili našo tehniko in rezultate in podali kirurške nasvete.

METODE: Analizirali smo paciente na Oddelku za očesne bolezni UKCM med januarjem 2018 do februarjem 2023, kjer smo uporabili prirobnico in jih razdelili v sledeče skupine: 1. pacienti z afakijo, za sekundarnao implantacijo IOL, z metodo po Yamane-u; 2. pacienti s subluksirano enodelno IOL, za sekundarno pritrditev na sklero, s 6/0 polipropilenskim šivom; 3. pacienti s subluksirano trodelno IOL, za sekundarno pritrditev na sklero z modificirano metodo po Yamane-u; 4. pacienti, kjer smo s 6/0 polipropilenskim šivom na sklero fiksirali kapsularni tenzijski obroč. Zabeležili smo pred in pooperativne parametre: vidno ostrino, elektronsko refrakcijo, keratometrijo, intraokularni pritisk (IOP) in paciente pregledali s špranjsko svetilko. Pooperativno smo opravili UBM In OCT sprednjega segmenta in ocenili lego ter nagnjenost IOL.

REZULTATI: Analizirali smo 17 očes. Skupina je bila dokaj heterogena v smislu pridruženih očesnih obolenj, kljub temu je prišlo pri vseh do signifikantnega izboljšanja vidne ostrine in elektronske refrakcije. Pri očeh v prvi skupini, kjer je bila napravljena 2.4 mm temporalna incizija, je prišlo v povprečju do 0.556 D induciranega astigmatizma, pri ostalih skupinah oči ni bilo signifikantne razlike v keratometriji pred in po operaciji. Pri enem očesu se je pojavila hifema in prehodni dvig IOP. Pri 14 očeh je bil pooperativni naklon IOL manj kot 5 stopinj, v povprečju 3,9 stopinj. Pri eni IOL je naklon 6.7 stopinj, z zadovoljivo refrakcijo. Pri dveh očeh je prišlo do prekomernega naklona IOL več kot 10 stopinj; pri prvem po fiksaciji trodelne IOL in pri drugem po sekundarni pritrditvi enodelne IOL s 6/0 polipropilenskim šivom. Oba primera smo s sekundarnim posegom primerno razrešili in naklon zmanjšali pod 5 stopinj. UBM in OCT sta se izkazali kot primerljivi metodi pri ocenjevanju naklona IOL.

ZAKLJUČEK: Prirobnica in z njo povezane tehnike fiksacije na sklero predstavlja nov minimalno invaziven pristop k transskleralnem šivanju, ki omogoča visoko stopnjo varnosti in stabilnosti ter dobre refraktivne rezultate.

PURPOSE: In recent years, a knot-less technique of fixing intraocular lenses (IOL) and other intraocular elements to the sclera using the a ”flange” has become increasingly accepted. The flange is created by thermocauterization of PMMA haptics in transscleral fixation of three-piece IOLs or by cauterization of polypropylene sutures used to fix to the sclera. We present a series of cases where we used flanging techniques. With this contribution, we aim to shed light on our technique and results and provide surgical tips.

METHODS: We analyzed patients at the Department of Ophthalmology UKCM between January 2018 and February 2023, where we used a flange and divided them into the following groups: 1. patients with aphakia for secondary IOL implantation with the Yamane method; 2. patients with subluxated one-piece IOLs for secondary fixation to the sclera with a 6/0 polypropylene suture; 3. patients with subluxated three-piece IOLs for secondary fixation to the sclera with the modified Yamane method; 4. patients where we fixed the capsular tension ring to the sclera with a 6/0 polypropylene suture. We recorded pre- and post-operative parameters: visual acuity, electronic refraction, keratometry, intraocular pressure (IOP), and examined patients with a slit lamp. Postoperatively, we performed UBM and OCT of the anterior segment and assessed the position and tilt of the IOL.

RESULTS: We analyzed 17 eyes. The group was quite heterogeneous in terms of associated eye diseases, but all experienced a significant improvement in visual acuity and electronic refraction. In eyes in the first group, where a 2.4 mm temporal incision was made, there was an average of 0.556 D of induced astigmatism, while there was no significant difference in keratometry before and after surgery in the other groups. One eye developed hyphema and transient elevation of IOP. In 14 eyes, the postoperative tilt of the IOL was less than 5°, with an average of 3.9°. In one IOL, the tilt was 6.7°, with satisfactory refraction. In two eyes, there was excessive tilt of the IOL of 10°; in the first case, after fixation of the three-piece IOL and in the second case, after secondary fixation of the one-piece IOL with a 6/0 polypropylene suture. Both cases were appropriately resolved with a secondary procedure, and the tilt was reduced below 5°. UBM and OCT IOL proved to be comparable methods for assessing IOL tilt.

CONCLUSION: Flange and related scleral fixation techniques represent a new minimally invasive approach to transscleral suturing, allowing for a high level of safety and stability and good refractive outcomes.

OBJEKTIVNI REZULTATI Z IMPLANTACIJO EDOF IOL: OSEBNE IZKUŠNJE

OBJECTIVE OUTCOMES WITH EXTENDED DEPTH OF FOCUS INTRAOCULAR LENSES: RESULTS OF A PERSONAL CASE SERIES

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NAMEN: V prospektivni primerjalni seriji primerov smo želeli ovrednotiti učinkovitost štirih izboljšanih monofokalnih IOL in ene standardne monofokalne IOL pri zagotavljanju pacientom največje globine fokusa v fotopičnih (85 luksov) in mezopičnih (20 luksov) svetlobnih pogojih.

METODE: V to študijo je bilo vključenih skupno 50 oči mesec dni po operaciji. Pri vseh pacientih je bila opravljena fakoemulzifikacija katarakte. Implantacije IOL pri pacientih, ki so želeli večjo globino fokusa, so bili randomizirani in so prejeli eno od štirih novih IOL EDOF: IOL Rayner RayOne EMV, IOL BVI ISOPURE 123, IOL Johnson & Johnson Vision TECNIS Eyhance ali IOL Medicontour ELON IOL. Kontrolna skupina je prejela monofokalno lečo Johnson & Johnson Vision TECNIS Monofocal.

REZULTATI: Vsi pacienti so dosegli korigirano vidno ostrino na daljavo (DCVA 1,0). RayOne EMV in Medicontour ELON IOL sta dosegli najvišjo ostrino vida na srednji in bližinski delovni razdalji blizu v fotopičnih in mezopičnih pogojih. Medtem ko sta ISOPURE in TECNIS Eyhance dobri možnosti za paciente, ki želijo imeti večjo globino vida z manjšim poudarkom na bližini.

ZAKLJUČEK: Naši rezultati potrjujejo prednosti uporabe nedifrakcijske IOL EDOF v naš portfelj leč. Predvidevamo, da bo več naših pacientov izbralo nedifrakcijske leče EDOF, saj zagotavljajo dober razpon funkcionalnega vida, so cenovno ugodnejše, hkrati pa zmanjšujejo težave z disfotopsijami, povezane z multifokalnimi IOL. Naš cilj je bil ugotoviti, katera nedifrakcijska leča EDOF zagotavlja objektivno največji razpon globine fokusa. Na podlagi naše analize in spodbudnih rezultatov bomo priporočali leči RayOne EMV in ELON IOL. Za pridobitev zanesljivejših rezultatov je potrebnih več raziskav z večjimi skupinami pacientov.

PURPOSE: In a prospective, comparative case series, we aimed to evaluate the effectiveness of four enhanced monofocal IOLs and one standard monofocal IOL in providing patients with the greatest range of focus in both photopic (85 Lux) and mesopic (20 Lux) lighting conditions.

METHODS: A total of 50 unilateral eyes were included in this study and completed 1-month follow-up. All subjects underwent unilateral, phacoemulsification cataract extraction. IOL implantations, for the subjects demanding increased range of focus, were randomized receiving either one of four new EDOF IOLs: the Rayner RayOne EMV IOL, the BVI ISOPURE 123 IOL, the Johnson & Johnson Vision TECNIS Eyhance IOL, or the Medicontour ELON IOL. The control group, monofocal subjects, received a Johnson & Johnson Vision TECNIS Monofocal.

RESULTS: Average distance corrected visual acuity (DCVA) of 1.0 decimal was achieved by all the IOLs. The RayOne EMV and Medicontour ELON IOL showed the highest visual acuity at intermediate and near in both photopic and mesopic conditions. Whilst the ISOPURE and TECNIS Eyhance are good options for patients demanding an enhanced range of vision.

CONCLUSION: Our results from this evaluation help to confirm the benefits of adding a non-diffractive EDOF IOL to our lens portfolio. We anticipate that more of our patients will choose non-diffractive EDOF lenses as they provide a good range of functional vision at a more affordable procedure rate, whilst also reducing concerns of dysphotopsia associated with multifocal IOLs. Our goal was to determine which non-diffractive EDOF lens objectively provides the greatest range of focus and for this to be added to our lens portfolio. Based on our analysis and encouraging results we will be consistently recommending the RayOne EMV and ELON IOL lens. More research with larger patient groups is needed to draw more robust results.

NEZADOVOLJSTVO PACIENTOV PO VSTAVITVI VEČŽARIŠČNE ZNOTRAJOČESNE LEČE

THE UNHAPPY PATIENT AFTER REFRACTIVE LENS EXCHANGE

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NAMEN: Predstaviti razloge in strategije zdravljenja pri pacientih, ki niso zadovoljni z rezultati po vstavitvi večžariščne znotrajočesne leče.

METODE: Prikaz primerov.

REZULTATI: Najpogostejši razlogi za nezadovoljstvo pacientov po operaciji so ostanek dioptrije, disfotopsije, bolezen suhega očesa, kronična pooperativna bolečina, fotofobija, nerealna pričakovanja in ne-oftalmološki razlogi.

ZAKLJUČEK: Večino nezadovoljnih pacientov je možno učinkovito zdraviti s pravo strategijo in časom za adaptacijo na novo stanje. Vedno pa je potrebn pomisliti tudi na ne-oftalmološke razloge za nezadovoljstvo po tej vrsti operacije.

PURPOSE: To present the reasons and management strategies for patients that are unhappy with the results after refractive lens exchange (RLE).

METHODS: Case series.

RESULTS: The most common reasons for patient dissatisfaction after RLE are residual refractive error, disphotopsias, dry eye disease (DED), persistent post-surgical pain, photophobia, unrealistic patient expectations and non-ophthalmologic causes.

CONCLUSION: Most dissatisfied patients can be managed effectively with using the right strategy and giving time to heal. Non-ophthalmologic reasons must also be considered.

Na povabilo družbe Rayner in Medops | Invited by Rayner and Medops

ZAČETNI REZULTATI Z NOVO EDOF IOL RAYNER EMV TORIC

INITIAL EXPERIENCE WITH THE NEW EDOF IOL RAYNER EMV TORIC

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NAMEN: Predstaviti začetne rezultate z novo IOL Rayner EMV Toric.

METODE: Pregled rezultatov rotacijske stabilnosti, ostrine vida na daljavo, srednje razdalje in na bližino .

REZULTATI: Leče je enostavno implantirati s pomočjo prednaloženega injektorja in imajo odlično rotacijsko stabilnost ter omogočajo dobro ostrino vida na daleč in srednje razdalje, pogosto tudi na blizu do J2-3.

ZAKLJUČEK: Leče Rayner EMV Toric omogočajo normalnen vid na daljavo in srednje razdalje brez opaznih fotopsij, pogosto tudi dober bližinski vid.

PURPOSE: To present initial results with the new EDOF IOL Rayner EMV Toric.

METHODS: Review of results on rotational stability, visual acuity and near vision.

RESULTS: IOLs are easy to implant in provided preloaded set and have excellent rotational stability and visual acuity.

CONCLUSION: EMV Toric IOLs provide normal distance vision without photopsias and provide good distance and intermediate vision, often even good near vision.

Na povabilo družbe Biokorp | Invited by Biokorp

A NEW ENHANCED MONOFOCAL ASPHERIC INVERTED MENISCUS IOL

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PURPOSE: To measure peripheral optics and visual performance of pseudophakic patients implanted with a new enhanced monofocal and EDOF aspheric inverted meniscus intraocular lenses (IOLs); Art25, Art40 and Art70 (ArtIOLs, Voptica SL, Murcia, Spain). These IOLs improve the overall off-axis optical quality and induce different amounts of negative spherical aberration to increase the depth of focus. The outcomes were compared with those of monofocal and diffractive trifocal IOLs.

Setting: Oftalvist clinic of Murcia; University of Murcia, Spain

METHODS: One month after cataract surgery in patients implanted with Art25 and with monofocal biconvex IOL, peripheral refraction was measured using a scanning Hartmann-Shack wavefront sensor along 80º in the horizontal meridian. Additionally, best-corrected (CDVA) and uncorrected (UCVA) distance visual acuity (LogMAR scale) was measured at 5 m, 66 cm and 40 cm, using trial lenses of -1,5 and -2,5 D and SLOAN charts under photopic lighting conditions for Art25, monofocal and combination of Art40 and Art70.

RESULTS: Most patients achieved emmetropia and good uncorrected distance visual acuity for all IOLs measured. Peripheral spherical equivalent and astigmatism was significantly lower from 20º of eccentricity for the enhanced monofocal inverted meniscus Art25 IOLs than for monofocal standard biconvex IOLs. Furthermore, monocular BCVA at far were 0 and 0.02, at intermediate (66cm) were 0.23 and 0.33 and at near distances (40cm) were 0.51 and 0.61 LogMAR for enhanced monofocal Art25 and monofocal IOLs, respectively. Binocular combination (Art40/70) provided uncorrected visual acuity of 0.00 at far, 0.01 at intermediate and 0.09 LogMAR at near vision. These results were comparable with diffractive trifocal UCVA of 0.00, 0.07 and 0.07 LogMAR at far, intermediate and near distances.

CONCLUSION: Patients implanted with a new inverted menis¬cus IOLs (Art25) present a reduced amount of peripheral defocus and astigmatism compared to patients implanted with standard bi¬convex IOLs. Monocular BCVA at intermediate and near vision were higher with the new enhanced monofocal Art25 compared with the monofocal IOLs. The binocular combination of the two of ArtIOLs models (Art40 and Art70) significantly extended the depth of focus up to at least 40 cm improving visual performance in comparison with trifocal LIOs.

KRATKOVIDNOST PRI OTROCIH – 2023 WSPOS SMERNICE

MYOPIA IN CHILDREN – 2023 WSPOS CONSENSUS STATEMENT

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NAMEN: predstavitev novih smernic za preprečevanje zgodnjega nastanka in upočasnitev napredovanja kratkovidnosti pri otrocih, ki jih je letos izdalo Svetovno združenje za pediatrično oftalmologijo (WSPOS).

METODE: predstavljene bodo različne metode za preprečevanje napredovanja kratkovidnosti, za katere ni zadostnih znanstvenih dokazov o njihovi učinkovitosti in metode, za katere imamo z raziskavami podprte dokaze o učinkovitosti.

REZULTATI: Učinkovite metode so razdeljene na 3 skupine: sprememba navad (več časa preživetega na naravni svetlobi, zmanjšanje uporabe zaslonov), optični pripomočki (očala in kontaktne leče) in medikamentozno zdravljenje. Vsaka izmed skupin bo podrobno obravnavana.

ZAKLJUČEK: Nove smernice vključujejo obsežno listo objav o trenutnem, z raziskavami podprtem znanju s področja, obenem pa predstavljajo povzetek učinkovitih metod za preprečevanje zgodnjega nastanka in upočasnitev napredovanja kratkovidnosti pri otrocih.

PURPOSE: to discuss the new 2023 Myopia consensus statement which was recently published by the World Society of Paediatric Ophthalmology and Strabismus (WSPOS).

METHODS: Interventions to slow the progression of myopia will be discussed. The methods which do not work or have minimal effect will be touched first, followed by methods which appear to work.

RESULTS: The methods which appear to work are divided into 3 groups: behavioural interventions (time spent outdoors, reduced time on smartphones…), optical treatment (spectacle lenses, contact lenses) and pharmacological treatment. Each of the groups will be discussed.

CONCLUSION: New WSPOS-Myopia consensus statement is accompanied with a long list of relevant references from the field. The information about methods which slow progression and early development of myopia in children are well described.

RETROSPEKTIVNA ANALIZA USPEŠNOSTI Z NOSNIM ENDOSKOPOM VODENE BIKANALIKULARNE SILIKONSKE INTUBACIJE PRI PRIROJENI STENOZI SOLZNEGA SISTEMA

RETROSPECTIVE ANALYSIS OF SUCCESFUL RATE OF NASAL ENDOSCOPY GUIDED BICANALICULAR SILICONE STENT INTUBATION IN CONGENITAL LACRYMAL SYSTEM STENOSIS

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NAMEN: Prirojena zapora solznih poti je pogosta težava otrok, ki se kaže kot stalno solzenje in izcedek. V večini primerov (95%) pride ob konzervativnih ukrepih do spontanega izboljšanja do 1. leta starosti. Če težave vztrajajo, pa je prva terapija sondiranje in prebrizganje solznih poti, in če še to ni uspešno, intubacija solznih poti s silikonsko cevko pod nadzorom nosnega endoskopa.

Analizirali smo uspešnost bikanalikularne silikonske intubacije pri otrocih s prirojeno stenozo solznih poti, pri kateri s primarno sondažo in prebrizganjem nismo uspeli odpraviti težav s solzenjem.

METODE: Retrospektivna analiza zaporednih primerov opravljenih na Očesni kliniki, UKC Ljubljana od 1. 11. 2019 do 1. 4. 2023. Vsi posegi so bili opravljeni v splošni anesteziji s pomočjo Bowmanove sonde in bikanalikularnega nazolakrimalnega silikonskega stenta (Nunchaku, FCI Ophthalmics).

REZULTAT: Obravnavali smo 18 otrok (mediana starost 5.6 let, razpon 2.4 – 11.5) s prirojeno stenozo solznega sistema, pri katerih primarno sondiranje in prebrizganje ni bilo uspešno. V 6 primerih smo poseg opravili obojestransko. Povprečni čas spremljanja je bil 20 mesecev (razpon 1-41). Silikonski stent smo odstranili v povprečju po 4.5 mesecih (razpon: 1-8), pri 4 otrocih je predvidena odstranitev v prihodnjih mesecih. Pri vseh obravnavanih otrocih je po posegu prišlo do izboljšanja in nimajo več težav s solzenjem.

ZAKLJUČEK: Bikanalikularna silikonska intubacija solzevodov pod nadzorom nosnega endoskopa je uspešna metoda za reševanje prirojene stenoze solznega sistema, pri kateri primarna sondaža in prebrizganje nista bila uspešna.

PURPOSE: Congenital lacrymal system stenosis is a common problem in children, which manifests itself as constant tearing and discharge. In most cases (95%), with conservative measures, spontaneous improvement occurs by 1 year of age. If the problems persist, the initial treatment is probing and syringing, and in unsuccessful cases a silicone stent intubation under nasal endoscope visualisation is performed.

To evaluate the clinical outcomes of nasal endoscopic guided primary bicanalicular silicone intubation (BCI) for congenital lacrymal system stenosis that failed primary probing.

METHODS: Retrospective analysis of consecutive cases performed at Eye hospital, University Medical Centre Ljubljana, from 1. 11. 2019 till 1. 4. 2023. All procedures were done in general anesthesia with the use of Bowman probe and bicanalicular nasolacrimal silicone stent (Nunchaku, FCI Ophthalmics).

RESULTS: A total of 18 children (median age 5.6, range 2.4 - 11.5 years) with congenital lacrymal system stenosis who failed primary probing underwent bicanalicular silicone intubation. 6 cases were done bilaterally. Mean follow-up time was 20 months (range 1-41). The mean silicone stent removal time was 4.5 months (range 1 - 8). In 4 children the removal of silicone stent is planned in next months. During the follow-up successful outcome with complete resolution of previous lacrimal symptoms and signs were observed in all 18 children.

CONCLUSION: BCI using nasal endoscopic visualisation has high success rate for treating congenital lacrymal system stenosis that failed primary nasolacrimal probing.

OBRAVNAVA OTROK V NACIONALNEM CENTRU ZA CELOVITO REHABILITACIJO SLEPIH IN SLABOVIDNIH (NC CRSS)

REHABILITATION OF CHILDREN AT THE NATIONAL CENTER FOR COMPREHENSIVE REHABILITATION OF THE BLIND AND VISUALLY IMPAIRED

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NAMEN: Predstavitev delovanja otroške ambulante v Nacionalnem centru za Celovito rehabilitacijo slepih in slabovidnih (NC CRSS).

METODE: V Nacionalnem centru za celovito rehabilitacijo slepih in slabovidnih so obravnavani otroci s slepoto ali slabovidnostjo ter drugimi motnjami vida, ki onemogočajo vsakodnevno funkcioniranje.

Obravnava poteka multidisciplinarno s strani oftalmologa in medicinske sestre, tiflopedagoga, psihologa ter socialnega delavca.

Po natančnem pregledu s strani oftalmologa in medicinske sestre se pri otroku definira diagnoza, ki je privedla do okvare vida, se določi kategorija, ki temelji na medicinski definiciji slepote in slabovidnosti uveljavljeni v RS in se po potrebi predpišejo pripomočki. Tiflopedagog opravi poglobljeno obravnavo funkcioniranja in v nadaljevanju svetuje prilagoditve za premagovanje primankljajev na področju vida. Psiholog poučuje strategije spoprijemanja z novo situacijo, podporo nudi tako otroku, kot tudi svojcem. Psiholog prav tako izvaja diagnostiko s katero oceni stopnjo razvoja, kognitivne in prilagoditvene sposobnosti otroka ter čustveno socialno področje. Socialni delavec svetuje o pravicah ki izhajajo iz slepote ali slabovidnosti.

ZAKLJUČEK: V nacionalnem centru za celovito rehabilitacijo nudimo podporo otrokom s slepoto in slabovidnostjo. Pristop obravnave je multidisciplinaren, prilagojen individualnim potrebam pacienta, ter vključuje tako samega otroka kot tudi svojce. Končni cilj obravnave je omogočiti čim bolj kvaliteten razvoj ter čim večjo samostojnost na vseh področjih življenja.

PURPOSE: Presentation of the operation of the children's clinic at the National Center for Comprehensive Rehabilitation of the Blind and Visually Impaired (NC CRSS).

METHODS: Children with blindness or visual impairment and other visual impairments that prevent daily functioning are treated at the National Center for Comprehensive Rehabilitation of the Blind and Visually Impaired,

The treatment is multidisciplinary and delivered by a group of experts of different fields, composed by an ophthalmologist and a nurse, a teacher for blind and visually impaired, by a psychologist and social worker. After a careful examination by an ophthalmologist and a nurse, the diagnosis that led to visual impairment is defined, a category of blindness or visual impairment is determined based on the medical definition of the Republic of Slovenia, and if necessary aids are prescribed. The teacher for the blind and visually impaired conducts an in-depth examination of every-day functioning and subsequently advises adaptations to overcome deficiencies in the field of vision. The psychologist teaches strategies for coping with the new situation, offers support to both the child and family or carers. The psychologist also carries out diagnostics to assess the level of development, cognitive and adaptive abilities of the child, as well as the emotional and social sphere. The social worker advises on the rights arising from blindness or low vision.

CONCLUSION: At the National Center for Comprehensive Rehabilitation, we offer support to children with blindness and low vision. The treatment approach is multidisciplinary, adapted to the individual needs of the patient, and includes both the child and carers or family. The final goal of the treatment is to enable the highest quality of the child's development and the greatest possible independence in all areas of life.

NECIKLOPLEGIČNA IN CIKLOPLEGIČNA REFRAKCIJA PRI DOLOČANJU REFRAKCIJSKE NAPAKE PRI OTROCIH

NONCYCLOPLEGIC AND CYCLOPLEGIC REFRACTION IN THE ASSESSMENT OF REFRACTIVE ERROR IN CHILDREN

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NAMEN: Poudariti pomen cikloplegične refrakcije za predpis očal pri otrocih, ki prvič pridejo do oftalmologa zaradi poslabšanja vida. Določiti razliko refrakcijske napake med necikloplegično in cikloplegično meritvijo refrakcije.

METODE: Retrospektivna analiza 10 primerov otrok, ki so bili prvič pregledani zaradi slabega vida pri primarnem oftalmologu. Pri vseh je bila izmerjena refrakcijska napaka z avtorefraktometrom in ocenjena najboljša korigirana vidna ostrina vida brez cikloplegije. Zaradi slabše vidne ostrine so bili vsi napoteni v našo ambulanto. Naredimo smo cikloplegijo s kapljicami ciklopentolata ali atropina in predpisali ustrezna očala. Primerjali smo rezultate meritev pred in po cikloplegiji.

REZULTATI: Pregledali smo kartone 10 otrok starih med 6-12 let. Rezulati meritev avtorefraktometra brez cikloplegije so bili bolj negativni ali manj pozitivni od tistih po cikloplegiji. Razlike so bile večje pri hiperopnih, manjše pri emetropinih in kratkovidnih očeh. Manjša razlika je bila ugotovljena med necikloplegičnimi in cikloplegičnimi meritvami astigmatizma.

ZAKLJUČEK: Necikloplegična refrakcija pri šoloobveznih otrocih ni dovolj natančna in ni primerna za merjenje refrakcijske napake ali za predpisovanje očal. V klinični praksi je pomembno preveriti refrakcijsko napako s cikloplegijo. Natančnosti meritev s cikloplegijo nas opominja, da je pomembno, da jo uporabimo v vsakodnevni praksi.

PURPOSE: To emphasize the importance of cycloplegic refraction for the prescription of glasses in children who come to the ophthalmologist for the first time because of visual impairment. To determine the difference in refractive error between non-cycloplegic and cycloplegic refraction measurements.

METHODS: Retrospective case series of 10 children first assessed for glasses in primary ophthalmologist. In all of them refractive error was measured with an autorefractor and best corrected visual acuity was assessed with no cycloplegia. Due to low visual acuity they were all referred to our clinic. Cycloplegia with cyclopentolate or atropin drops was induced and appropriate refraction prescribed. Results of measurements before and after cycloplegia were compared.

RESULTS: 10 cases of children aged 6-12 were reviewed. Based on the results of noncycloplegic measurements autorefractor measures of equivalent spheres were more negative or less positive than those after cycloplegia. The differences were larger for hyperopic eyes, smaller for emmetropic and myopic eyes. Less difference was found between noncycloplegic and cycloplegic measurements of astigmatism.

CONCLUSION: Noncycloplegic refraction in school-age children was found to be highly inaccurate and not suitable for measurement of refractive error or for prescription of glasses. In clinical practice it is ideal to confirm the refractive error with cycloplegia. Accuracy improvement with cycloplegia suggest incorporating it into every day practice.

ZAUPATI ALI NE ZAUPATI? PRIMERJAVE MERITEV MED PRENOSNIM IN NAMIZNIM REFRAKTOMETROM TER SKIASKOPIJO PRI OTROCIH

TO TRUST OR NOT TO TRUST? COMPARISON OF THE CYCLOPLEGIC REFRACTIVE MEASUREMENTS WITH HANDHELD, TABLE-MOUNTED REFRACTOMETERS AND RETINOSCOPY IN CHILDREN

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NAMEN: Prenosni avtorefraktometri se pogosto uporabljajo za ugotavljanje refraktivnih napak pri otrocih. Namen študije je bil primerjava meritev refrakcije z namiznim, prenosnim avtorefraktometrom in skiaskopijo pri otrocih.
METODE: Meritve so bile opravljene pri otrocih s slabo vidno ostrino in/ali škiljenjem s prenosnim 2WIN in namiznim refraktometrom Nidek ARK-1 ter skiaskopijo po aplikaciji 0,5% atropina. Analizirali smo podatke o sferi, sfernem ekvivalentu (SE) in cilindričnih vektorjih pri 0 stopinjah (J0) in 45 stopinjah (J45).

REZULTATI: V študijo je bilo vključenih 57 otrok (povprečna starost 4,3 leta ± 2,0 leta). Refraktometer 2WIN je izmeril statistično značilno nižje povprečne vrednosti SE kot Nidek ARK-1 ali skiaskopija (1,67 ± 1,48 D, 2,96 ± 1,95 D, 2,92 ± 1,93 D). 95 % meje ujemanja (LOA) so bile najožje pri sferi, SE, J0 in J45 pri namiznem refraktometru Nidek ARK-1 in skiaskopiji. Razlika med meritvami z 2WIN in skiaskopijo ter 2WIN in Nidek ARK-1 je bila večja pri višjih refraktivnih vrednostih pri sferi, SE, J0 in J45.

ZAKLJUČEK: V študiji so se najbolj ujemale meritve med skiaskopijo in namiznim refraktometrom, medtem ko je bilo ujemanje s prenosnim refraktometrom slabše. Razlike med prenosnim 2WIN refraktometrom in drugima dvema metodama so bile večje pri višjih refraktivnih vrednostih, zato je priporočljiva skrbna interpretacija rezultatov avtorefrakcije, zlasti pri otrocih z višjimi refraktivnimi vrednostmi, pri katerih je tveganje za slabovidnost večje.

PURPOSE: Handheld autorefractometers are now widely used for screening refractive errors in children. The purpose of the study was to compare the refractive measurements from table-mounted, handheld autorefractometers and retinoscopy in children.

METHODS: Measurements in children with poor visual acuity and/or strabismus were obtained with the handheld 2WIN and the table-mounted Nidek ARK-1 refractometers and retinoscopy after the instillation of 0.5% atropine. Data on the sphere, spherical equivalent (SE), and cylindrical vectors at 0 degrees (J0) and 45 degrees (J45) were analysed.

RESULTS: Data were collected from 57 children (mean age, 4.3 years ± 2.0 years). The 2WIN refractometer measured statistically significantly lower SE mean values than the Nidek ARK-1 or retinoscopy (1.67 ± 1.48 D, 2.96±1.95 D, 2.92 ± 1.93 D, respectively). The 95% limits of agreement (LOA) was the narrowest for sphere, SE, J0, and J45 vector for Nidek ARK-1 refractometer and retinoscopy. The difference between the measurements of 2WIN and retinoscopy and 2WIN and Nidek ARK-1 was more pronounced in higher refractive values for sphere, SE, J0, and J45.

CONCLUSION: The table-mounted autorefractor provided a reading more similar to that of streak retinoscopy than to that of the handheld autorefractor. The differences between the 2WIN and the other two methods were more pronounced in the higher refractive values, so careful interpretation of the autorefraction results would be advised, especially in children with higher refractive values who are at most significant risk for amblyopia.

ZDRAVLJENJE GLAVKOMA PRI OTROCIH S STURGE WEBER SINDROMOM Z IMPLANTACIJO GLAVKOMSKE VALVULE

TREATMENT OF CHILDHOOD GLAUCOMA WITH STURGE WEBER SYNDROME WITH GLAUCOMA DRAINAGE DEVICES

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NAMEN: Namen je predstaviti zdravljenje glavkoma pri otrocih s Sturge-Weber sindromom z implantacijo glavkomske valvule.

METODE: Predstavljeni bodo štirje zaporedni primeri otrok (deklice stare od 6 mesecev do 14 let) s SWS in glavkomom, ki so bili v obdobju 2013-2022 zdravljeni z implantacijo glavkomske valvule (Bearveldt, BGV ali Ahmed, AGV). Povprečno so bili otroci operirani v starosti 9,5 let, povprečen čas sledenja je bil 48 mesecev.

REZULTATI: Primer1: 14-letna deklica je imela implanirano BGV v levo oko v starosti 12 let, čas sledenja je bil 21 mesecev. 6 mesecev po implantaciji je bila potrebna revizija cevke BGV zaradi naleganja na endotel roženice. Vidna ostrina na levem očesu je bila 0,2-0,3, ekskavacija papile vidnega živca je stabilna (C/D= 0.5-0,6). Deklica je zadnji 2 leti brez lokalne terapije, z urejenim IOP. Primer2: 13-letna deklica je imela implantirano AGV v levo oko v starosti 9 let, čas sledenja je bil 48 mesecev. Pri deklici dodatni posegi niso bili potrebni, IOP je urejen ob dodatku lokalne antiglavkomske terapije, ekshavacija papile vidnega živca je stabilna (C/D=0,4-0,5), vidna ostrina pa 1.0. Primer3: 6-mesečna deklica je imela implantirano AGV v levo oko v starosti 2 mesecev, čas sledenja je bil 4 mesece. Od posega dalje je IOP v mejah normale, deklica je brez lokalne terapije, dodatni posegi pri deklici niso bili potrebni. Primer4: 11-letna deklica je imela implantirano BGV v desno oko v starosti 1,5 let, čas sledenja je 10 let. IOP je od posega dalje urejen brez dodatne antiglavkomske terapije, glavkomska okvara ne napreduje.

ZAKLJUČEK: Zdravljenje glavkoma pri otrocih s SWS z implantacijo glavkomskih valvul je učinkovita metoda, podprta z literaturo. Pri treh od štirih predstavljenih primerih je bilo napredovanje glavkomske okvare obvladano samo z vstavitvijo glavkomske valvule, pri enem pa je bila dodatno potrebna lokalna antiglavkomska terapija.

PURPOSE: The purpose of this case series is to present the usefulness of glaucoma drainage devices (GDD) implantation in the treatment of childhood glaucoma associated with Sturge-Weber syndrome.

METHODS: Four consecutive cases of children (girls aged from 6 months to 14 years) with childhood glaucoma associated with SWS treated with implantation of GDD (Bearveldt, BGV or Ahmed, AGV) in the period 2013-2022. On average, the children were operated at the age of 9.5 years, the mean follow-up was 48 months.

RESULTS: Case 1: A 14-year-old girl had BGV implanted in her left eye at the age of 12, follow-up was 21 months. Revision of the BGV tube was required 6 months after implantation due to contact with the corneal endothelium. The visual acuity in the left eye was 0.2-0.3, and the excavation of the PNO is stable (C/D= 0.5-0.6). The girl has been without topical therapy for the past 2 years, with well controlled IOP. Case 2: A 13-year-old girl had an AGV implanted in her left eye at the age of 9 years, the follow-up time was 48 months. In this case, no additional interventions were necessary, the IOP is normal without any topical therapy, the excavation of the PNO is stable (C/D=0.4-0.5), and the visual acuity is 1.0. Case 3: A 6-month-old girl had an AGV implanted in her left eye at the age of 2 months, the follow-up time was 4 months. Since the implantation, the IOP has been within the normal range, she is without topical therapy, and without any additional interventions. Case 4: An 11-year-old girl had a BGV implanted in her right eye at the age of 1.5 years, the follow-up time is 10 years. The IOP has been well controlled since the implantation without additional topical therapy, the glaucomatous defect does not progress.

CONCLUSION: Treatment of childhood glaucoma with SWS with GDD is an effective method supported by the literature. In three of the four presented cases, the progression of the glaucomatous defect was controlled only with the implantation of the GDD. In one case, topical therapy was additionally required.

FARMAKOGENETSKI OZNAČEVALCI ODGOVORA NA SELEKTIVNO LASERSKO TRABEKULOPLASTIKO PRI BOLNIKIH S PRIMARNIM GLAVKOMOM ODPRTEGA ZAKOTJA IN OČESNO HIPERTENZIJO

PHARMACOGENETIC MARKERS OF RESPONSE TO SELECTIVE LASER TRABECULOPLASTY IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA AND OCULAR HYPERTENSION

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NAMEN: Določiti farmakogenetske označevalce, ki bi napovedali odgovor na zdravljenje s selektivno lasersko trabekuloplastiko (SLT) pri bolnikih s primarnim glavkomom odortega zakotja (POAG) in očesno hipertenzijo.

METODE: V raziskavo smo vključili 51 novo odkritih in nezdravljenih bolnikov s POAG ali z očesno hipertenzijo. Očesni tlak (IOP) smo izmerili pred in 6 tednov po 360-stopinjski SLT. V analizo smo vključili vrednosti IOP enega, bolj prizadetega očesa. Odgovor na SLT smo opredelili kot slab (manj kot 15%), povprečen (15-30%) ali dober (30%). Bolnikom smo odvzeli vzorce krvi iz komolčne vene za določanje polimorfizmov posameznih nukleotidov (SNP) za gene, ki nosijo zapis za: antioksidativne encime (GSTM1*0, GSTT1*0, GSTP1 rs1695 and rs1138272, SOD2 rs4880, CAT rs1001179, GPX1 rs1050450); vnetje (TNF rs1800629, IL1B rs16944 and rs1143623, IL6 rs1800795); matriksne metaloproteinaze (MMP14 rs1042703, rs1042704 and rs743257, MMP3 rs3025058). Pri analizi podatkov smo uporabili opisno statistiko, logistično regresijo in vključili dominantni in aditivni genetični model.

REZULTATI: Sedem bolnikov (13.7%) je imelo slab, 24 (47.1%) povprečen in 20 (39.2%) dober odgovor na SLT. Genotip IL6 rs1800795 GG je bil povezan z boljšim absolutnim in relativnim znižanjem IOP v aditivnem (Padd=0.009 in Padd=0.033) in dominantnem modelu (Pdom=0.002 in P=0.010). Dober odgovor na SLT (znižanje IOP 30%) je bilo manj verjetno pri nosilcih vsaj enega polimorfnega alela IL6 rs1800795. Drugi analizirani polimorfizmi niso bili statistično pomembno povezani z odgovorom na SLT.

ZAKLJUČEK: SNPs v genih, ki so vključeni v vnetno pot, bi lahko služili kot možni genetski označevalci odgovora na zdravljenje s SLT.

PURPOSE: To search for pharmacogenetic markers of response to selective laser trabeculoplasty (SLT) in patients with primary open-angle glaucoma (POAG) and ocular hypertension.

METHODS: We enrolled 51 treatment naïve patients with POAG or ocular hypertension. Intraocular pressure (IOP) was measured at baseline and 6 weeks following 360-degree SLT. The IOP values of the more severely affected eye of the subject were analysed. IOP reduction to SLT was defined as poor (less than 15%), moderate (15-30%) or good (30%). Blood samples from cubital vein were used for genotyping single nucleotide polymorphisms (SNPs) in pathways associated with: antioxidants (GSTM1*0, GSTT1*0, GSTP1 rs1695 and rs1138272, SOD2 rs4880, CAT rs1001179, GPX1 rs1050450); inflammation (TNF rs1800629, IL1B rs16944 and rs1143623, IL6 rs1800795); matrix metalloproteinases (MMP14 rs1042703, rs1042704 and rs743257, MMP3 rs3025058). We performed descriptive statistics, logistic regression analysis and used dominant and additive genetic models.

RESULTS: Seven subjects (13.7%) had poor, 24 (47.1%) had moderate and 20 (39.2%) had good IOP response to SLT treatment. The IL6 rs1800795 GG genotype was significantly associated with better absolute and relative IOP lowering in the additive (Padd=0.009 and Padd=0.033) and dominant genetic model (Pdom=0.002 and P=0.010). Carriers of at least one IL6 rs1800795 polymorphic allele were less likely to have a good IOP response (30%) to SLT. The other polymorphisms studied were not statistically significantly associated with response to SLT treatment.

CONCLUSION: SNPs in genes involved in the inflammatory pathway may serve as potential biomarkers for predicting response to SLT treatment.

SELEKTIVNA LASERSKA TRABEKULOPLASTIKA V ZDRAVLJENJU GLAVKOMA

SELECTIVE LASER TRABECULOPLASTY IN THE GLAUCOMA TREATMENT

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NAMEN: Predstaviti vlogo in mesto selektivne laserske trabekuloplastike (SLT) v zdravljenju glavkoma.

METODE: Prikaz mehanizma delovanja, operativne tehnike, učinkovitosti in varnosti, zapletov, ponavljanja SLT, učinka na fluktuacijo očesnega pritiska (IOP), napovednikov uspešnosti SLT in ekonomskega učinka SLT v zdravljenju glavkoma z odprtim zakotjem (OAG) in očesne hipertenzije (OH).

REZULTATI: Prikazani so rezultati raziskav varnosti in učinkovitosti SLT za znižanje IOP pri bolnikih z OAG in OH kot primarno ali dodatno zdravljenje. Tako Evropsko glavkomsko združenje v najnovejših smernicah za zdravljenje glavkoma SLT priporoča kot primarno ali dodatno zdravljenje OAG in OH.

ZAKLJUČEK: SLT je učinkovita in varna izbira zdravljenja za znižanje IOP pri bolnikih z OAG in OH. SLT lahko uspešno uporabimo kot primarno ali dodatno zdravljenje tako začetnih, kot tudi napredovalih oblik glavkoma. SLT lahko uspešno uporabimo kot dodatek k topični medikamentozni terapiji pri bolnikih, ki so nekompliantni ali netolerantni na njihova antiglavkomska zdravila. SLT ni učinkovita pri vseh oblikah glavkoma. Učinek znižanja IOP se zmanjšuje s časom pri večini bolnikov. Višina preoperatvnega IOP je najmočnejši napovednik uspešnosti SLT, celo pri bolnikih z NTG. SLT lahko uspešno ponavljamo, da dosežemo dodatno ali ponovno znižanje IOP, celo pri očeh s skromnim znižanjem IOP po prvem zdravljenju. SLT ne izključuje katerekoli druge oblike zdravljenja. Zapleti po SLT so redki, najpogosteje so blagi in prehodni. SLT je atraktivna kot primarno zdravljenje, če upoštevamo adherenco in stroške zdravljenja. Primarna SLT je lahko idealna za nekatere bolnike, za druge predstavlja SLT dodatno možnost ali pa nadomestno zdravljenje. Ta možna sprememba „standardnega“ pristopa zdravljenja zahteva delitev odločitve z bolnikom o procesu zdravljenja njegove bolezni.

PURPOSE: To present the role and place of selective laser trabeculoplasty (SLT) in the glaucoma treatment.

METHODS: Presentation of mechanism of action, operative technique, efficacy and safety, adverse events, repetability of SLT, effect of SLT on intraocular pressure (IOP) fluctuation, predictors of successful SLT treatment and economic impact of SLT in the treatment of open-angle glaucoma (OAG) and ocular hypertension (OH).

RESULTS: Studies have demonstrated the safety and efficacy of SLT in reducing the IOP in eyes with OAG and OH as primary or adjunctive treatment. Moreover, the European Glaucoma Society has instated SLT as the primary or adjunctive treatment in OAG and OH, reiterating its clinical significance.

CONCLUSION: SLT is an effective and safe treatment option for the reduction of IOP in patients with OAG and OH. SLT can be successfully used as primary or adjunctive therapy for the management of both early and advanced disease. SLT has also been shown to be a useful adjunct to medical therapy fo patients who are noncompliant or intolerant to their glaucoma medications. SLT is not effective in all forms of glaucoma. The IOP-lowering effect of SLT decreases over time. High pretreatment IOP is the strongest predictor of SLT success, even in patients with NTG. SLT can succcessfully be repeated to achive additional or recurent IOP reduction, even in eyes that only had a modest response to initial treatment. SLT does not preclude any other form of treatment. Adverse events are uncommon after SLT, and the most common complications are mild and transient. SLT is an attractive first-line option when considering adherence and cost of therapy. Initial SLT therapy may be the ideal choise for certain patients, adjunctive therapy or replacement for glaucoma medications for others. This possible alteration from „standard“ treatment approach requires sharing the decision-making process with patients.

FARMAKOGENETSKI OZNAČEVALCI ODGOVORA NA ZDRAVLJENJE Z LATANOPROSTOM PRI BOLNIKIH Z PRIMARNIM GLAVKOMOM ODPRTEGA ZAKOTJA IN OČESNO HIPERTENZIJO

PHARMACOGENETIC MARKERS OF RESPONSE TO LATANOPROST TREATMENT IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA AND OCULAR HYPERTENSION

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NAMEN: Poiskati farmakogenetske označevalce odgovora na zdravljenje z latanoprostom pri pacientih z primarnim glavkomom odprtega zakotja (POAG) in očesne hipertenzije (OHT).

METODE: Vključili smo 52 nezdravljenih pacientov z POAG ali OHT. Stopnje glavkomske okvare smo opredelili z povprečnim odklonom (MD) in označili kot začetno (MD < 6dB), srednje hudo (MD 6-12dB) in hudo okvaro (MD > 12dB). Očesni pritisk (IOP) je bil merjen pred zdravljenjem in 6 tedenov po začetku zdravljenja z latanoprostom. Krvni vzorci vzeti iz komolčne vene smo uporabili za genotipizacijo polimorfizmov posameznih nukleotidov (SNP) v poti povezani z: aktivacijo latanoprosta (CES1P1 rs3785161), prenašanja (SLCO2A1 rs34550074 in rs4241366), receptorji latanoprosta (PTGFR rs3753380); antioksidanti (GSTM1*0, GSTT1*0, GSTP1 rs1695 in rs1138272, SOD2 rs4880, CAT rs1001179, GPX1 rs1050450); vnetja (TNF rs1800629, IL1B rs16944 in rs1143623, IL6 rs1800795). Naredili smo različne statistične teste, logistično regresijo in uporabili dominantne in aditivne genske modele.

REZULTATI: Genotipi SOD2 rs4880 CT (Padd=0.036), CAT rs1001179 TT (Padd=0.012) in TNF rs1800629 GG (Pdom=0.012) po zdravljenju z latanoprostom so bili znatno povezani z absolutnim znižanjem IOP, dokler nosilci vsaj ene kopije GSTT1 so imeli večji odstotek znižanja IOP-a v dominantnem modelu (P=0,024). Drugi preučevani polimorfizmi niso bili statistično značilno povezani z odzivom na zdravljenje z latanoprostom.

ZAKLJUČEK: Farmakogenetski označevalci, povezani z odzivom na zdravljenje z latanoprostom, lahko prispevajo k učinkovitejšemu in prilagojenemu zdravljenju POAG in očesne hipertenzije.

PURPOSE: To search for pharmacogenetic markers of response to latanoprost treatment in patients with primary open-angle glaucoma (POAG) and ocular hypertension.

METHODS: We enrolled 52 treatment naïve patients with POAG or ocular hypertension. The severity of glaucoma was determined by the visual field index mean defect (MD) and classified as early (MD < 6dB), moderate (MD 6-12dB) and advanced (MD > 12dB). Intraocular pressure (IOP) was measured at baseline and 6 weeks after the start of latanoprost treatment, and the IOP values of the most severely affected eye were analysed. Blood samples from the cubital vein were used for genotyping of single nucleotide polymorphisms (SNPs) in pathways associated with: latanoprost activation (CES1P1 rs3785161), transport (SLCO2A1 rs34550074 and rs4241366), receptor (PTGFR rs3753380); antioxidants (GSTM1*0, GSTT1*0, GSTP1 rs1695 and rs1138272, SOD2 rs4880, CAT rs1001179, GPX1 rs1050450); inflammation (TNF rs1800629, IL1B rs16944 and rs1143623, IL6 rs1800795). We performed descriptive statistics, logistic regression analysis and used dominant and additive genetic models.

RESULTS: The genotypes SOD2 rs4880 CT (Padd=0.036), CAT rs1001179 TT (Padd=0.012) and TNF rs1800629 GG (Pdom=0.012) were significantly associated with a decrease in absolute IOP after latanoprost treatment in the additive model, while carriers of at least one GSTT1 gene copy achieved higher percentage of IOP reduction in the dominant model (P=0.024). The other polymorphisms studied were not statistically significantly associated with response to latanoprost treatment.

CONCLUSION: Pharmacogenetic biomarkers associated with response to latanoprost treatment may contribute to more effective and personalised treatment of POAG and ocular hypertension.

PRIMERJAVA MIKROŠANTA IN TRABEKULEKTOMIJE PRI KRATKOROČNEM IZHODU KIRURŠKEGA ZDRAVLJENJA GLAVKOMA

SHORT-TERM OUTCOME OF MICROSHUNT VERSUS TRABECULECTOMY IN SURGICAL MANAGEMENT OF GLAUCOMA

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NAMEN: Primerjali smo varnost in učinkovitost kirurškega zdravljenja glavkoma z mikrošantom in trabekulektomijo.

METODE: V študijo je bila vključena prva kohorta bolnikov, pri katerih smo opravili kirurški poseg z mikrošantom (n=47) in primerjalna skupina bolnikov pri katerih smo opravili trabekulektomijo v enakem časovnem okviru. (n=47). Primarne spremenljivke so bile sprememba očesnega tlaka po 3 in 6 mesecih ter število revizijskih posegov v obeh kirurških skupinah.

REZULTATI: Skupini sta bili primerljivi po starosti, spolu in očesnem tlaku pred operativnim posegom. Pri skupini bolnikov, kjer smo opravili poseg z mikrošantom je bilo 46 oči primernih za analizo po 3 mesecih in 37 po 6 mesecih, v skupini bolnikov, kjer smo opravili trabekuletomijo pa vseh 47 oči. Pooperativno zmanjšanje očesnega tlaka je bilo pomembno večje v skupini operiranih z mikrošantom, in sicer 1. dan po posegu, 1. in 3. teden ter 1., 3. In 6. mesec po posegu. V skupini operiranih z mikrošantom je 12 bolnikov potrebovalo revizijski poseg, od tega je bilo 6 posegov opravljenih v operacijski dvorani in 6 na špranjski svetilki (revizija z iglo in subkonjunktivalna aplikacija 5-FU). V skupini operiranih s trabekulektomijo je bilo opravljenih 20 revizijskih posegov, od tega 16 na špranjski svetilki, 3 v operacijski dvorani in 1 vstavitev glavkomskega drenažnega implanta.

ZAKLJUČEK: Znižanje očesnega tlaka je bilo 6 mesecev po operaciji večje pri skupini bolnikov, kjer smo opravili kirurški poseg z mikrošantom. Prav tako je bilo pri tej skupini bolnikov v prvih pooperativnih mesecih potrebno opraviti manj revizijskih posegov.

PURPOSE: To compare the efficacy and safety of MicroShunt with trabeculectomy.

METHODS: The first consecutive cohort of MicroShunt procedures (n=47) was compared with a recent historical trabeculectomy procedures (n=47). Primary endpoints included changes in intraocular pressure at 3 and 6 months and the number of interventions in each surgical group.

RESULTS: There were no significant differences in age, sex and intraocular pressure before surgery between the trabeculectomy and MicroShunt cohorts. In the MicroShunt group, 46 eyes were available for analysis at 3 months and 37 eyes at 6 months, compared with 47 eyes after trabeculectomy. The reduction in intraocular pressure (absolute and relative) was significantly greater in the MicroShunt group than in the trabeculectomy group at day 1, week 1, week 3 and at 1, 3 and 6 months. In the MicroShunt group, 12 procedures were required, of which 6 revisions were performed in the operating rooms, while others were performed at the slit lamp (needle revisions and subconjunctival injection of 5-fluorouracil). In the trabeculectomy group, 20 interventions were required, of which 16 eyes required needling at the slit lamp, 3 revisions of filtering blebs in the operating room and one failed bleb required long tube glaucoma drainage implant.

CONCLUSION: The MicroShunt was superior to trabeculectomy in lowering intraocular pressure 6 months after surgery and required fewer interventions in the first postoperative months.

TVEGANJE ZA ZAPORO MREŽNIČNE VENE PRI UPORABI NOVEJŠIH ZDRAVIL ZA ZDRAVLJENJE SLADKORNE BOLEZNI TIPA 2

RISK OF RETINAL VEIN OCCLUSION WITH NEWER ANTIDIABETIC DRUGS

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NAMEN: Od leta 2006 je Evropska agencija za zdravila (EMA) odobrila več novih zdravil za zdravljenje sladkorne bolezni (SB) tipa 2, med katerimi so zaviralci dipeptidil peptidaze 4 (DPP-4), agonisti glukagonu podobnega peptida 1 (GLP-1RA) ter zaviralci natrijevih glukoznih ko-prenašalcev 2 (SGLT2). Predstavili bomo klinični primer bolnika z zaporo centralne mrežnične vene (CRVO – iz *angl*. central retinal vein occlussion) ob uporabi zaviralca SGLT2 in pregled literature povezave zdravljenja z novejšimi antidiabetiki in RVO.

METODE: Pregled literature in predstavitev primera.

REZULTATI: Primer ishemične CRVO pri 46-letnem moškem s SB tipa 2 in dislipidemijo na terapiji z dapagliflozinom

- zaviralcem SGLT2. Ob pregledu je bila najboljša korigirana vidna ostrina desnega očesa (DO) 0,1 in levega očesa (LO) 1,0 po Snellenu. Sprednji očesni deli so bili v mejah normale. Na očesnem ozadju DO so bili edematozna papila vidnega živca, široke in zvijugane mrežnične vene, številne intraretinalne krvavitve v vseh štirih kvadrantih ter edem v rumeni pegi. Očesno ozadje LO je bilo v mejah normale, brez znakov za diabetično retinopatijo. Z opravljenimi laboratorijskimi preiskavami nismo našli drugega vzroka za zaporo mrežnične vene, vrednost glikiranega hemoglobina (HbA1c) je bila 7,2%, krvni pritisk in lipidogram sta bila v mejah normale.

V PubMed bazi smo preverili literaturo o uporabi novejših antidiabetikov in tveganju za CRVO. Do sedaj je objavljen le članek, v katerem je predstavljena večja Korejska kohortna študija, ki vključuje približno 100 000 odraslih s SB tipa 2. Le-ta je pokazala, da je zdravljenje z zaviralci SGLT2 statistično značilno povezano z večjim tveganjem za RVO v primerjavi z zdravljenjem z drugimi antidiabetiki. Zaviralci SGLT2 znižujejo glukozo v krvi s povečanjem izločanja glukoze z urinom, povzročijo osmotsko diurezo, kar lahko vodi v neželene učinke, povezane s pomanjkanjem volumna plazme. Povečana viskoznost krvi povzroči tudi nenormalno agregacijo eritrocitov, kar še poveča nagnjenost bolnika k venski stazi. Navedeni mehanizmi predstavljajo tveganje za trombozo mrežnične vene.

ZAKLJUČEK: Med novejšimi antidiabetičnimi zdravili so zdravila iz skupine zaviralcev SGLT2 povezana z večjim tveganjem za RVO. Pri zdravljenju SB z zaviralci SGLT2 je zato potrebno izvajati ukrepe proti dehidraciji, kar vključuje tudi ozaveščanjem bolnikov o pomenu zadostnega uživanja vode.

PURPOSE: Several newer antidiabetic drugs, including dipeptidyl peptidase-4 (DPP-4) inhibitors, glucagon-like peptide-1 receptor agonists (GLP-1RA), and sodium-glucose cotransporter-2 (SGLT2) inhibitors, have been approved by the European Medicines Agency since 2006. Our aim is to present a case of central RVO associated with the use of SGLT2 inhibitors and to review the literature on the association between each group of newer antidiabetic drugs and retinal vein occlusion (RVO).

METHODS: Case report and literature review.

RESULTS: We present a case of ischaemic central RVO in a 46-year-old man with type 2 diabetes and dyslipidaemia treated with the SGLT2 inhibitor dapagliflozin. Ophthalmological examination revealed best corrected visual acuity (Snellen) of 0.1 in the right eye (RE) and 1.0 in the left eye (LE). Anterior segments were normal with open angles bilaterally. Fundus examination of the RE revealed an edematous optic disc, dilated and tortuous retinal veins with intraretinal haemorrhages in all four quadrants and cystoid macular edema (CME). Fundus examination of the LE showed a normal optic disc and macula and no evidence of diabetic retinopathy. Laboratory tests including complete hypercoagulability and thrombotic workup were unremarkable, HbA1c was 7.2%, his blood pressure and lipid profile were within normal range.

A systematic review of the literature from a PubMed search of newer antidiabetic drugs and risk of RVO yielded only 1 article. A very large Korean cohort study of 100,000 propensity score-matched adults with type 2 diabetes found that treatment with SGLT2 inhibitors was significantly associated with a higher risk of RVO than treatment with other glucose-lowering drugs. SGLT2 inhibitors are associated with a significantly increased risk of RVO. They lower blood glucose by increasing urinary glucose excretion and causing osmotic diuresis, which can lead to adverse effects associated with volume depletion. Increased blood viscosity leads to abnormal erythrocyte aggregation and high vascular resistance predisposes the patient to venous stasis. This combination makes the retinal vein particularly susceptible to thrombosis in the hyperviscosity state.

CONCLUSION: Treatment of diabetes with SGLT2 inhibitors may be associated with an increased risk of RVO. Care should be taken to ensure that appropriate measures are taken to prevent dehydration associated with the use of SGLT2 inhibitors, including appropriate patient education.

LASERSKO ZDRAVLJENJE MAKROANEURIZEM MREŽNICE V MAKULI

LASER TREATMENT OF RETINAL MACROANEURYMS IN THE MACULA

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NAMEN: Predstavitev uspešnosti laserskega zdravljenja makroaneurizem (MA) mrežnice v makuli.

BOLNIKI in METODE: V raziskavo je bilo vključenih 14 bolnikov z eno ali več MA v makuli, ki so bile primarne ali v sklopu okluzije veje centralne retinalne vene, diabetične retinopatije ali Coatsove bolezni. Korigirana vidna ostrina (VO) je bila merjena s Snelenovo tablico. Nekateri bolniki so bili pred laserskim zdravljenjem zdravljeni z anti-VEGF. Z optično koherentno tomografijo smo izmerili debelino in ocenili serozni dvig mrežnice v centru makule. Pri vseh bolnikih je bila opravljena fluoresceinska angiografija z lokalizacijo MA. Za lasersko zdravljenje so bili izbrani bolniki z MA v makuli in izven makulopapilarnega snopa ter fovee. Uporabili smo fokalno lasersko fotokoagulacijo z argon laserjem 577 nm.

REZULTATI: Korigirana vidna ostrina pred zdravljenjem MA mrežnice v makuli je bila povprečno 0,49 ± 0,39. Povprečna debelina mrežnice v centru makule je bila 379 ± 112 µm, medtem ko so imeli 3 bolniki centralni serozni dvig mrežnice. 6,1 ± 4,8 mesca po zdravljenju s fokalno lasersko fotokoagulacijo MA v eni do dveh seansah se je korigirana VO izboljšala pri 9 od 14 bolnikov, pri ostalih je ostala enaka in je dosegla povprečno vrednost 0,63 ± 0,31. Centralni makularni edem po laserskem zdravljenju se je zmanjšal pri vseh bolnikih in povprečna centralna debelina mrežnice se je zmanjšala povprečno na 281 ± 110 µm. Serozni dvig mrežnice v makuli je izginil pri vseh bolnikih. Krvavitve in trdi eksudati so se izrazito zmanjšali.

ZAKLJUČEK: Fokalna laserska fotokoagulacija je uspešna metoda zdravljenja MA mrežnice v makuli, ki ne zajema fovee ali makulopapilarnega snopa.

PURPOSE: Presentation of the success of laser treatment of retinal microaneurysms (MA) in the macula.

PATIENTS and METHODS: The study included 14 patients with one or more MA in the macula, which were primary or part of central retinal vein occlusion, diabetic retinopathy, or Coats disease. Corrected visual acuity (VA) was measured by a Snellen chart. Some patients were treated with anti-VEGF before laser treatment. Optical coherence tomography was used to measure the thickness and evaluate the serous detachment of the retina in the centre of the macula. Fluorescein angiography with MA localization was performed in all patients. Patients with MA in the macula and outside the papillomacular bundle and fovea were selected for laser treatment. We used focal laser photocoagulation with a 577 nm argon laser.

RESULTS: Pretreatment corrected VA for retinal MA in the macula averaged 0.49 ± 0.39. The mean retinal thickness in the centre of the macula was 379 ± 112 µm, while 3 patients had a central serous retinal detachment. 6.1 ± 4.8 months after treatment with focal laser photocoagulation of MA in one to two sessions, the corrected VA improved in 9 out of 14 patients, in the rest it remained the same and they all reached an average value of 0.63 ± 0.31. Central macular oedema decreased in all patients. The mean central retinal thickness after treatment was 281 ± 110 µm. Serous retinal detachment in the macula disappeared in all patients. Bleeding and hard exudates were markedly reduced.

CONCLUSION: Focal laser photocoagulation is a successful treatment method for retinal MA in the macula that does not involve the fovea or papillomacular bundle.

LONGITUDINALNE ZNAČILNOSTI PRI AKUTNI IDIOPATSKI MAKULOPATIJI

LONGITUDINAL FEATURES IN ACUTE IDIOPATHIC MACULOPATHY

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NAMEN: Akutna idiopatska makulopatija (AIM) je redka vnetna bolezen makule, ki se pojavlja pri mladih bolnikih in povzroči prehodno hudo izgubo vida s seroznim odstopom v makuli. Naš namen je bil opredeliti longitudinalni potek AIM z uporabo multimodalnih slikovnih metod.

METODE: Retrospektivna, multicentrična serija bolnikov z diagnozo AIM. Pregledali smo zdravstveno dokumentacijo in multimodalni slikovni prikaz, vključno z najboljšo korigirano vidno ostrino (BCVA), barvnim slikanjem očesnega ozadja, optično koherentno tomografijo (OCT) in avtofluorescenco očesnega ozadja (FAF).

REZULTATI: Vključili smo 16 bolnikov s povprečno starostjo 29,9 let in povprečnim obdobjem spremljanja 23,9 meseca. Povprečna izhodiščna BCVA je bila 0,63±0,54 logMAR in je bila pomembno povezana z okvaro elipsoidne cone (EZ) vidne na OCT (Spearmanov koeficient korelacije, r = 0,508 p = 0,01). Izboljšanje vidne ostrine je trajalo v povprečju 4 mesece. Za 13 oči smo določili čas potreben za obnovitev posameznih zunanjih slojev mrežnice in BCVA. Vzpostavitvitev zunanjih slojev mrežnice je potekala v zaporedju (1) obnove zunanje mejne membrane (ELM), (2) obnove EZ in (3) interdigitalne cone (IZ). Povprečna BCVA ob obnovi ELM in EZ je bila 0,04 ± 0,004 oziroma 0,01 ± 0,001 (parni t-test; p = 0,05). Med potekom bolezni smo ugotavljali štiri zaporedne vzorce FAF. Na prvem obisku sta bila prisotna dva vzorca FAF: centralna hipoavtofluorescenca obdana s hiperavtofluorescenco ob robu lezije (vzorec FAF 1) in lisast vzorec hipoavtofluorescence in hiperavtofluorescence (vzorec FAF 2). Na zadnjem obisku: centralna hiperavtofluorescenca s hipoavtofluorescenco ob robu lezije (vzorec FAF 3) in hipoavtofluorescentna lezija (vzorec FAF 4). Vzorec 1 je bil statistično pomembno povezan s krajšim trajanjem bolezni (1,8 ± 0,8 dni, t-test: p < 0.001) v primerjavi z vzorcem 2 (13,9 ± 5,2 dni) ter prisotnostjo seroznega odstopa mrežnice (Fisherjev test; p = 0,003) in intaktnega RPE (Mann-Whitneyjev test, p = 0,02) na OCT. Vzorec 3 je bil statistično pomembno povezan s krajšim trajanjem bolezni (203,0 ± 91,1 dni, Mann-Whitneyjev test, p < 0,001) v primerjavi z vzorcem 4 (1057,9 ± 639,2).

ZAKLJUČEK: Na podlagi longitudinalnih rezultatov, smo ugotavljali, da bolezen sledi točno določenim morfološkim stopnjam bolezni, za katere so značilni vzorci FAF, ki ustrezajo specifičnim značilnostim na barvnih slikah očesnega ozadja in OCT, medtem ko se vidna ostrina postopoma izboljšuje. Ugotovitve te študije pomagajo zdravnikom pri pravilni diagnozi in svetovanju bolnikom.

PURPOSE: Acute idiopathic maculopathy (AIM) is a rare inflammatory macular disease that occurs in young patients and leads to severe transitional visual loss and serous macular detachment. Our aim was to analyse the longitudinal course of the disease using multimodal imaging.

METHODS: Retrospective multicenter case series of patients diagnosed with AIM. We reviewed the medical records and multimodal imaging including best corrected-visual acuity (BCVA), color fundus photography, optical coherent tomography (OCT) and fundus autofluorescence (FAF).

RESULTS: Sixteen patients with average age 29.9 and mean follow-up of 23.9 months were included. Mean baseline BCVA was 0.63±0.54 logMAR and was significantly correlated with the ellipsoid zone (EZ) disruption seen in OCT. Recovery of visual acuity took on average 4 months. For 13 eyes, we determined the time needed for restoration of the individual outer retinal layer with corresponding BCVA. The recovery seen on OCT involved a sequence of (1) restoration of external limiting membrane (ELM), (2) restoration of EZ, and (3) restoration of interdigitational zone (IZ). The mean BCVA upon restoration of ELM and EZ was 0.04±0.004 logMAR and 0.01±0.001 logMAR, respectively (paired t-test; p=0.05). Four sequential patterns of FAF were found during the course of the disease. FAF patterns 1 (central hypoautofluorescence with surrounding hyperautofluorescence) and 2 (stippled hyperautofluorescence and hypoautofluorescence) were found at presentation. FAF patterns 3 (central hyperautofluorescence surrounded by hypoautofluorescence) and 4 (hypoautofluorescence) were observed during the disease course and/or at the last follow-up visit. Pattern 1 was significantly associated with shorter disease duration (1.8±0.8 days, t-test: $p < 0.001$) in comparison with pattern 2 (13.9±5.2 days), the presence of subretinal detachment (Fisher's exact test; $p = 0.003$) and intact RPE (Mann-Whitney test, $p = 0.02$) on OCT. Pattern 3 was statistically significantly associated with shorter disease duration (203.0±91.1 days, Mann-Whitney test, $p < 0.001$) compared to pattern 4 (1057.9±639.2).

CONCLUSION: Based on our longitudinal results, we found that the disease follows well-defined morphologic stages of the disease, characterized by FAF patterns that correspond to specific features on color fundus images and OCT, while visual acuity gradually improves. This can help clinicians in the correct diagnosis and patient counselling.

PRESEJALNI PROGRAM ZA ODKRIVANJE DIABETIČNE RETINOPATIJE V SPLOŠNI BOLNIŠNICI IZOLA

DIABETIC RETINOPATHY SCREENING IN GENERAL HOSPITAL IZOLA

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NAMEN: V Splošni bolnišnici Izola s presejalnim programom za odkrivanje diabetične retinopatije ne zmoremo obdelati načrtovanega števila pacientov. Pomanjkljivost presejalnega programa so predvsem dolge čakalne dobe, zato program ne dosega svojega namena. Z raziskavo smo poskušali opredeliti vzroke za velike zaostanke, ki vplivajo na dolge čakalne dobe.

METODE: Natančno smo preučili kadrovsko stanje na Očesnem oddelku ter protokol naročanja v presejalni program za odkrivanje diabetične retinopatije. Pregledali smo vso dokumentacijo pacientov od septembra 2022 do februarja 2023. Obenem smo se povezali z diabetologi, ki delujejo v naši regiji. Skupaj smo definirali glavne težave presejalnega programa pri nas.

REZULTATI: Zaostanki v presejalnem programu se pojavljajo na več nivojih:

1) Neustrezne napotitve: v program se napotujejo pacienti, ki vanj ne sodijo. Vzrok niso le nepravilne napotitve diabetologov, ampak tudi družinskih zdravnikov.
2) Nezadosten kader: na očesnem oddelku je zaposlenega premalo osebja za učinkovito izvajanje programa.
3) Nenačrtovane prekinitve delovanja programa v preteklosti: epidemija COVID-19, selitev oddelka.
4) Priliv pacientov iz drugih regij.
5) Preveč podrobna obravnava pacientov vzame preveč časa.

ZAKLJUČEK: Z raziskavo smo poskušali jasno opredeliti, zakaj sistem presejanja bolnikov s sladkorno boleznijo v naši regiji ne dosega zastavljenih ciljev. Na podlagi dobljenih rezultatov bomo lahko oblikovali učinkovitejšo strategijo izvajanja presejalnega programa za odkrivanje diabetične retinopatije, ki predstavlja pomemben člen v procesu zdravljenja sladkornih bolnikov.

PURPOSE: In General hospital Izola we cannot meet the demands of our public retinopathy screening programme. Our biggest issues are long waiting lists. Because of those, the screening programme is less effective. The purpose of our study was to identify causes for the delay in patient screening.

METHODS: We took a look at the staff situation in our department. After that we had a close inspection of our administrative procedures. We then gathered information about patients screened during September 2022 and February 2023. Finally we connected with diabetologists in our region to identify problems of our screening programme. RESULTS: Issues in screening programme for diabetic retinopathy appear on several levels:

1) Unnecessary referrals: some patients included in screening programme are in need of different medical protocols. So called »bad referrals« are not just a problem of diabetologists but also of general practitioners in our region.
2) Staff issues: we lack medical personnel to lead an effective programme.
3) Temporary programme shutdowns in the past: COVID-19 epidemic, renovation of ophthalmology department.
4) Patients coming from other regions.
5) Very detailed screening programme examination is extremely time consuming.

CONCLUSION: The purpose of our study was to determine why our screening programme is not as effective as it should be. The results will help us form new strategies for our diabetic patients. As it is, diabetic retinopathy screening programme is a very important part of diabetic patients medical care.

PERIPAPILARNI PAHIHOROIDALNI SINDROM
PERIPAPILLARY PACHYCHOROID SYNDROME

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UVOD: Izraz spekter pahihoroidalnih bolezni (PDS) se nanaša na skupino mrežnično-žilničnih bolezni, pri katerih najdemo skupne značilne spremembe na nivoju žilnice, ki jih ugotovimo s pomočjo multimodalnih slikanj. Te pahihoroidalne spremembe vključujejo lokalizirano ali difuzno zadebelitev žilnice, razširjeno žilje v Hallerjevem sloju s stanjšanjem nad njimi ležeče žilnice in povečano prepustnost horoidalnega žilja, kar dokažemo z indocyanin green angiografijo (ICGA).

Peripapilarni pahihoroidalni sindrom (PPS) je bil prepoznan nedavno kot posebna različica PDS, pri kateri so pahihoroidalne značilnosti prisotne ob vidnem živcu in so povezane s kopičenjem intraretinalne in/ali subretinalne tekočine v nazalnem delu rumene pege. Zadebelitev žilnice je torej največja ob vidnem živcu, njena debelina pa se hitro zmanjša proti temporalnemu delu. PPS se pojavlja obojestransko in pogosteje pri hipermetropih očeh in krajših aksialnih dolžinah (pod 23 mm). Druge pogoste najdbe so še gube žilnice, višja starost in nizko razmerje C/D (»cup to disc ratio«). Vzrok bolezni ni znan, se pa predvideva, da je bolezen povezana z disfunkcijo horoidalne cirkulacije, ki ima za posledico povečano prepustnost žilja in uhajanje tekočine pod in/ali v mrežnico.

NAMEN: Predstavitev primera dveh bolnikov s PPS, z izsledki diagnostičnih preiskav in zdravljenjem.

ZAKLJUČEK: Zaenkrat ni jasnih smernic za zdravljenje PPS. Preizkušenih je bilo več načinov zdravljenja: topikalni in/ali sistemski zaviralci karboanhidraze (CAI), anti-VEGF terapija, fotodinamična terapija (PDT). Rezultati so bili različni. Opisan je bil tudi pozitiven učinek topikalnih steroidov na intraretinalno tekočino, ki pa bi jih bilo potrebno uporabljati daljše časovno obdobje ali pa jih uporabiti v kombinaciji z drugimi terapevtskimi postopki, kot je na primer PDT, da bi dosegli dolgotrajni učinek in preprečili ponovitve bolezni. Cistoidni makularni edem (CME) pri PPS lahko precej niha in tudi spontano izzveni. Če poslabšanje vidne funkcije ni bistveno, se lahko odločimo samo za spremljanje in opazovanje. Za učinkovito zdravljenje PPS bodo potrebne še dodatne raziskave.

INTRODUCTION: The pachychoroid disease spectrum (PDS) refers to a group of retinochoroidal disorders that share distinctive choroidal findings identified with multimodal retinal imaging. These features include focal or diffuse choroidal thickening, dilated Haller layer vessel (»pachyvessels«) with thinning of the overlying inner choroid and choroidal vascular hyperpermeability demonstrated with indocyanine green angiography (ICGA). Peripapillary pachychoroid syndrom (PPS) has been recently identified as a distinct PDS variant, in which pachychoroid features surround the optic nerve and are associated with accumulation of intraretinal and/or subretinal fluid in the nasal macular region. In PPS, the thickest choroidal region is located nasally to the fovea, with thickness sharply decreasing towards the temporal side. PPS occur bilateraly and more frequently in hyperopic patients and in short axial lenghts (less than 23 mm). Other common features are choroidal folds, older age and small cup-to-disc ratio. The etiology is unknown, but it is believed to be related to the dysfunction of choroidal circulation, which leads to increased permeability and leakage of fluid into the overlying retina.

PURPOSE: To present 2 cases with PPS, challenges concerning correct diagnosis and treatment.

CONCLUSION: There are no clear guidelines for the management of PPS. Several therapeutic modalities have been tested in the past, such as topical and/or systemic carbonic anhydrase inhibitors (CAIs), intravitreal anti-VEGF injections and photodynamic therapy (PDT), with variable outcomes. The beneficial effect of topical steroid on the peripapillary intraretinal fluid (IRF) was also described and may need to be applied over extended periods of time or combined with other therapeutic modalities such as PDT in order to bring about long-lasting results and facilitate the prevention of relapses. Cystoid macular edema (CME) in PPS may significant fluctuate and even resolve spontaneously, and sometimes observation should be the initial approach especially if there is no significant change in vision. Further studies are needed for an effective management of PPS.

KLINIČNE ZNAČILNOSTI ZAPORE CENTRALNE RETINALNE VENE PRI MLAJŠIH BOLNIKIH

CLINICAL MANIFESTATIONS OF CENTRAL RETINAL VEIN OCCLUSION IN YOUNG PATIENTS

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NAMEN: Povzeti razlike v dejavnikih tveganja, kliničnih značilnostih, zdravljenju in prognozi zapore centralne vene mrežnice med mlajšimi in starejšimi bolniki.

METODE: Pregled literature in predstavitev kliničnih primerov mlajših bolnikov z zaporo centralne retinalne vene.

REZULTATI: Incidenca za nastanek centralne retinalne vene pri mlajših bolnikih znaša 0.23/1000, kar skupno predstavlja 10-15% vseh primerov zapore centralne retinalne vene. Čeprav so etiološki dejavniki za nastanek zapore centralne retinalne vene pri mlajših bolnikih bolj raznoliki kot pri starejših, srčnožilne bolezni predstavljajo pomemben dejavnik tveganja za nastanek obolenja, zaradi česar je potrebno v sklopu diagnostične obravnave pri mlajših bolnikih nanje pomisliti in jih izključiti. Ključnega pomena je čimprejšnja diagnoza in opredelitev etiologije nastanka zapore centralne retinalne vene ter pričetek zdravljenja, ki omogoča boljšo prognozo vidne ostrine. Pri mlajših bolnikih je zdravljenje makularnega edema z intravitrealnimi zaviralci žilnih endotelijskih rastnih dejavnikov (VEGF) manj pogosto. Kljub temu ima 20% bolnikov slabo vidno prognozo z neovaskularnimi zapleti.

SKLEP: Etiologija, patogeneza, zdravljenje in prognoza centralne retinalne vene se med mlajšimi in starejšimi bolniki razlikujejo. Zaradi nizke incidence zapore centralne retinalne vene pri mlajših bolnikih so klinični podatki za to starostno skupino omejeni. Potrebne so nadaljnje raziskave za razumevanje bolezni in zdravljenje mladih bolnikov.

PURPOSE: To summarize the differences in etiological factors, clinical manifestations, treatment, and prognosis between young and elderly patients with central retinal vein occlusion (CRVO).

METHODS: To review the literature and present clinical cases of young patients with CRVO.

RESULTS: The incidence of CRVO in young patients is 0.23/1000. CRVO in young patients accounts for 10–15% of the total number of CRVO cases. Compared with CRVO in the elderly, the etiological factors of CRVO in young patients are more diverse. In both, young and elderly patients, traditional cardiovascular risk factors are closely related to the development of CRVO. Thus, traditional risk factors should be the primary considerations when determining the etiology of CRVO in young patients despite non-traditional risk factors being more common in this age group. The etiology and severity of disease should be identified as early as possible for prompt initiation of targeted treatment, which can lead to a better visual prognosis. The need for intravitreal anti-VEGF for macular oedema is less in young patients with CRVO. However, at least 20% of patients develop poor visual outcome with severe neovascular complications.

CONCLUSION: The etiology, pathogenesis, teratment and prognosis betweeen young and elderly patients with CRVO are different. Due to the low incidence of CRVO in young patients, clinical data from these age groups are limited. Hence, further studies are warranted to explore the differences between age groups to improve individualization of treatment of young patients.

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VLOGA VEGF RECEPTORJEV IN MOLEKULE AFLIBERCEPTA V PATOGENEZI IN ZDRAVLJENJU EKSUDATIVNIH MREŽNIČNIH BOLEZNI

ROLE OF VEGF RECEPTORS AND AFLIBERCEPT IN THE PATHOGENESIS AND TREATMENT OF EXUDATIVE RETINAL DISEASES

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NAMEN: predstaviti trenutno razumevanje vloge receptorjev žilnega endotelnega rastnega dejavnika (VEFG) in njihovih ligandov v patogenezi eksudativnih bolezni mrežnice, ter pregledati kako se molekularne lastnosti aflibercepta odražajo v njihovem zdravljenju v klinični praksi.

METODE: pregled ključnih raziskav na tem področju.

REZULTATI: Aflibercept je bispecifična fuzijska beljakovina, oblikovana kot past za VEGF in placentalni rastni dejavnik (PIGF), z visoko afiniteto in dolgim intraokularnim razpolovnim časom. Ustrezno izvajanje proaktivnega, individualiziranega režima "zdravi in podaljšaj" (ZIP) z afliberceptom, zagotavlja pomembno izboljšanje vida pri bolnikih z neovaskularno starostno degeneracijo makule (nAMD), diabetičnim makularnim edemom (DME) in zaporo mrežničnih ven (RVO). Bolniki z nAMD so dosegli tako v kliničnih raziskavah, kot v realnem kliničnem okolju, podaljšane intervale zdravljenja z afliberceptom 12 tednov in do 16 tednov, z zmanjšanim bremenom zdravljenja po prvem letu. Bolniki z DME so po zgodnjem, intenzivnem odmerjanju ohranili pomembno pridobitev vida, z možnostjo podaljšanja intervalov zdravljenja z afliberceptom v 2. letu. Bolniki z RVO so z odmerjanjem aflibercepta po režimu ZIP dosegli pomembno pridobitev vida v prvem letu zdravljenja.

ZAKLJUČEK: Proaktivni, individualizirani režim ZIP z afliberceptom zagotavlja učinkovit in praktičen pristop k zdravljenju bolnikov z eksudativnimi boleznimi mrežnice, ter s tem zmanjšanje bremena zdravljenja.

PURPOSE: To present the current understanding of VEGF receptors and its ligands in the pathogenesis of exudative retinal diseases and to evaluate how the molecular properties of aflibercept translate into their treatment in clinical practice.

METHODS: Review of the key research in the field.

RESULTS: Aflibercept is a bispecific fusion protein designed as a trap for VEGF and placental growth factor (PIGF), with high affinity and a long intraocular half-life. Appropriate implementation of a proactive, individualized treat and extend (T&E) aflibercept regimen provides meaningful vision gains in patients with neovascular age-related macular degeneration (nAMD), diabetic macular oedema (DME) and retinal vein occlusion (RVO). Patients with nAMD reached extended treatment intervals 12 weeks and up to 16 weeks in both clinical trials and the real-world, with a reduction in treatment burden after first year. Patients with DME maintained significant visual gain after early, intensive dosing, with the possibility of extending treatment intervals with aflibercept in year 2. Patients with RVO achieved a significant gain in vision during the first year of treatment with aflibercept dosing according to the T&E regimen.

CONCLUSION: A proactive, individualized T&E regimen with aflibercept provides an efficacious and practical approach for the management of patients with nAMD, with a reduction in treatment burden.

BIOPSIJA S TANKO IGLO PRI PRIMARNEM VITREORETINALNEM LIMFOMU

FINE NEEDLE ASPIRATION BIOPSY IN PRIMARY VITREORETINAL LYMPHOMA

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NAMEN: Primarni vitreoretinalni limfom (PVRL) običajno diagnostiramo po odvzemu vzorca steklovine in njeni citopatološki analizi, kjer iščemo prisotnost morebitnih tumorskih – limfomskih celic. Če limfomskih celic v odvzetem vzorcu steklovine s celično analizo ne moremo dokazati, ob sicer suspektnem PVRL, za potrditev diagnoze opravimo biopsijo subretinalnih infiltratov. Namen predstavitve je prikazati tehniko biopsije s tanko iglo subretinalnih infiltratov pri suspektnem PVRL.

METODE: Retrospektivna študija; prikaz kliničnih primerov in metode aspiracijske 41-gauge biopsije s tanko iglo subretinalnih infiltratov pri bolnikih s sumom na PVRL.

REZULTATI: Biopsijo s tanko iglo subretinalnega tkiva smo opravili pri sedmih bolnikih s sumom na PVRL. Pri petih smo z aspiracijsko biopsijo s tanko iglo mrežnice potrdili diagnozo.

ZAKLJUČEK: Aspiracijska biopsija s tanko iglo je pomembno diagnostično orodje za postavitev diagnoze PVRL pri bolnikih z negativno citološko analizo steklovinskega vzorca, pri bolnikih z odsotnimi ali z malo številčnimi tumorskimi celicami v steklovini.

PURPOSE: Primary vitreoretinal lymphoma (PVRL) is usually diagnosed after taking a sample of the vitreous and its cytopathological analysis, where we look for the presence of possible tumor-lymphoma cells. If it is not possible to demonstrate lymphoma cells in the vitreous sample taken by cell analysis, if PVRL is otherwise suspected, a biopsy of the subretinal infiltrates is performed to confirm the diagnosis. The purpose of the presentation is to demonstrate the technique of fine needle biopsy of subretinal infiltrates in suspected PVRL.

METHODS: Retrospective study; presentation of clinical cases and method of aspiration 41-gauge fine needle biopsy of subretinal infiltrates in patients with suspected PVRL.

RESULTS: Fine needle biopsy of the subretinal tissue was performed in seven patients with suspected PVRL. In five cases, the diagnosis was confirmed by aspiration fine needle biopsy of the retina.

CONCLUSION: Fine-needle aspiration biopsy is an important diagnostic tool for establishing the diagnosis of PVRL in patients with a negative cytological analysis of the vitreous sample, in patients with absent or few tumor cells in the vitreous.

REZULTATI ZDRAVLJENJA EPIMAKULARNE MEMBRANE S NOVO KIRURŠKO TEHNIKO

SURGICAL OUTCOMES OF NEW PEELING TECHNIQUE FOR MACULAR PUCKER

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NAMEN: Poročati o učinkovitosti ter primerjati anatomski in funkcionalni izid kirurškega posega za luščenje epimakularne membrane (ERM) z dvema različnima kirurškima tehnikama.

METODE: Prospektivno smo proučevali skupno 28 primerov pacientov z ERM. Pacienti so bili razdeljeni v dve skupini: 14 primerov iz prve skupine je bilo zdravljenih s 25-gauge pars plana vitrektomijo z luščenjem membrane s mikropinceto, medtem ko je bilo v 14 primerih druge skupine luščenje ERM opravljeno le z vitrektomom.

Analizirani so bili kirurški izidi glede najboljše korigirane ostrine vida (NKVO) merjene na optotipih po Snellenu in centralne debeline mrežnice (CRT), merjene s pomočjo optične koherenčne tomografije.

REZULTATI: Popolno luščenje ERM je bil dosežen v vseh primerih. Paciente smo spremljali vsaj 6 mesecev po operaciji. NKVO se je izboljšala s povprečnih predoperativnih 0,39 (razpon: 0,16–0,6) na 0,58 (razpon: 0,2–1,0) po operaciji v prvi skupini in iz 0,27 (razpon: 0,1–0,5) na 0,65 (razpon: 0,1–1,0) v drugi skupini. Povprečni predoperativni CRT se je zmanjšal s 456,7 µm (razpon: 350-605 µm) na 377 µm (razpon: 252-476) za prvo skupino in s 489,7 µm (razpon: 390-569) na 377,6 µm (razpon: 282-454) za drugo skupino po operaciji. Zapletov med in po operativnem posegu ni bilo.

ZAKLJUČEK: Obe kirurški tehniki sta bili učinkoviti in varni. Tehnika, ki uporablja samo vitrektom, ne zahteva dodatnih instrumentov. Po operaciji je prišlo do anatomskega in funkcionalnega izboljšanja v vseh primerih.

PURPOSE: To report the effectiveness and compare anatomic and functional results of surgery for macular pucker (MP) peel by two different surgical techniques.

METHODS: A total of 28 eyes of 28 patients with MP were prospectively studied. The eyes were divided into two groups: 14 cases included in the first group underwent 25-gauge pars plana vitrectomy with membrane peeling by using microforceps, whereas in 14 cases of the second group the peeling was performed by using only vitreous cutter. Surgical outcomes were analyzed, regarding best-corrected visual acuity (BCVA) measured on Snellen charts and central retinal thickness (CRT) measured by spectral domain optical coherence tomography.

RESULTS: MP peel was achieved in all cases. Patients were followed for at least 6 months. BCVA improved from mean preoperative 0.39 (range: 0.16-0.6) to postoperative 0.58 (range: 0.2-1.0) in first group, and from 0.27 (range: 0.1-0.5) to 0.65 (range: 0.1-1.0) in the second group. Mean preoperative CRT reduced from 456.7 µm (range: 350-605 µm) to 377 µm (range: 252-476) and from 489.7 µm (range: 390-569) to 377.6 µm (range: 282-454) respectively for both groups postoperatively. There were no intra- or postoperative complications.

CONCLUSION: Both surgical techniques resulted to be effective and safe. The technique which uses vitreous cutter only does not require extra instrumentation. It resulted in anatomic and functional improvement in all cases.

POSTTRAVMATSKI ENDOFTALMITIS – KLINIČNI PRIMER

POST-TRAUMATIC ENDOPHTHALMITIS - A CASE REPORT

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NAMEN: Predstaviti klinični primer posttravmatskega endoftalmitisa po penetrantni poškodbi očesa z intrabulbarnim tujkom.

METODE: 59-letni bolnik je ob tolčenju s kladivom utrpel penetrantno poškodbo očesa z intrabulbarnim tujkom. Naredili smo revizijo ter intrakameralno aplikacijo antibiotika (vankomicin), prejemal je tudi sistemsko antibiotično zdravljenje s ceftazidimom. Dan po poškodbi se je razvil posttravmatski endoftalmitis, zaradi katerega smo nemudoma naredili sekundarno oskrbo: vitrektomijo, ekstrakcijo kovinskega intrabulbarnega tujka in intravitrealno aplikacijo antibiotikov (vankomicin, ceftazidim). Povzročitelja endoftalmitisa nismo izolirali.

REZULTATI: Ob terapiji je prišlo do umiritve znotrajočesnega vnetja. Najboljša korigirana vidna ostrina se je izboljšala od 0,1 po Snellenu ob sprejemu na 0,6 po mesecu dni.

ZAKLJUČEK: Posttravmatski endoftalmitis je hud zaplet očesne poškodbe. Pojavi se v 1-16,5 % primerov odprtih poškodb očesa, pogosteje ob prisotnosti intrabulbarnega tujka. Zgodnja diagnoza okužbe predstavlja izziv zaradi sočasne okvare tkiv ob poškodbi in vnetnega odziva nanje. Razvoj posttravmatskega endoftalmitisa lahko zavremo s pravočasno primarno oskrbo odprte poškodbe očesa, znotrajočesno in sistemsko aplikacijo širokospektralnih antibiotikov ter zgodnjo odstranitvijo intrabulbarnih tujkov.

PURPOSE: To present a clinical case of post-traumatic endophthalmitis following a penetrating injury to the eye with an intraocular foreign body (IOFB).

METHODS: A 59-year-old patient suffered a penetrating eye injury with an IOFB while hammering. We performed a revision surgery and intracameral application of antibiotic (vancomycin). He was also initiated on systemic antibiotic treatment with ceftazidime. One day after the injury, post-traumatic endophthalmitis developed, which required immediate secondary surgery: vitrectomy, extraction of the metallic IOFB, and intravitreal application of antibiotics (vancomycin, ceftazidime). The causative agent of endophthalmitis was not isolated.

RESULTS: There was a reduction in intraocular inflammation with treatment. The best-corrected visual acuity improved from 0.1 Snellen at admission to 0.6 1-month postoperatively.

CONCLUSION: Post-traumatic endophthalmitis is a devastating complication of ocular trauma and is reported in 1 - 16.5 % of open globe injuries. It is more frequent in the presence of an IOFB. It can be challenging to diagnose early infection immediately after open globe injury due to trauma-related ocular tissue disruption and inflammation. The development of post-traumatic endophthalmitis can be prevented by timely primary care of open eye injuries, intraocular and systemic administration of broad-spectrum antibiotics, and early removal of IOFBs.

SEKUNDARNA IMPLANTACIJA ZNOTRAJOČESNE LEČE S FIKSACIJO NA BELOČNICO IN CERKLAŽNA PUPILOPLASTIKA PO KONTUZIJSKI POŠKODBI OČESA – KLINIČNI PRIMER

COMBINED FLANGED INTRASCLERAL INTRAOCULAR LENS FIXATION AND IRIS CERCLAGE PUPILOPLASTY FOLLOWING EYE CONTUSION INJURY – CLINICAL CASE

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Predstavljamo primer kirurške obravnave 75 - letne bolnice z afakijo in travmatsko midriazo po kontuzijski poškodbi levega očesa.

Bolnica je utrpela kontuzijsko poškodbo levega očesa z lesenim polenom. Obiskala je Triažno urgentno ambulanto Očesne klinike, kjer je bila opredeljena luksacija umetne znotrajočesne očesne leče v sprednji prekat, travmatska midriaza in močno povišan očesni tlak. Vidna ostrina je bila štetje prstov pred obrazom, znotrajočesni tlak 39 mmHg. Dan po poškodbi smo naredili vitrektomijo in eksplantacijo luksirane umetne intraokularne leče iz sprednjega prekata. Zaradi prizadetega endotela roženice je bolnica po operaciji ostala afaka. Tri mesece po poškodbi smo naredili sekundarno oskrbo. Preko 3 mm incizije na roženici smo vstavili tri-delno umetno intraokularno lečo in jo pričvrstili na sklero po metodi Yamane. Zaradi travmatske midriaze in popolne odsotnosti delovanja šareničnega sfinktra po poškodbi smo naredili pupiloplastiko s tekočim šivom. Intraoperativnih zapletov ni bilo.

Pooperativno je bolnica opažala pomembno izboljšanje vidne ostrine in odsotnost fotofobije. Vidna ostrina poškodovanega očesa šest mesecev po poškodbi je bila 1,0 po Snellenu.

Sekundarna implantacija tri-delne umetne intraokularne leče združena s hkratno pupiloplastiko na predhodno vitrektomiziranem očesu je v prikazanem primeru omogočila izboljšan končni uspeh zdravljenja in hitrejšo rehabilitacijo bolnice.

We present a case of surgical management of a 75-year-old patient with aphakia and traumatic mydriasis following contusion injury to the left eye.

The patient suffered a blunt injury to her left eye with a wooden log. She visited the Emergency Clinic, Department of Ophtalmology, University Medical Centre Ljubljana, where dislocation of the intraocular lens into the anterior chamber, traumatic mydriasis and highly elevated intraocular pressure were found. Visual acuity was counting fingers, and intraocular pressure was 39 mmHg. A day after the injury, we performed vitrectomy and explantation of the intraocular lens from the anterior chamber. Due to the affected corneal endothelium, the patient was temporarily left aphakic. Three months after the injury, we performed second surgical procedure. A three-piece artificial intraocular lens was inserted through a 3 mm clear cornea incision and fixated to the sclera according to the Yamane technique. Due to traumatic mydriasis and complete absence of iris sphincter function after the injury, iris cerclage pupilloplasty was performed. No intraoperative complications were observed.

Postoperatively, the patient observed significant improvement of the visual acuity and absence of photophobia. Visual acuity of the injured eye six months after the injury was 1.0 on Snellen charts.

In our case, secondary implantation of a three-piece artificial intraocular lens combined with pupilloplasty on the previously vitrectomized eye improved final treatment outcome and lead to fast and good rehabilitation of the patient.

EDEM PAPILE VIDNEGA ŽIVCA NASTAL PO PARS PLANA VITREKTOMIJI OPRAVLJENI ZARADI REGMATOGENEGA ODSTOPA MREŽNICE - PRIKAZ PRIMERA

OEDEMA OF THE OPTIC DISC AFTER PARS PLANA VITRECTOMY FOR RHEGMATOGENOUS RETINAL DETACHMENT REPAIR - CASE REPORT

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Obravnavali smo 46 letnega bolnika po opravljeni pars plana vitrektomiji v sub-tenonialni anesteziji zaradi regmatogenega odstopa mrežnice zgornje polovice levega očesa z ležečo makulo. Operacija je potekala brez zapletov, uporabljena je bila tamponada s plinom (C3F8). Pooperativno je 1 teden prejemal 1% Atropin ob ustaljeni topikalni kortikosteroidni ter antibiotični terapiji ter pozicioniral po navodilih. 1 mesec po posegu, ko se je plin povečini resorbiral, je bolnik še vedno opažal senco v spodnji polovici vidnega polja, kot pred posegom. Najboljša korigirana vidna ostrina levega očesa je bila 0,63, prisoten je bil RAPD ter edem papile vidnega živca, barvni vid ni bil prizadet. Bolnik je bil sicer zdrav, brez sistemske ogroženosti ali zdravil. Že pred posegom naj bi bil pod izrazitim z delom povezanim stresom. Bolnika smo sprejeli za nadaljnjo diagnostiko.

Na statični perimetriji je bil viden spodnji altitudinalni defekt, a bi le ta lahko sovpadal z odstopljeno mrežnico. Na flourescinski angiografiji je bila vidna nežna zakasnitev polnjenja zgornjega dela papile s puščanjem kontrasta iz papile v poznih fazah. Opravili smo razširjeno laboratorijsko diagnostiko ter izključili pogoste infekcijske, revmatološke ter protrombotične vzroke edema papile. Za izključitev druz papile smo opravili UZ, ki je pokazal tudi nekoliko razširjen suarahnoidalni prostor ob optičnem živcu. S CT glave smo izključili neoplastično spremebo, je pa t pokazal suspektne hipodenzne lezije v ponsu in podaljšani hrbtenjači. Opravljen je bil še MR glave, ki je pokazal več suspektnih demielinizacijskih lezij bele možganovine ob ventriklih. Za izključitev morebitnega demielinizacijskega procesa vidnega živca je bil konzultiran nevrolog, ki je odkril blago disfunkcijo piramidalnega trakta bolj desne strani, katero bi lahko pripisal dvema prebolelima epizodama meningitisa v mladosti. Svetoval je kontrolni MR ter klinični pregled, demielinizacije ni z gotovostjo izključil. Na kontroli čez mesec dni se je vidna ostrina izboljšala na 1.0, izpad vidnega polja ter RAPD sta ostala nespremenjena. Edem papile je izginil, začela se je pojavljati blaga bledica. Bolnik se je sicer dobro počutil ter se vrnil na delo.

Opisanih je precej primerov z izpadi vidnega polja ter bledico papile po vitrektomiji, opisanih pa je le nekaj primerov z edemom papile. Kot najverjetnejše vzroke štejejo perioperativno očesno hipoperfuzijo, peri ali pooperativnim povišanim IOP ter travmo. Zaključili smo, da je bolnik utrpel sprednjo ishemično optikonevropatijo levega očesa, katera je lahko pogosto spregledana zaradi slabe pooperativne vidne ostrine ob uporabi tamponad, slabe preglednosti očesnega ozadja ter razširjene zenice ob uporabi cikloplegikov.

A 46 year old male was treated for a left eye macula-on upper half rhegmatogenous retinal detachment with a pars plana vitrectomy in sub-tenon anesthesia. The surgery was uneventful, the eye filled with gas (C3F8). Post-op he recieved 1% Atropine drops for 1 week in addition to topical corticosteroids and antibiotics and positioned according to instructions. 1 month after the surgery, as the gas mostly cleared the patient still complained of a shadow in the lower half of the visual field, similiar to the one at initial presentation. BCVA of the left eye was 0,63, there was RAPD of the left eye with marked optic disc oedema. Color vision was not affected. The patient was otherwise healthy, without and systemic risk or medication but said that was under a lot of work related stress even before the detached retina. We admitted him for further diagnostics.

A lower altitudinal visual field defect was found on the static perimetry, but since that could correspond with the detached retina it was ruled non diagnostic. Flourescein angiography showed subtle filling delay of the upper half of the optic disc with late contrast leakage. We ordered a wide blood array and excluded the usual infectious, rheumatologic and other blood and coagulation disorders that could cause the oedema. We excluded optic nerve drusen with an echography, which also showed an enlarged subarachnoydal space of the optic nerve. CT of the head excluded neoplastic lesions but suspected some hypodense lesions of the pons and the medulla. MRI suspected several demyelinating white matter lesions near the ventricles. A neurologist was consulted to rule out demyelinating disease of the optic nerve. He found some pyramidal tract disfunction that was located

more to the right side of the body, but concluded that it could be due to two episodes of meningitis in childhood. The examination was therefore inconclusive and a check up MRI and examination was ordered, demyelinating disease therefore wasn't definitely excluded. During the following month the BCVA of the left eye improved to 1.0, but the visual field defect and RAPD remained. The swelling of the optic disc regressed and it started showing sings of pallor. The patient otherwise felt good and returned to work. There are many reported cases with visual field defects after PPV and optic disc pallor but only a few cases with documented optic disc swelling. The main suspected cause is perioperative ocular hypoperfusion with others being increased IOP and trauma. Our conclusion is that the patient suffered from anterior ischemic optic neuropathy of the left eye, a condition that could often be overlooked due to bad VA with intraocular tamponades, poor visibility of the optic disc and prolonged pupil dilation when using cycloplegics.

DEJAVNIKI, KI VPLIVAJO NA ANATOMSKI IN FUNKCIONALNI IZID PARS PLANA VITREKTOMIJE PRI REGMATOGENEM ODSTOPU MREŽNICE

FACTORS RELATED TO ANATOMICAL AND FUNCTIONAL OUTCOMES IN PARS PLANA VITRECTOMY FOR RHEGMATOGENOUS RETINAL DETACHMENT

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NAMEN: Ocenili smo anatomski in funkcionalni izid zdravljenja regmatogenega odstopa mrežnice s pars plana vitrektomijo (PPV) na podlagi analize predoperativnih dejavnikov in pooperativne analize optične koherentne tomografije (OCT) rumene pege.

METODE: Naredili smo retrospektivno analizo rezultatov zdravljenja pri skupini bolnikov, ki so bili zaradi regmatogenega odstopa mrežnice zdravljeni na Očesni kliniki s PPV v letu 2016. Vključili smo 88 oči 88 bolnikov, pri katerih je bila opravljena PPV in predhodno niso imeli obolenja rumene pege ali poškodbe očesa. Določili smo anatomski in funkcionalni izid pri celotni skupini bolnikov ter v skupinah glede na status rumene pege, očesne leče in prisotnost proliferativne vitreoretinopatije (PVR) stopnje C1. Ovrednotili smo vpliv predoperativnih dejavnikov na funkcionalni izid zdravljenja, ki smo ga določili na podlagi korigirane vidne ostrine (VO). Vsaj 6 mesecev po PPV smo z OCT rumene pege ocenili prisotnost prekinitev elipsoidne cone (EZ), cistoidnega makularnega edema (CME), epimakularne membrane (ERM) ali makularne luknje.

REZULTATI: Anatomski uspeh je bil po primarni vitrektomiji dosežen v 93,2 %, končni anatomski uspeh je bil 100 %. Med skupinama bolnikov glede na status očesne leče (lastna očesna leča/pseudofaki in afaki) in med skupinama bolnikov glede na status rumene pege (ležeča/odstopla) ni bilo značilnih razlik v anatomskem uspehu. V skupini bolnikov s prisotno PVR stopnje C1 je bil anatomski izid slabši kot v skupini brez prisotne PVR. Funkcionalni uspeh z izboljšanjem korigirane VO je bil dosežen pri 76,14 % bolnikov. Trajanje simptomov pred operacijo in predoperativna korigirana VO sta bili statistično značilno povezani s pooperativno korigirano VO, medtem ko status rumene pege (ležeča/odstopla) ni pokazal statistično značilne povezave s pooperativno korigirano VO. Analiza OCT rumene pege po operaciji v celotni skupini bolnikov je pokazala prisotnost CME v 15 %, ERM v 2 %, makularne luknje v 2 % in prekinitve EZ v 39 %. Bolniki s prekinitvami EZ na OCT rumene pege po vitrektomiji so imeli statistično značilno slabšo pooperativno korigirano VO.

ZAKLJUČEK: Vitrektomija ima visoko stopnjo uspešnosti pri zdravljenju regmatogenega odstopa mrežnice, tako anatomsko kot funkcionalno. Funkcionalni izid je bil boljši pri bolnikih z boljšo predoperativno korigirano VO, krajšim trajanjem simptomov in pri bolnikih brez PVR.

PURPOSE: To evaluate the anatomical and the functional outcome of pars plana vitrectomy (PPV) for the treatment of rhegmatogenous retinal detachment (RRD) based on analysis of preoperative factors and postoperative optical coherence tomography (OCT) macular analysis.

METHODS: We performed a retrospective analysis of the treatment results in a group of consecutive patients treated at the Eye Hospital with PPV in 2016 due to RRD. 88 eyes of 88 patients who underwent PPV and had no prior macular disease or eye injury were included. We determined the anatomical and functional outcome in the entire group of patients and in the groups according to the macular status, the lens status, and the presence of proliferative vitreoretinopathy (PVR) grade C1. We evaluated the influence of preoperative factors on the functional outcome of treatment, which was determined based on best-corrected visual acuity (BCVA). The OCT macular imaging was used to assess the presence of discontinuity of ellipsoid zone (EZ), cystoid macular edema (CME), epimacular membrane (ERM), or macular hole at least 6 months after PPV.

RESULTS: The anatomical success rate after primary vitrectomy was 93.2%, and the final anatomical success rate was 100%. There were no significant differences in anatomic success rate between the groups of patients according to the lens status (crystalline lens/pseudophakic and aphakic) and between the groups of patients according to the macular status (on/off). The anatomical outcome was worse in the group of patients with the presence of PVR grade C1 than in the group of patients without PVR. Functional success with the improvement

of BCVA was achieved in 76.14% of patients. Duration of symptoms before surgery and preoperative BCVA were statistically significantly associated with postoperative BCVA, whereas macular status (on/off) did not show a statistically significant association with postoperative BCVA. Postoperative OCT macular analysis revealed the presence of CME in 15%, ERM in 2%, macular hole in 2%, and discontinuity of ellipsoid zone in 39% Patients with discontinuity of ellipsoid zone on macular OCT after vitrectomy had a statistical significant worse postoperative BCVA.

CONCLUSION: Vitrectomy is a highly successful approach for treating RRD, both anatomically and functionally. Functional outcome was better in patients with better preoperative BCVA, shorter duration of symptoms, and in patients without PVR.

TEŽKE OČESNE POŠKODBE: VRSTE IN VZROKI

SEVERE EYE INJURIES: TYPES AND CAUSES

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NAMEN: Očesne poškodbe so pomemben vzrok poslabšanja vida. Namen raziskave je preučiti težke očesne poškodbe v obdobju 5 let, natančneje njihovo število, vrsto in vzrok.

METODE: Retrospektivna analiza dokumentacije hospitaliziranih bolnikov zaradi očesne poškodbe, obravnavanih na Očesni kliniki UKC Ljubljana med januarjem 2017 in decembrom 2021. Težke očesne poškodbe smo opredelili kot očesne poškodbe, zaradi katerih so bili bolniki hospitalizirani. Bolnike smo razdelili v tri starostne skupine: otroci – do vključno 17 let, odrasli – od 18 do vključno 59 let in starostniki – 60 let ali več, in analizirali osnovne demografske podatke bolnikov, število, vrsto in vzrok poškodbe.

REZULTATI: Med 416 v raziskavo vključenimi bolniki s težko očesno poškodbo v opazovanem obdobju, so prevladovali odrasli (224, 54%), sledili so starostniki (121, 29%) in otroci (71, 17%). 334 bolnikov (80%) je bilo moških. Moški so bili poškodovani 11 x pogosteje kot ženske med odraslimi in 2x pogosteje med starostniki in otroci.

Največ je bilo bolnikov z odprto poškodbo - 189 (45%), zaprta poškodba je bila prisotna pri 144 bolnikih (35%), kemična poškodba je bila prisotna pri 46 bolnikih (11%).

Pri odraslih bolnikih težke očesne poškodbe najpogosteje nastanejo pri delovnih opravilih (160/224, 71%), najpogosteje pri obdelavi železa (40/224, 18%), pri otrocih pri igri (23/71, 32%) pri starostnikih pri delovnih opravilih (78/121, 64%) najpogosteje pri delu na vrtu ali kmetiji (23/121, 19%). Na delovnem mestu je prišlo do poškodbe pri 74 bolnikih, kar znaša 30% vseh poškodb nastalih pri delovnih opravilih (248).

ZAKLJUČEK: Najpogostejše težke poškodbe v retrospektivni 5-letni raziskavi v terciarni ustanovi so bile odprte poškodbe očesa pri odraslih moških, do katerih je prišlo pri delovnih opravilih. Raziskava pripomore k boljšemu poznavanju dejavnikov tveganja in mehanizmov nastanka težkih očesnih poškodb ter prospektivno, s primernimi ukrepi, tudi k njihovemu preprečevanju.

PURPOSE: Eye injuries are a significant cause of visual impairment. The purpose of this study is to examine severe eye injuries over a period of 5 years, specifically their number, cause and type.

METHODS: Retrospective study of hospitalization records of patients who were treated for severe eye injury at the Eye Hospital of the University Medical Centre Ljubljana between January 2017 and December 2021. Eye injuries that required hospitalization were defined as severe. Patients were split into three age groups: children up to and including 17 years of age, adults from 18 up to including 59 years, and seniors aged 60 or older. The number, type, and cause of injury were examined for each group.

RESULTS: Out of 416 patients with severe eye injury, the majority were adults (224 patients, 54%), followed by seniors (121 patients, 29%), and finally children (71 patients, 17%). The majority of patients were male (334 patients, 80%), with a higher rate compared to women among adults (11-fold), followed by children and seniors (2-fold). The majority of patients had an open globe injury (189, 45%), whereas closed globe injury was observed in 144 patients (35%), while 46 patients (11%) had chemical eye injury.

Severe eye injuries among adults most commonly occurred at work (160/224, 71%), working with iron being the most common cause (40/224, 18%); among children, injuries most commonly occurred during play (23/71, 32%); injuries among seniors were most commonly caused by work-related activities (78/121, 64%), working in the garden or farm being the most common cause (23/121, 19%). There were 248 patients in total with injuries caused by work-related accidents, 74 (30%) of which happened at the workplace.

CONCLUSION: The most common type of severe eye injury in this retrospective 5-year study in a tertiary referral center are open globe injuries occurring in adult men during work-related activities. The present study contributes to a better understanding of risk factors and mechanisms of severe eye injuries and, consequently, to their prevention.

OCT BIOMARKERJI KOT NAPOVEDNI DEJAVNIKI ZA VIDNO OSTRINO PO OPERACIJI DIOPATSKEEPIRETINALNE MEMBRANE

OCT BIOMARKERS AS PROGNOSTIC FACTORS FOR VISUAL OUTCOMES AFTER IDIOPATHIC EPIRETINALMEMBRANE REMOVAL

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NAMEN: Oceniti vpliv sprememb notranjih in zunanjih mrežničnih slojev na optični koherentni tomografiji (OCT) na vidno ostrino po vitrektomiji zaradi idiopatske epiretinalne membrane (ERM) in opozoriti na možnost uporabe le teh kot napovednih dejavnikov izida operacije.

METODE: Retrospektivna analiza dokumentacije bolnikov, pri katerih je bila opravljena vitrektomija zaradi idiopatske ERM na Očesni kliniki UKC Ljubljana v letih 2020 in 2021. Vključili smo bolnike, ki so bili že pred vitrektomijo psevdofaki in so bili brez pridruženih očesnih bolezni. Iz dokumentacije smo povzeli preoperativno in pooperativno vidno ostrino. Dobro pooperativno vidno ostrino smo opredelili kot vidno ostrino manjšo od 0,2 log-MAR. Iz preoperativnih OCT posnetkov smo analizirali tip ERM, centralno debelino mrežnice (CRT), prisotnost porušenosti notranjih mrežničnih slojev (DRIL), prisotnost ektopičnih notranjih foveolarnih slojev (EIFL) in njihovo debelino, prisotnost zadebelitve zunanjega jedrnega sloja (ONL), znaka bombažne vate (cotton ball sign), epiretinalne proliferacije (EP), prekinitve zunanjih mrežničnih slojev in način adherence ERM

REZULTATI: Od 341 bolnikov, ki so imeli v letih 2020 in 2021 opravljeno vitrektomijo zaradi idiopatske ERM, je bilo z upoštevanjem izključitvenih kriterijev v analizo vključenih 27 bolnikov. Povprečna vidna ostrina pred operacijo je bila 0,41 ± 0,07 log-MAR, po operaciji je bila 0,19 ± 0,06 log-MAR. Po operaciji je imelo 15/27 (55,56%) bolnikov dobro dobro vidno ostrino. Povprečna CRT pred operacijo je bila 463 ± 25,73 µm. ERM tipa 2 je bila prisotna pri 5/27 (19,32%) bolnikih, ERM tipa 3 in 4 sta bili prisotni pri 11/27 (40,74%) bolnikov. Zadebelitev zunanjega jedrnega sloja, z debelino 176 ± 32,52 µm, je bila pred operacijo prisotna pri 23/27 (85,19%) bolnikov. DRIL je bil pred operacijo prisoten pri 2/15 (13,33%) bolnikih z dobro pooperativno vidno ostrino ter pri 9/12 (75,0%) bolnikih s slabo pooperativno vidno ostrino. EIFL s povprečno debelino 184 ± 40,03 µm, je bil prisoten pri 11/12 (91,67%) bolnikih s slabo in pri 10/15 (66,67%) bolnikih z dobro pooperativno vidno ostrino, s povprečno debelino 207,2 ± 60,91 µm. Prekinitve v zunanjih mrežničnih slojih so bile prisotne pri 5/15 (33,33%) bolnikih z dobro in pri 8/12 (66,67%) bolnikih s slabo pooperativno vidno ostrino.

ZAKLJUČEK: Prisotnost sprememb zunanjih in notranjih mrežničnih slojev na OCT, predvsem odsotnost DRILa in prekinitve zunanjih mrežničnih slojev so lahko povezane z dobro vidno ostrino po operaciji ERM.

PURPOSE: To analyze the impact of changes in inner and outer retinal layer present on optical coherence tomography (OCT) on visual acuity in patients who had undergone idiopathic epiretinal membrane (ERM) removal and to identify prognostic factors for visual outcome of ERM removal.

METHODS: Retrospective analysis of medical records of patients who had undergone vitrectomy due to idiopathic ERM at the Eye Hospital UKC Ljubljana in 2020 and 2021. Pseudophakic patients without associated ocular disorders affecting visual acuity were included. Preoperative and postoperative visual acuity was derived from medical records. Good visual outcome was defined as postoperative visual acuity less than 0.2 log-MAR. ERM type, central retinal thickness (CRT), disorganization of retinal inner layers (DRIL), the presence of ectopic inner foveolar layers (EIFL) and their thickness, the presence of outer nuclear layer (ONL) elevation, cotton ball sign, epiretinal proliferation (EP), outer retinal layer defects and type of ERM adherence were analyzed from preoperative OCT scans.

RESULTS: Of the 341 patients that had undergone idiopathic ERM removal in 2020 and 2021, 27 were enrolled according to the study exclusion criteria. Mean preoperative visual acuity was 0,41 ± 0,07 log-MAR, mean postoperative visual acuity was 0,19 ± 0,06 log-MAR. Good visual outcome was achieved in 15/27 (55,56%) patients after surgery. Mean preoperative CRT was 463 ± 25,73 µm. Type 2 ERM was present in 5/27 patients (19,32%), ERM type 3 and 4 were present in 11/27 (40,74%) patients. ONL elevation, with a mean thickness of 176 ± 32.52 µm, was present in 23/27 (85,19%) patients before surgery. DRIL was observed preoperatively in 2/15 (13.33%) patients with good postoperative visual acuity and in 9/12 (75,00%) patients with poor postoperative visual acuity. EIFL with a mean thickness of 184 ± 40.03 µm, was present in 11/12 (91,67%) patients with poor and in 10/15 (66.67%) patients with good postoperative visual acuity, with a mean thickness of 207,2 ± 60,91 µm. Outer retinal layer defects were present in 5/15 (33,33%) patients with good and in 8/12 (66,67%) patients with poor postoperative visual acuity.

CONCLUSION: The presence of changes in the outer and inner retinal layers on OCT, especially DRIL and outer retinal layer defects may be considered a negative prognostic factor for visual acuity in patients after ERM surgery.

RETINALNA DISTROFIJA V SKLOPU BARDET-BIEDL SINDROMA - KLINIČNE IN ELEKTROFIZIOLOŠKE ZNAČILNOSTI

ROD-CONE DISTROPHY IN BARDET-BIEDL SYNDROME - CLINICAL AND ELECTROPHYSIOLOGICAL CHARACTERISTICS

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NAMEN: Prikazati klinične in elektrofiziološke značilnostih slovenskih bolnikov z genetsko potrjenim Bardet Biedl sindromom (BSS). BSS je avtosomno recesivno dedna heterogena ciliopatija, z znanimi več kot 20 vzročnimi geni. Je druga najpogostejša sindromska progresivna retinalna distrofija za Usherjevim sindromom.

METODE: Trije bolniki (3M, eden z homozigotno mutacijo v BBS10 genu in dva brata z heterozigotno mutacijo v BBS4 genu) so bili redno spremljani na Očesni kliniki od najzgodnejšega otroštva do najstniških let zaradi polidaktilije, policističnih ledvic, debelosti, razvojnega zaostanka in pigmentne retinopatije v sklopu BBS. Vsakič so opravili funkcionalne, morfološke (slikanje očesnega ozadja, slikanje ozadja z avtofluorescenco- AF in optično koherenčno tomografijo -OCT) in elektrofiziološke (pri mlajših otrocih bliskovni ERG po GOSH protokolu in starejših SFERG po ISCEV standardih) teste vidne funkcije.

REZULTATI: Vidna ostrina (preferenčno gledanje) ob prvem pregledu v najzgodnejšem otroštvu je bila pri dveh bolnikih sprva še dobra (6/50 oz 6/130), pri enem slabša (6/500), na ozadju so bile vidne le diskretne distrofične spremembe, elektrofiziologija pa je že zgodaj pokazala znake za prizadetost funkcije mrežnice (pomembno znižan bliskovni ERG, ob kasnejših snemanjih neizziven SFERG). Kasneje je prišlo do poslabšanja vida, težav z vidom ponoči, zoženega vidnega polja. Na ozadju so bile kasneje vidne distrofične spremembe s pregrupacijo pigmenta v makulah in par posamičnimi kostnimi celicami. Slikanje z avtofluorescenco je pokazalo centralno hipoavtofluorescentno področje v makuli z centralno hiperavtofluorescentno liso, pri enem bolniku so bile prisotne difuzne zrničaste hipoavtofluorescentne lise po ozadju. Na OCT so bili vidne atrofične spremembe zunanjih plasti mrežnice.

ZAKLJUČEK: Ob sindromskih spremembah (polidaktilija, debelost, okvare ledvic, razvojni zaostanek) je potrebno pomisliti na BBS. Elektrofiziološko so že zgodaj v prvi dekadi prisotne spremembe delovanja bolj paličnic od čepnic, kasneje so vidne distrofične spremembe na ozadju. Pomembno je simptomatsko zdravljenje osnovne bolezni (diabetes, hipertenzija, metabolni sindrom) in vidna rehabilitacija ter tiflopedagoška pomoč.

PURPOSE: To describe clinical and electrophysiological features of Slovenian patients with genetically confirmed Bardet Biedl syndrome (BBS). BBS is an Ar genetically heterogenous ciliopathy with more than 20 causative genes described. It is the second most common syndromic progressive retinal dystrophy after Usher syndrome.

METHODS: Three patients (3M, one with homozygous mutation in BBS10 gene and two brothers with heterozygous mutation in BBS4 gene) were followed up regularly at the Eye Clinic from infancy to adolescence due to polydactyly, polycystic kidneys, obesity, developmental delay and retinal dystrophy as part of BBS. At all the visits functional, morphological (ocular fundus imaging, fundus imaging with autofluorescence- AF and optical coherence tomography imaging-OCT) and electrophysiologicalal tests (flash ERG - GOSH protocol in small children and full field ERG – ISCEV protocol in older children) of visual function were performed.

RESULTS: Visual acuity (preferential looking) at the first examination in early childhood was still good in two patients (6/50 and 6/130, respectively), and worse in one patient (6/500). Only discrete dystrophic changes were visible on the fundus. Electrophysiology showed early signs of retinal function impairment (significantly reduced flash ERG, abnormal full filed ERG at later recordings). Later, visual acuity worsened, patients had night vision problems and narrowing of the visual field. On the fundus dystrophic changes were seen with pigment rearrangement in the macula and a few isolated bone spiculae cells. Autofluorescence imaging showed a central hypoautofluorescent area in the macula with a central hyperautofluorescent spot, in one patient diffuse granular hypoautofluorescent spots were present over the background. OCT showed atrophic changes of the outer retinal layers.

CONCLUSION: BBS syndrome should be considered in the presence of syndromic changes (polydactyly, obesity, renal impairment, developmental delay). Electrophysiologically, changes in the form of progressive rod cone dystrophy are present early in the first decade of life, with fundus dystrophic changes seen later on. Symptomatic treatment of the underlying disease (diabetes, hypertension, metabolic syndrome) and low vision rehabilitation are important.

GENSKA TERAPIJA PRI BOLNIKIH S SUHO IN NEOVASKULARNO OBLIKO STAROSTNE DEGENERACIJE RUMENE PEGE

GENE THERAPY TRIALS IN PATIENTS WITH DRY AND NEOVASCULAR AGE-RELATED MACULAR REGENERATION

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NAMEN: Predstaviti potekajoče razsikave zdravljenja z gensko terapijo pri bolnikih s suho in neovaskularno obliko starostne degeneracije rumene pege (AMD).

METODE: Študija LUNA (faza 2) opazuje učinkovitost in varnost intravitrealnega zdravljena z ixoberogene soroparvovecom za zdravljenje neovaskularne AMD. Študija FOUCS (faza 1/2) ocenjuje varnost in učinkovitost subretinalne aplikacije GT005 pri bolnikih z geografsko atrofijo (GA) zaradi suhe AMD. Študija PARASOL (faza 2/3) opazuje varnost in učinkovitost intravitrealnega zdravljenja z JNJ-81201887 (AAVCAGsCD59), v primerjavi s placebom, pri bolnikih z GA zaradi suhe AMD.

REZULTATI: Pri bolnikih z neovaskularno AMD je po intravitrealnem zdravljenu z ixoberogene soroparvovecom prišlo do 81% - 98% zmanjšanja števila letnih aplikacij anti-VEGF injekcij in kontinuiranega terapevtskega izražanja zdravila vsaj 3 leta. Vmesni podatki študije FOCUS nakazujejo na dober varnostni profil, trajno zvišanje CFI (Complement Factor I) v steklovini pri večini bolnikov ter znižanje proteinov komplementega faktorja, povezanih s čezmerno aktivacijo le-tega. Intravitrealna aplikacija JNJ-81201887 (AAVCAGsCD59) se je pri 17-ih bolnikih (faza 1) tekom 2-letnega spremljanja izkazala za varno ter učinkovito v smislu updanja hitrosti rasti GA.

ZAKLJUČEK: Potekajoče raziskave genske terapije za neovaskularno in suho obliko AMD kažejo na dober varnostni profil in vzpodbudne morfološke in funkcionalne izide zdravljenja. Genska terapija z enkratno intravitrealno (subretinalno) aplikacijo bi lahko znatno zmanjšala breme pogostih intravitrealnih injekcij in kontinuiranega pogostega spremljanja pri bolnikih s suho in neovaskularno obliko AMD.

PURPOSE: To present an up-to-date summary of results from gene therapy trials for dry and neovascular age-related macular degeneration (AMD).

METHODS: The LUNA (phase 2) trial evaluates the efficacy and safety of intravitreal application of ixoberogene soroparvovec for the treatment of neovascular AMD. The FOCUS (phase 1/2) study evaluates the safety, dose-response, and efficacy of subretinal application of GT005 in patients with geographic atrophy (GA) secondary to dry AMD. The PARASOL (phase 2/3) study evaluates the safety and efficacy of intravitreal JNJ-81201887 (AAVCAGsCD59), compared to sham, in patients with GA secondary to dry AMD.

RESULTS: In neovascular AMD patients treated with intravitreal ixoberogene soroparvovec (OPTIC trial, phase 1), there was an 81% to 98?crease in annualized anti-VEGF injections and continuous expression at therapeutic levels through 3 years. Interim data of the FOCUS trial showed a good safety profile, sustained increases in vitreous Complement Factor I (CFI) levels in the majority of patients, as well as decreases in the downstream complement proteins associated with over-activation of the complement system. In the PARASOL trial, intravitreal treatment with JNJ-81201887 (AAVCAGsCD59) in 17 patients (phase 1) met the primary endpoint of safety over the two-year follow-up period. Moreover, a continual decline in GA lesion growth over a six-month increment was observed.

CONCLUSION: Several gene therapy trials for neovascular and dry AMD are showing good safety profiles and promising morphological and functional outcomes. As a one-off intravitreal (subretinal) treatment, it could significantly reduce the burden of continuous intravitreal injections and monitoring in patients with dry and neovascular AMD.

FUKCIONALNI IZIDI IN STRANSKI UČINKI ZDRAVLJENJA Z VORETIGENE NEPARVOVECOM V KOHORTI BOLNIKOV S PRIROJENO BOLEZNIJO MREŽNICE Z BIALELNO MUTACIJO RPE65

FUNCTIONAL OUTCOMES AND ADVERSE EFFECTS OF VORETIGENE NEPARVOVEC IN A COHORT OF PATIENTS WITH BIALLELIC RPE65-MEDIATED INHERITED RETINAL DYSTROPHIES

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NAMEN: Voretigene neparvovec (VN) je prva odobrena genska terapija za prirojeno bolezen mrežnice z bialelno mutacijo RPE65. Namen raziskave je opredelitev funkcionalnih izidov in stranskih učinkov po zdravljenju z VN.

METODE: V retrospektivno študijo smo vključili 10 oči (5 bolnikov) zdravljenih na Očesni kliniki v Oxfordu. Primerjali smo najboljšo korigirano vidno ostrino (BCVA), vidno polje po Goldmannu (GVF) in senzitivnost mrežnične po FST (full-field light sensitivity threshold) ob prezentaciji in na zadnjem pregledu. Opazovali smo subjektivno izboljšanje vida in stranske učinke po genski terapiji.

REZULTATI: Povprečna starost bolnikov je bila ob prezentaciji 35.6 let (razpon 19 – 51 let), štirje bolniki so bili moškega in ena bolnica ženskega spola. Vsi bolniki so poročali o subjektivnem izboljšanju vidne funkcije. Povprečna BCVA je po zdravljenju ostala podobna kot pred zdravljenjem [LogMAR ob prezentaciji: 1.15 (±0.47) vs. na zadnjem pregledu: 1.17 (±0.38); p=0.93]. Povprečna senzitivnost mrežnice (FST - bela) se je izboljšala iz -0.64 (±7.29) db ob prezentaciji, na -8.97 (±14.12) db na zadnjem pregledu (p=0.09). GVF se je kvalitativno izboljšala v sedmih od desetih oči. V štirih očeh je prišlo do prehodnega povišanja očesnega pritiska (IOP), ki se je normaliziral po zdravljenju s topikalno in sistemsko terapijo (acetazolamide). V dveh očeh je prišlo do blage vnetne reakcije v sprednjem prekatu, ki se je umirila po topikalni in sistemski kortikosteroidni terapiji. Siva mrena se je razvila v treh očeh, do horioretinale atrofije je prišlo v osmih očeh. V šestih očeh je prišlo do minimalne horioretinalne atrofije znotraj območja odstopa mrežnice ob subretinalni injekciji VN. Pri mladi bolnici z izrazito izboljšavo na FST je prišlo do simetrične horioretinalne atrofije tudi izven območja odstopa mrežnice ob subretinalni injekciji VN.

ZAKLJUČEK: Varnostni profil in učinkovitost zdravljenja z VN na Očesni kliniki v Oxfordu je podobna kot v ostalih študijah. Horioretinalne atrofične spremembe, ki so bile nedavno prepoznane kot stranski učinek zdravljenja, so bile v naši kohorti bolnikov zaznane v večini oči. Do poslabšanja vidne funkcije zaradi razvoja horioretinalne atrofije ni prišlo.

PURPOSE: Voretigene neparvovec (VN) is the first approved gene therapy for biallelic RPE65-mediated inherited retinal dystrophies (IRD). The purpose of this study was to evaluate functional outcomes and adverse effects after VN treatment.

METHODS: This retrospective study included 10 eyes (5 patients) treated at the Oxford Eye Hospital. Best corrected visual acuity (BCVA), Goldmann visual field (GVF), and full-field light sensitivity threshold (FST) were assessed at baseline and at the last follow-up. Subjective vision improvement and ocular adverse effects after gene therapy were observed.

RESULTS: Mean age of our patients was 35.6 years (range 19 - 51 years), 4 males and 1 female were treated. All patients reported subjective vision improvement after gene therapy. Mean (±sd) BCVA remained similar after VN treatment [LogMAR at baseline: 1.15 (±0.47) vs. at the last follow-up: 1.17 (±0.38); p=0.93]. Average FST (white) improved from -0.64 (±7.29) db at baseline to -8.97 (±14.12) db at the last follow-up with a trend towards a statistical significance (p=0.09). GVF improved qualitatively in 7 out of 10 eyes. Four eyes developed a transient increase in intraocular pressure (IOP) that was controlled with IOP lowering drops and peroral acetazolamide. Two eyes developed subtle intraocular inflammation in the anterior chamber that was controlled with an extended topical steroid regimen. Cataract development after the VN treatment was observed in three eyes and areas of

chorioretinal atrophy in eight eyes. In 6 eyes, chorioretinal atrophy was subtle and inside the area of the raised bleb. In a young patient with significant and stable FST improvements, atrophic changes also appeared outside the bleb area in both eyes in a symmetric fashion.

CONCLUSION: Overall safety and effectiveness of VN treatment observed at the Oxford Eye Hospital are consistent with reported outcomes from previous studies. The atrophic changes, previously identified as a new adverse drug reaction, have been observed in a majority of treated eyes in our cohort but were not associated with loss of visual function.

SPEČE ČEPNICE PRI DEDNIH BOLEZNIH ČEPNIC: PREVALENCA IN GENSKE ZNAČILNOSTI

DORMANT CONES IN INHERITED CONE DISEASES: PREVALENCE AND GENETIC FINDINGS

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NAMEN: Prvi namen raziskave je ocena prevalence bolnikov s stacionarnimi in progresivnimi dednimi boleznimi čepnic, pri katerih je prisoten fenotip spečih čepnic. Speče čepnice definiramo kot izpad funkcije čepnic ob sočasno ohranjenih celičnih telesih. Drugi namen raziskave je opis kliničnih značilnosti in genotipa pri bolnikih s spečimi čepnicami.

METODE: Gre za multicentrično retrospektino raziskavo, v katero je bilo vključenih 147 bolnikov: 132 iz Nacionalne očesne bolnišnice Quinze-Vingts v Parizu in 17 iz Očesne klinike, UKC Ljubljana. Vključeni bolniki so imeli skladno klinično, elektrofiziološko in gensko diagnozo dedne bolezni čepnic. Zbrali smo demografske podatke, podatke o najboljši korigirani vidni ostrini, ERG, optični koherenčni tomografiji (OCT slikanje) in genski diagnozi. Bolezni smo dalje, glede na potek, genske in elektrofiziološke značilnosti razdelili na progresivne (distrofjne čepnic/čepnic in paličnic) in na stacionarne bolezni (sindromi disfunkcije čepnic). Speče čepnice smo opredelili z najboljšo korigirano vidno ostrino <2/10 po Snellenu, ohranjenim zunanjim jedrnim slojem v fovei na OCT-slikanju makule in izpadom funkcije čepnic ali čepnic in paličnic na ERG.

REZULTATI: Speče čepnice so bile prisotne pri 19 % bolnikov z distrofijo čepnic/čepnic in paličnic in pri 49 % bolnikov s sindromom disfunkcije čepnic. Pri bolnikih s fenotipom spečih čepnic smo patogene različice našli v sledečih genih: ALMS1 (N = 1), CDHR1 (N = 1), CERKL (N = 1), CNGA3 (N = 13), CNGB3 (N = 14), GNAT2 (N = 1), GUCY2D (N = 4), KCNV2 (N = 1), OPN1LW/OPN1MW (N = 7), PROM1 (N = 2), RPGR (N = 1), RPGRIP (N = 1), in TULP1 (N = 2). 19 % (N=15). Mediani čas sledenja bolnikov s progresivno obliko bolezni je bil 5 let (razpon: 11 mesecev–11 let). Mediani čas ohranjenosti spečih čepnic je znašal 4 leta (razpon: 11 mesecev – 10 let).

ZALJUČEK: Fenotip spečih čepnic je povezan s številnimi geni in je morda neodvisen od prizadetega gena. Omenjen fenotip bi lahko postal tarča gensko nespecifične optogenetske terapije. Za natančnejšo karakterizacijo fenotipa so potrebne prospektivne daljnoročne raziskave.

PURPOSE: To estimate the prevalence of patients with stationary and progressive inherited cone disorders who present with dormant cone phenotype, i.e., impaired cone function preserved cone cell bodies. To report on their phenotype and genotype.

METHODS: A retrospective multicentric study included 149 patients from Quinze-Vingts National Ophthalmology Hospital in Paris (N = 132) and the Eye clinic of the University Medical Centre Ljubljana (N = 17) with concordant clinical, electrophysiological, and genetic diagnoses of inherited cone disorder. Demographic data and data on clinical diagnosis, best-corrected visual acuity, ERG, optical coherence tomography (OCT imaging), and genetic diagnosis were obtained. Inherited cone disorders were, based on clinical course, genetic and electroretinographic (ERG) findings, and imaging, further divided into progressive disorders (cone/cone-rod dystrophies) and stationary disorders (cone dysfunction syndromes). Dormant cone phenotype was defined with best-corrected Snellen decimal visual acuity < 2/10, preservation of outer nuclear layer in the fovea on optical OCT-imaging, and either cone or cone-rod dysfunction on ERG.

RESULTS: Dormant cone phenotype was found in 19 % (N=15) of patients with cone and cone-rod dystrophy and in 49 % (N=34) of patients with cone dysfunction syndrome. Patients with dormant cone phenotype carried pathogenic variants in the following genes ALMS1 (N = 1), CDHR1 (N = 1), CERKL (N = 1), CNGA3 (N = 13), CNGB3 (N = 14), GNAT2 (N = 1), GUCY2D (N = 4), KCNV2 (N = 1), OPN1LW/OPN1MW cluster (N = 7), PROM1 (N = 2), RPGR (N = 1), RPGRIP (N = 1), and TULP1 (N = 2). 19% (N = 15). Dormant cone phenotype was present for the median of 4 years (range: 11 months–10 years) during the median follow-up time of 5 years (range: 11 months–11 years).

CONCLUSION: Several genes were found associated with dormant cone phenotype, which suggests that the phenotype is gene independent. This phenotype is of particular therapeutic interest as it may be targeted by gene-nonspecific optogenetic therapy. Prospective long-term studies are required for a better characterization of phenotype sustainability.

PROTEKTIVEN VPLIV VITAMINA A PRI SPECIFIČNI GENETSKI OBLIKI DEDNE BOLEZNI MREŽNICE

PROTECTIVE EFFECT OF VITAMIN A IN SPECIFIC GENETIC FORM OF INHERITED RETINAL DYSTROPHY

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NAMEN: Ugotoviti, ali ima koncentracija vitamina A v serumu vpliv na razvoj klinične slike pri bolnikih z dedno boleznijo mrežnice, povezano s patogeno različico p.G90D v genu za rodopsin (RHO).

METODE: 30 bolnikov, s potrjeno patogeno različico p.G90D v RHO, iz 7 družin (17 moških; mediana starost 46 let, razpon 8–73), je opravilo oftalmološki pregled, preiskavo vidnega polja (Campus Goldmann), avtofluorescenco očesnega ozadja (AF), optično koherentno tomografijo (OCT; Spectralis) in elektroretinografijo (ERG). Serumsko koncentracijo vitamina A smo določili iz vzorca krvi na tešče, odvzetega na dan pregleda. Bolniki so bili razporejeni v dve fenotipski skupini glede na izvide slikovnih in funkcionalnih preiskav: 1) bolnike z blago okvaro, ki so imeli bodisi nočno slepoto brez degeneracije mrežnice (*angl.*, night blindness without degeneration, NBWD) ali sektorsko pigmentno retinopatijo (RP) (N = 11); in 2) bolnike s težko okvaro, ki so imeli bodisi klasično RP ali pericentralno RP (N = 19).

REZULTATI: V podskupini bolnikov starih 40 let (N = 16), pri katerih smo domnevali, da se je napredovala klinična slika že razvila, smo ugotovili statistično pomembno razliko v mediani serumski koncentraciji vitamina A med skupino 1 in 2 (mediana koncentracija 3,04 vs 1,78 µmol/L, p < 0,01). Vključujoč vse bolnike in upoštevajoč vpliv starosti, je multipla linearna regresija potrdila signifikantno nižje tveganje za razvoj težje klinične slike pri bolnikih z višjo serumsko koncentracijo vitamina A (p < 0,05).

ZAKLJUČEK: Rezultati študije nakazujejo, da ima visoka koncentracija vitamina A pri bolnikih z dedno boleznijo mrežnice, povezano s patogeno različico p.G90D v RHO, protektivno vlogo. Domnevamo, da vitamin A v svoji 11-cis-retinalni obliki stabilizira konstitutivno aktiven rodopsin p.G90D.

PURPOSE: To determine whether the serum vitamin A concentration has an effect on disease severity in patients with inherited retinal dystrophy associated with the pathogenic variant p.G90D in rhodopsin gene (RHO).

METHODS: 30 patients with confirmed pathogenic variant p.G90D in RHO from 7 families (17 men; median age 46 years, range 8–73) underwent ophthalmological examination, visual field examination (Campus Goldmann), fundus autofluorescence (FAF), optical coherence tomography (OCT; Spectralis) and electroretinography (ERG). Serum vitamin A concentration was determined from a fasting blood sample taken on the day of examination. Patients were divided into two phenotypic groups according to the results of imaging and functional examinations: 1) patients with mild impairment, who had either night blindness without degeneration (NBWD) or sector retinitis pigmentosa (RP) (N = 11); and 2) patients with severe impairment, who had either classic RP or pericentral RP (N = 19).

RESULTS: In the subgroup of patients aged 40 years (N = 16), in whom we presumed that the progressed clinical picture had already developed, we found a statistically significant difference in the median concentration of vitamin A between groups 1 and 2 (median concentration 3.04 vs 1 .78 µmol/L, p < 0.01). Taking into account the effect of age, multiple linear regression, including all patients, confirmed a significantly lower risk of developing a more severe clinical picture in patients with a higher serum concentration of vitamin A (p < 0.05).

CONCLUSION: The results of the study suggest that a high concentration of vitamin A has a protective role in patients with inherited retinal dystrophy, associated with the pathogenic variant p.G90D in RHO. We hypothesize that vitamin A in its 11-cis-retinal form stabilizes the constitutively active rhodopsin p.G90D.

ATIPIČNE OPTIČNE NEVROPATIJE
ATYPICAL OPTIC NEUROPATHIES

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Atipične optične nevropatije zajemajo raznolik spekter bolezni vidnega živca, ki se kažejo z izgubo vida in so lahko vnetne, infektivne, avtoimunske, vaskularne, kompresivne, infiltrativne, toksične, paraneoplastične ali genetske etiologije. Na očesni kliniki v Ljubljani smo v zadnjih dveh letih zdravili preko 60 pacientov z atipično optično nevropatijo. Razlikovanje je pogosto težavno in zajema vrsto preiskav na specifična protitelesa, infektivne povzročitelje ali biomarkerje. Ključno vlogo igrajo OCT, MRI, FA, elektrofiziološke preiskave in lumbalna punkcija. Pred kratkim je izšel pomemben članek o novi klasifikaciji optičnega nevritisa (Petzold et al., The Lancet Neurology 2022), pri katerem smo sodelovali. Predstavljen bo algoritem pristopa k diagnostiki in obravnavi teh primerov, pri katerih je hitra in natančna diagnostika pogoj za uspešno zdravljenje.

Atypical optic neuropathies consist of diverse spectrum of diseases that affect optic nerve and may be of inflammatory, infective, autoimmune, vascular, compressive, infiltrative, toxic, paraneoplastic or genetic etiology. At our hospital, over 60 patients with atypical optic neuropathy have been treated during last two years. Differential diagnosis is often demanding, requiring meticoulous search for specific antibodies or other biomarkers of the disease, as well as other etiological factors. Key role play investigations such as OCT, MRI, FA, electrophysiology and lumbar tap. Recently, an important position paper on new classification of optic neuritis was published with our contribution (Petzold et al., The Lancet Neurology 2022). Various diagnostic and management algorithms will be presented that are important for quick diagnosis and successful treatment of these patients.

OCT GUIDE TO NEUROPHTHALMOLOGY
OCT VODNIK PO NEVROOFTALMOLOGIJI

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Optična koherentna tomografija (OCT) je postala ena izmed ključnih diagnostičnih orodij v nevrooftalmologiji. V prispevku bo prikazanih nekaj najpogostejših primerov uporabe OCT pri nevrooftalmoloških bolnikih iz vsakodnevne klinične prakse. Okvaro vidnega živca se lahko oceni na podlagi analize OCT posnetkov papile vidnega živca, peripapilarnih retinalnih ganglijskih živčnih vlaken (pRNFL) in ganglijsko celičnega kompleksa v makuli (GCC). GCC je sestavljen iz makularnega dela RNFL (mRNFL) ter ganglijsko celičnega sloja in interpleksiformnega sloja (GCIPL). V klinični praksi se lahko z OCT loči med papiledemom in psevdopapiledemom, saj so pri prvem vrednosti mediane pRNFL po študiji višje omogoča pa tudi sledenje in oceno odziva na terapijo. Globoke druze papile vidnega živca (ODD) imajo na OCT videz hiporeflektivne sredice obdane s hiperreflektivnim robom. Pri osebah z ODD so pogosto prisotne peripapilarne hiperreflektivne ovoidnim masam-podobne strukture (PHOMS). Pri nearteritični sprednji ishemični optični nevropatiji (NA-AION) je v akutni fazi zaradi odsotne otekline makule uporabna predvsem analiza GCIPL. Pospešena izguba GCIPL se vidi že po 14 dneh od ishemičnega dogodka kot posledica retrogradne aksonske degeneracije, po 12-ih tednih pa se pojavijo znaki izgube pRNFL. Altitudinalni izpad vidnega polja zrcali anatomski izpad pri kronični NA-AION in stanju po zapori veje centralne retinalne arterije (BRAO), vendar slednjo ločimo od NA-AION po tem, da ishemija pri BRAO povzroči izrazitejše stanjšanje mrežnice. Kombinacija vzorca izpada vidnega polja ter analize debeline GCIPL in pRNFL lahko pomaga ločiti tudi med ostalimi nevrooftalmološkimi boleznimi. Za optični nevritis povezan z multiplo sklerozo (ON-MS) je občasno značilna zgolj minimalna zadebelitev pRNFL, kateri sledijo prvi znaki izgube GCIPL in kasneje stanjšanje temporalnega dela pRNFL z normalizacijo vidne funkcije. Pri bolnikih z večletno diagnozo multiple skleroze, pride do ima večje izgube GCIPL kot pri splošni populaciji, tudi ob odsotni anamnezi optičnega nevritisa v preteklosti. Za spekter bolezni optičnega nevromielitisa (NMOSD) in bolezni povezane z mielin oligondendrocitnim glikoproteinom (MOGAD) je značilna obsežnejša okvara pRNFL kot pri ON-MS. Pri MOGAD je značilen začetni obojestranski edem RNFL. Pri adenomu hipofize kompresija na kjazmo običajno povzroči zgornji bitemporalni izpad vidnega polja, binazalno stanjšanje GCIPL in bitemporalno stanjšanje pRNFL. Okvara optičnega trakta povzroči homonimno hemianopsijo ter izpad RNFL po tipu metuljčkaste atrofije (bow-tie). Retrogenikulatna okvara lahko na račun retrogradne transinaptične degeneracije povzroči homonimni izpad vidnega polja in homonimni izpad GCIPL, ki se pojavi po daljšem obdobju.

Optical Coherence Tomography (OCT) has become one of the key diagnostic tools in neuro-ophthalmology. This article will show some of the most common uses of OCT in neuro-ophthalmic patients from everyday clinical practice. The damage to the optic nerve can be assessed based on the analysis of OCT images of the optic nerve head, peripapillary retinal nerve fiber layer (pRNFL), and ganglion cell complex in the macula (GCC). The GCC is composed of the macular RNFL (mRNFL), ganglion cell layer and inner plexiform layer (GCIPL). In clinical practice, OCT can differentiate between papilledema and pseudopapilledema, as the former has higher median pRNFL values according to studies, and it also allows follow-ups to evaluate a response to therapy. Burried optic disc drusen (ODD) have a hyporeflective core surrounded by a hyperreflective rim on OCT. Peripapillary hyperreflective ovoid mass-like structures (PHOMS) are often present in people with ODD. In non-arteritic anterior ischemic optic neuropathy (NA-AION), analysis of mainly GCIPL is useful in the acute phase due to the absence of macular edema. Accelerated GCIPL loss is observed as early as 14 days after the ischemic event due to retrograde axonal degeneration, and signs of pRNFL loss appear after 12 weeks. Altitudinal visual field defects reflect anatomical defects in chronic NA-AION and branch retinal artery occlusion (BRAO), but the latter can be distinguished from NA-AION by the fact that ischemia in BRAO causes more pronounced thinning of the retina. The combination of visual field defect patterns and analysis of GCIPL and pRNFL thickness can also help differentiate between other neuro-ophthalmic diseases. For optic neuritis associated with multiple sclerosis (ON-MS), only minimal thickening of pRNFL is occasionally visible, followed by the first signs of GCIPL loss and later temporal pRNFL thinning with normalization of visual function. In patients with a longstanding multiple sclerosis, greater GCIPL loss occurs than in the general population, even in the absence of a history of optic neuritis. The loss of pRNFL in neuromyelitis optica spectrum disorders (NMOSD) and myelin oligodendrocyte glycoprotein-associated disease (MOGAD) is greater than in ON-MS. Bilateral pRNFL edema is characteristic of the initial phase of MOGAD. In pituitary adenoma, compression of the chiasm typically causes upper bitemporal visual field loss, binasal GCIPL thinning, and bitemporal pRNFL loss. Optic tract damage causes homonymous hemianopsia and pRNFL loss resembling a bow-tie atrophy. Retrogeniculate damage can cause homonymous visual field loss and homonymous GCIPL loss due to retrograde trans-synaptic degeneration.

KLINIČNE ZNAČILNOSTI OPTIČNEGA NEVRITISA, POVEZANEGA S PROTITELESI PROTI MIELINSKEMU OLIGODENDROCITNEMU GLIKOPROTEINU

CLINICAL FEATURES OF MYELIN OLIGODENDROCYTE GLYCOPROTEIN ASSOCIATED OPTIC NEURITIS

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NAMEN: Predstaviti klinične značilnosti optičnega nevritisa, povezanega s protitelesi proti mielinskemu oligodendrocitnemu glikoproteinu (anti-MOG).

METODE: Pregledali smo klinične značilnosti optičnega nevritisa pri osmih bolnikih (trije moški, pet žensk) s serumskimi anti-MOG protitelesi, obravnavnih na Očesni kliniki v Ljubljani v obdobju med 1.1.2020 – 1.3.2023.

REZULTATI: Starost bolnikov v času prvega zagona optičnega nevritisa je bila pri 75% znotraj razpona 18-45 let, dva od bolnikov pa sta bila starejša od 50 let. Pet od osmih bolnikov (63 %) je doživelo več kot en zagon optičnega nevritisa. Do zadnjega zabeleženega zagona pri bolnikih z večkratnimi zagoni je prišlo v starosti od 30 – 79 let. Ob akutnem zagonu je bila zabeležena vidna ostrina od prstov na 0.5 metra do 1.0 po Snellenu. Centralni izpad v vidnem polju je bil prisoten pri polovici bolnikov, retrobulbarna bolečina pa pri vseh. Barvni vid je bil pri treh bolnikih ohranjen, pri dveh bolnikih pa močneje prizadet (sorazmerno s slabšo vidno ostrino). Pri bolniku s prirojeno diskromatopsijo vrednotenje barvnega vida ni bilo mogoče. Pri 88% bolnikov je bila ob akutnem zagonu prisotna hiperemija in blag edem papile optičnega živca. Na magnetni resonanci (MR) glave s kontrastnim sredstvom se je pri petih bolnikih (63 %) obarval daljši del vidnega živca (vsaj dve tretjini), od teh so se pri treh obarvala tudi okolna orbitalna tkiva ali kjazma. Intrakranialne demielinizacijske lezije niso bile opisane pri nobenem bolniku. Serumska protitelesa anti-MOG so bila ob akutnem zagonu prisotna pri šestih bolnikih, pri dveh pa je do serokonverzije prišlo v roku dveh let. Protitelesa proti akvaporinu-4 niso bila prisotna pri nobenem bolniku. Vidna funkcija se je spontano popravila pri treh bolnikih, pri štirih pa po intravenoznem in peroralnem zdravljenju s kortikosteroidi. Pri eni bolnici se vidna ostrina kljub zdravljenju ni popravila. Štirje bolniki so prejemali tudi imunosupresivna zdravila (dva rituksimab, dva pa mikofenolat mofetil).

ZAKLJUČEK: Z anti-MOG protitelesi povezani optični nevritisi so se večinoma kazali z edemom in hiperemijo papile vidnega živca in so pogosto potekali v ponavljajočih zagonih, z relativno dobrim izidom. MR glave je pokazala specifične vzorce barvanja vidnega živca in okolnih tkiv, brez intrakranialnih demielinizacijskih lezij. Možno je, da se anti-MOG protitelesa dokažejo šele po prvem zagonu, zato je pri bolnikih s ponavljajočim optičnim nevritisom pomembno vsakokratno testiranje.

PURPOSE: To highlight the clinical features of myelin oligodendrocyte glycoprotein antibodies (anti-MOG) associated optic neuritis.

METHODS: We analysed clinical features of optic neuritis in eight patients (three male, five female) with serum anti-MOG antibodies that visited Eye Hospital in Ljubljana from 1.1.2020 – 1.3.2023.

RESULTS: At the time of the first episode of optic neuritis, 75% of the patients were between 18 - 45 years old and two were older than 50 years. Five out of eight patients (63%) had more than one episode of optic neuritis, with last documented episode occurring at the age between 30 - 79 years. Best corrected visual acuity at presentation ranged from counting fingers to 1.0 in Snellen. Central visual field defect was present in 50% of the patients and retrobulbar pain in all the patients. Colour vision was unaffected in three patients and severely affected in two patients, in proportion to their worse visual acuity. Assessment of colour recognition was not possible in a patient with congenital dyschromatopsia. 88% of patients presented with hyperaemic and swollen optic discs. Gadolinium-enhanced magnetic resonance of the brain showed signal enhancement in longer segments of the optic nerve (at least two-thirds of the optic nerve length) in five patients; three of these had signal enhancement surrounding orbital tissues or optic chiasm. Demyelinating intracranial lesions were not found in any patient. Anti-MOG serum antibodies were detected at acute episode in six patients, while in two patients seroconversion occurred in a span of two years. Anti-aquaporin-4 antibodies were not detected in any of the patients. Visual function spontaneously recovered in three patients, in four it improved after intravenous and oral corticosteroid treatment and in one it did not improve despite treatment. Four patients were receiving immunosuppressive therapy (two were treated with rituximab and two with mycophenolate mofetil).

CONCLUSION: Anti-MOG associated optic neuritis mostly presented with optic disc oedema and hyperaemia and often had a recurring course, with good outcome. Gadolinium-enhanced magnetic resonance imaging showed specific patterns of contrast accumulation in optic nerve and surrounding tissues, with no intracranial demyelinating lesions. Anti-MOG antibodies may appear only after the first episode of optic neuritis, therefore testing for anti-MOG antibodies should be repeated in patients with recurring episodes.

POENOSTAVLJENA ELEKTROOKULOGRAFIJA KOT PRESEJALNI TEST DELOVANJA PIGMENTNEGA EPITELIJA

SIMPLIFIED ELECTROOCULOGRAPHY AS A SCREENING TEST OF RETINAL PIGMENT EPITHELIUM FUNCTION

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NAMEN: Elektrookulagrafija (EOG) je elektrofiziološka preiskava za oceno delovanja retinalnega pigmentnega epitelija (RPE) in njegove interakcije s fotoreceptorji. Preiskava je dokaj zahtevna, saj vključuje 30 minut veznega izvajanja očesnih gibov v temi in svetlobi. Namen študije je poenostaviti metodo EOG in omogočiti, da se preiskava začne uporabljati pogosteje, v presejalne namene v sklopu standardnega protokola skotopičnega in fotopičnega elektroretinograma (SFERG) za oceno delovanja mrežnice.

METODE: Preiskavo smo do sedaj izvedli pri petnajstih zdravih preiskovancih (14Ž, 1M, starost 20 – 52 let) in na dveh bolnikih z Bestovo distrofijo (2M, starost 14 – 32 let). Preiskovanci so najprej opravili EOG po standardnem protokolu in nato po prirejenem skrajšanem protokolu v sklopu preiskave SFERG. Izračunan Ardenov indeks po standardnem in skrajšanem protokolu smo med seboj primerjali s parnim Wilcoxonovim testom ter Mann-Whitneyevim testom, pri bolnikih z Bestovo retinalno distrofijo pa smo opredelili senzitivnost in specifičnost za detekcijo okvare RPE. Ob koncu preiskave smo tudi kvalitativno preverili pacientovo udobje pri izvedbi EOG po standardnem in po skrajšanem protokolu.

REZULTATI: Pri standardnem EOG je bila srednja vrednost Ardenovega indeksa 2.7 ± 0.6, pri skrajšanem protokolu pa 2.0 ± 0.4 ($p < 0{,}001$). Pri bolnikih z Bestovo distrofijjo je bila pri standardnem EOG srednja vrednost Ardenovega indeksa 1.2 ± 0.1, pri skrajšanem protokolu pa 1.0 ± 0.1 ($p = 0{,}10$). Primerjava vrednosti Ardenovega indeksa zdravih preiskovancev in bolnikov z Bestovo distrofijo je pokazala signifikantno razliko tako za standardni kot tudi za skrajšan protokol ($p = 0.002$).Tako standardni EOG kot tudi skrajšan EOG protokol sta pokazala 100% senzitivnost in 100% specifičnost pri odkrivanju bolnikov z Bestovo distrofijo. Ob kvalitativni opredelitvi preiskav glede na anketni vprašalnih je večina preiskovancev opredelila, da je bila preiskava po skrajšanem protokolu prijetnejša zaradi krajšega trajanja in nižje jakosti svetlobnega dražljaja.

ZAKLJUČEK: EOG opravljen po skrajšanem protokolu daje primerljive končne rezultate kot EOG po standardnem protokolu, ob čimer pa je izvedba preiskave bistveno krajša in pacientom manj neprijetna. EOG izveden v sklopu preiskave SFERG po skrajšanem protokolu bi se tako lahko uporabljal pogosteje in bi lahko postal presejalni test za oceno delovanja RPE pri različnih mrežničnih distrofijah.

PURPOSE: Electrooculography (EOG) is an electrophysiological examination to assess the function of the retinal pigment epithelium (RPE) and its interaction with photoreceptors. The examination is quite demanding as it involves saccadic eye movements 15 min under a dark-adapted and another 15 min under light-adapted conditions. The purpose of the study is to simplify the EOG method and allow the examination to be used more frequently for screening purposes as part of the full-field electroretinogram (ffERG) protocol for the assessment of retinal function.

METHODS: The investigation has been performed on fifteen healthy subjects (14F, 1M, age 20-52 years) and two patients with Best's dystrophy (2M, age 14-32 years). Subjects underwent EOG recording according to a standard protocol and then according to a modified simplified protocol as part of the ffERG investigation. The Arden index calculated according to the standard and shortened protocol was compared using the paired Wilcoxon test and the Mann-Whitney test. In patients with Best's retinal dystrophy the sensitivity and specificity for the detection of RPE defects were determined. At the end of the examination patient's comfort was qualitatively evaluated comparing both EOG recordings.

RESULTS: With the standard EOG the mean value of Arden's index was 2.7 ± 0.6 and with the simplified protocol 2.0 ± 0.4 ($p < 0.001$). In patients with Best's dystrophy the mean value of the Arden index was 1.2 ± 0.1 with the standard EOG and 1.0 ± 0.1 with the simplified protocol ($p = 0.10$). A comparison of the Arden index values of healthy subjects and patients with Best's dystrophy showed a significant difference for both the standard and the simplified protocol ($p = 0.002$). Both the standard EOG and the simplified protocol showed 100% sensitivity and 100% specificity for detection of patients with Best's dystrophy. When qualitatively defining the examinations according to the survey questionnaires most of the examinees stated that the examination according to the simplified protocol was more pleasant due to the shorter duration and lower intensity of the light stimulus.

CONCLUSION: EOG performed according to the simplified protocol gives comparable results to EOG according to the standard protocol while the examination is significantly shorter and less uncomfortable for the patients. Simplified EOG can be performed as part of the full-field ERG investigation and could thus become a screening test for the assessment of RPE function in various retinal dystrophies.

OBOJESTRANSKA ARTERITIČNA SPREDNJA ISHEMIČNA OPTIKONEVROPATIJA S PAHIMENINGITISOM OB EOZINOFILNI GRANULOMATOZI S POLIANGIITISOM

BILATERAL ARTERITIC ANTERIOR ISCHAEMIC OPTIC NEUROPATHY WITH PACHYMENINGITIS IN EOSINOPHILIC GRANULOMATOSIS WITH POLYANGIITIS

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NAMEN: Prikazati primera bolnika z obojestransko sekvenčno arteritično sprednjo ishemično optikonevropatijo (AAION) ter hipertrofičnim pahimeningitisom ob znani eozinofilni granulomatozi s poliangiitisom (EGPA) oz. Churg-Strauss sindromu.

METODE: Retrospektivna analiza primera 58-letnega bolnika z anamnezo mesec dni trajajočega hudega poslabšanja vida na desno oko, čemur je po treh mesecih sledilo še poslabšanje vida levo. Opravljena je bila očesna slikovna in funkcionalna diagnostika, laboratorijske preiskave krvi, revmatološki pregled, ultrazvok velikih žil, biopsija temporalne arterije, CT glave, CTA vratnih in možganskih arterij ter MR glave.

REZULTATI: Ugotavljali smo klinično sliko atrofije papile desnega vidnega živca z najboljšo korigirano vidno ostrino prsti 1 meter, ter svež bledo-rožnat edem papile levega vidnega živca, sprva s primerno vidno funkcijo. V laboratorijskih izvidih so izstopali povišani vnetni parametri (ESR 67,CRP 56) ter prisotnost p-ANCA. Z UZ velikih žil in biopsijo temporalne arterije smo izključili gigantocelični arteritis. Na MR glave so bili vidni znaki hipertrofičnega pahimeningitisa. Uvedli smo kortikosteroidno terapijo, po kateri smo beležili upad vnetnih parametrov. Revmatolog je ukinil redno terapijo z metotreksatom ter uvedel ciklofosfamid. Ker se je vidna ostrina slabšala, je sledila terapija z imunoglobulini in rituksimabom. Po dveh letih spremljanja je bila najboljša korigirana vidna ostrina levo 0,32 z obsežnimi izpadi v vidnem polju. Kontrolni MR glave je pokazal blago regresijo hipertrofije mening. Stanje smo opredelili kot obojestransko AAION v povezavi z EGPA.

ZAKLJUČEK: EGPA je sistemski nekrotizirajoči vaskulitis, ki prizadane srednje velike in majhne žile. Kaže se z multiorgansko prizadetostjo, najpogosteje z astmo, kroničnim rinosinuzitisom in eozinofilno infiltracijo tkiv. Zelo redki manifestaciji bolezni sta AAION ter hipertrofični pahimeningitis. Kadar obravnavamo bolnika s klinično sliko AAION, je ob gigantoceličnem arteritisu v diferencialni diagnostiki potrebno pomisliti tudi na EGPA, saj je potrebna pravočasna in ustrezna terapija.

PURPOSE: To present a case of a patient with bilateral sequential arteritic anterior ischaemic optic neuropathy (AAION) and hypertrophic pachymeningitis with known eosinophilic granulomatosis with polyangiitis (EGPA) or Churg-Strauss syndrome.

METHODS: Retrospective case study of a 58-year-old patient with a month-long history of severe visual deterioration in the right eye, followed by worsening of vision in the left eye three months later. Ocular imaging and functional diagnostics, laboratory blood tests, rheumatological examination, ultrasound of the great vessels, temporal artery biopsy, head CT, CTA of the carotid and cerebral arteries and head MRI were performed.

RESULTS: Clinically, there was atrophy of the papilla of the right optic nerve with best corrected visual acuity of fingers on 1 meter, and fresh pale-pink oedema of the papilla of the left optic nerve, initially with adequate visual function. In laboratory findings, elevated inflammatory parameters (ESR 67,CRP 56) and the presence of p-ANCA stood out. Ultrasound examination of the great vessels and temporal artery biopsy were performed to exclude giant cell arteritis. Head MRI showed signs of hypertrophic pachymeningitis. Corticosteroid therapy was given, after which a decrease in inflammatory parameters was observed. The rheumatologist withdrew regular methotrexate therapy and introduced cyclophosphamide. As the visual acuity worsened, therapy with immunoglobulins and rituximab were subsequently administered. After two years of follow-up, the best corrected visual acuity left was 0.32 with extensive visual field loss. Follow-up head MRI showed mild regression of meninges hypertrophy. The condition was defined as bilateral AAION in association with EGPA.

CONCLUSION: EGPA is a systemic necrotising vasculitis affecting medium and small vessels. It presents with multiorgan involvement, most commonly asthma, chronic rhinosinusitis and eosinophilic tissue infiltration. AAION and hypertrophic pachymeningitis are very rare manifestations of the disease. When treating a patient with a clinical presentation of AAION, EGPA should be considered in the differential diagnosis alongside giant cell arteritis, as prompt and appropriate therapy is required.

MULTIMODAL IMAGING IN VOGT-HARADA-KOYANAGI DISEASE: CASE SERIES FROM A SINGLE TERTIARY CENTRE, RECOMMENDATIONS, AND PRACTICAL TIPS FOR DIAGNOSIS, TREATMENT, AND MONITORING

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PURPOSE: Vogt-Harada-Koyanagi disease (VKH) is a Th1 cell-mediated granulomatous inflammatory condition affecting melanocyte-associated antigens. The hallmark of the disease is granulomatous panuveitis with diffuse thickening of the uveal tract in the acute stage, followed by a ”sunset glow” fundus in the convalescent stage. We report classical multimodal imaging features and present a clinical case series to describe these, to help with diagnosis, disease monitoring, and treatment response in this rare condition.

METHODS: A review of published key multi-modal findings from a literature review in active VKH disease. Characteristic imaging findings that help diagnose the condition and determine disease activity, such as ultra wide-field fluorescein angiography (UWF-FFA) (Optos®), UWF indocyanine-green angiography (ICGA) (Optos ®), spectral-domain optical coherence tomography (SD-OCT), and OCT angiography (OCT-A) features, are presented, followed by a report of multimodal imaging in a case series of six patients from a single tertiary centre.

RESULTS: Six patients presented with a diagnosis of VKH (five incomplete, two probable). Five were female. There was subretinal fluid on SD-OCT in four patients, three patients had bacillary layer detachment and four had chorioretinal folds. OCT-A revealed multiple foci of choriocapillaris flow-void in three patients. On UWF-FFA, we observed patchy choroidal filling in one patient, early pinpoint hyper-fluorescence followed by pooling in five patients, and peripheral leakage in three patients. On UWF-ICGA, all patients had early and intermediate large choroidal vessel hyper-fluorescence with leakage and persistent small and large hypo-fluorescent spots. All patients received intravenous methylprednisolone 1 g for three consecutive days, followed by high-dose oral prednisolone, and were started on steroid-sparing immunosuppressive treatment (Tacrolimus, Azathioprine, or Mycophenolate Mofetil) with subsequent resolution of inflammation. One patient required cataract and glaucoma surgery. There was recurrence of posterior segment inflammation in two patients; adalimumab was initiated in one and tacrolimus in the other.

CONCLUSION: VKH is a rare, sight-threatening entity that mostly affects young adults. Patients often present with disease findings limited to intraocular inflammation, therefore, accurate recognition of distinctive ocular features is important for establishing a definitive diagnosis. Our case series demonstrated the value of multimodal imaging in the diagnosis and monitoring of the disease. There was an excellent response to early and aggressive treatment. Timely recognition and prompt initiation of systemic corticosteroids, followed by initiation of IMT, are of the utmost importance.

PRVA MANIFESTACIJA INTERMEDIARNEGA UVEITISA Z NEOVASKULARIZACIJO NA PAPILI VIDNEGA ŽIVCA V SKLOPU HLA-B27 POZITIVNEGA SPONDILOARTRITISA

INTERMEDIATE UVEITIS ASSOCIATED WITH HLA-B27 SPONDYLOARTHRITIS PRESENTING WITH OPTIC DISC NEOVASCULARIZATION

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32-letni moški z znanim HLA-B27 pozitivnim spondiloartritisom se je jeseni 2022 pri področni oftalmologinji spremljal zaradi prvega zagona kroničnega iridociklitisa približno dva meseca. Zaradi vztrajanja težav je bil napoten na Očesni oddelek Splošne bolnišnice Celje za dodatno diagnostiko in nadaljevanje zdravljenja. Tekom hospitalizacije smo ugotavljali intermediarni uveitis z neovaskularizacijo na papili.

Po navodilu revmatologa smo pričeli z zdravljenjem z Medrolom 32mg, Metotreksatom 15mg 1x tedensko in Folacinom 10mg 1x tedensko. Redno je prejemal topično protivnetno terapijo, v 4-tedenskih razmakih smo intravitrealno aplicirali injekcije zaviralca-VEGF, skupno je prejel tri injekcije.

Ob zgornji terapiji je prišlo do popolne remisije vnetja in do povrnitve vidne ostrine v celoti, pacient še naprej prejema Metotreksat in Folacin. Dalje se spremlja pri nas in revmatologih.

32-year-old male patient with HLA-B27 spondyloarthritis diagnosed with chronic iridocyclitis was sent to Eye department General Hospital Celje because of persistent inflammation. He presented with 0,4 visual acuity, mild anterior uveitis and vitreal cells and disc neovascularization observed clinically and by fluorescein angiography. Rheumatologist was asked to help manage the immunosuppression therapy and oral corticosteroids and antimetabolites were advised beside topical therapy.

After three months of topical steroid therapy and a series of three intravitreal anti-VEGF injections four weeks apart, the disc neovascularization became inactive and symptoms resolved. The patient, 6 months after treatment, remains stable.

ZGODNJE ZDRAVLJENJE OBOJESTRANSKEGA HEMORAGIČNEGA OKLUZIVNEGA MREŽNIČNEGA VASKULITISA KOT ZAPLETA PO OBOJESTRANSKI KONSEKUTIVNI OPERACIJI SIVE MRENE Z ZDRAVILI ANTI-VEGF

EARLY ANTI-VEGF TREATMENT FOR BILATERAL HEMORRHAGIC OCCLUSIVE RETINAL VASCULITIS AS A COMPLICATION OF CONSECUTIVE BILATERAL CATARACT SURGERY

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NAMEN: Predstaviti klinični primer obojestranskega hemoragičnega okluzivnega mrežničnega vaskulitisa po obojestranski operaciji sive mrene in intrakameralni aplikaciji vankomicina ob koncu posega, ki smo ga zdravili z intravenoznimi kortikosteroidi, panretinalno lasersko fotokoagulacijo in zgodnjo intravitrealno aplikacijo zaviralcev VEGF.

METODA: Predstavitev kliničnega primera.

REZULTATI: Klinični primer 75-letne gospe, ki je bila napotena na Očesno kliniko zaradi akutnega nebolečega obojestranskega poslabšanja vida deveti dan po obojestranski konsekutivni nezapleteni operaciji sive mrene in intrakameralni aplikaciji vankomicina ob koncu posega. Najboljša korigirana vidna ostrina ob pregledu je bila štetje prstov na 1 meter na desnem očesu in gib roke pred obrazom na levem očesu. Zrkli sta bili bledi, na levem očesu je bil centralno prisoten mikrocistični edem roženice, sicer sta bili roženici prozorni, obojestransko so bile prisotne celice 3+ v sprednjem prekatu, brez hipopiona, znotrajočesni lečki sta bili v kapsularni vrečki. Ob pregledu očesnega ozadja pri razširjeni zenici je bil obojestransko prisoten vitritis in hemoragični okluzivni mrežnični vaskulitis. Klinično in angiografsko je bila postavljena diagnoza bilateralnega hemoragičnega okluzivnega mrežničnega vaskulitisa po intrakameralni aplikaciji vankomicina. Takoj smo uvedli intravenozno terapijo s kortikosteroidi. Obojestransko smo pričeli z intravitrealnim zdravljenjem z zdravili anti-VEGF in opravili panretinalno lasersko fotokoagulacijo, da bi preprečili nadaljnjo izgubo vida in neovaskularizacijo mrežnice zaradi obsežne ishemije mrežnice.

ZAKLJUČEK: Postoperativni hemoragični okluzivni mrežnični vaskulitis je vid ogrožujoče stanje, ki se lahko pojavi po sicer nezapleteni operaciji sive mrene. Gre za pozno preobčutljivostno reakcijo na intrakameralno aplikacijo vankomicina. Z zgodnjim zdravljenjem s sistemskimi kortikosteroidi, intravitrealnim zdravljenjem z zaviralci VEGF in panretinalno fotokoagulacija preprečimo dodatno poslabšanje vida in razvoj neovaskularnega glavkoma.

PURPOSE: To report a case of bilateral hemorrhagic occlusive retinal vasculitis (HORV) after prophylactic intracameral vancomycin use at the end of uneventful consecutive bilateral cataract surgery, which was treated with systemic intravenous corticosteroids, panretinal photocoagulation, and early intravitreal anti-VEGF therapy.

METHODS: A case report.

RESULTS: A 75-year-old female underwent uneventful consecutive cataract surgery on both eyes with prophylactic intracameral vancomycin at the end of the procedure. She was referred to the Eye Hospital for acute bilateral painless visual loss on the ninth postoperative day. The ophthalmologic exam showed the best corrected visual acuity of counting fingers at 1 meter in the right eye (RE) and hand motion in the left eye (LE). She had 3+ cells in the anterior chamber with no hypopyon, iris hyperemia, and intraocular lens implant within the capsular bag in both eyes. Dilated fundus examination revealed vitritis and bilateral hemorrhagic occlusive retinal vasculitis. The patient was diagnosed with bilateral hemorrhagic occlusive retinal vasculitis secondary to a hypersensitivity reaction to intracameral vancomycin. Early therapeutic intervention with intravenous corticosteroids was pursued. She received intravitreal anti-VEGF therapy, and we performed panretinal photocoagulation in both eyes to prevent further vision loss and retinal neovascularization due to extensive retinal ischemia.

CONCLUSION: Postoperative HORV is a devastating condition that can occur after otherwise uncomplicated cataract surgery as a delayed hypersensitivity reaction to intracameral vancomycin. Early treatment with systemic corticosteroids is beneficial. Subsequently, anti-vascular endothelial growth factor injections and panretinal photocoagulation are essential to prevent neovascular glaucoma, a common complication.

OČESNA TULAREMIJA - PRIKAZ PRIMERA
OCULAR TULAREMIA - CASE REPORT

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NAMEN: Okuloglandularni sindrom, ki zajema unilateralen granulomatozni folikularni konjunktivitis in ipsilateralno regionalno limfadenopatijo, najpogosteje povzroča Bartonella henslae. Redkeje ga povzroča Francisella tularensis, gram negativni kokobacil, ki se z okuloglandularno obliko prezentira le v 2-14% primerov. Naš namen je predstaviti primer pacienta z očesno prizadetostjo, kjer smo F.tularensis potrdili iz brisa očesne veznice. Z namenom ozaveščati o redki bolezni bomo predstavili tudi kratek pregled literature.

METODE: Pregled bolnikovih kartotek, iskanje literature na PubMedu s ključno besedo ”oculoglandular tularemia”.

REZULTATI: Pacient, 24-letni gozdar, je prišel na urgentni pregled zaradi enostranskega granulomatoznega konjunktivitisa, povečano parotidno žlezo in ipsilateralno limfadenopatijo. Pacient je bil predhodno pregledovan pri nevrologih in ORL specialistih. Pri nas smo zaradi klinične slike posumili na okuloglandularni sindrom in odvzeli brise veznice na bakterije. Iz brisa očesne veznice so na Inštitutu za mikrobiologijo in imunologijo v Ljubljani v kulturi dokazali Francisello tularensis, pacienta pa smo nato po navodilu infektologov zdravili s sistemskimi antibiotiki.

ZAKLJUČKI: Francisella tullarensis, neobičajen in redek patogen, se lahko prezentira tudi primarno z očesno prizadetostjo. Poudarjamo pomembnost odvzemov brisov in skrbne mikrobiološke diagnostike pri granulomatoznih konjunktivitisih in okuloglandularnih sindromih.

PURPOSE: Oculoglandular syndrome, an unilateral granulomatous follicular conjunctivitis associated with ipsilateral regional lymphadenopathy, can be caused by other pathogens than the most common culprit Bartonella henslae. Rarely it can be caused by a zoonotic pathogen Francisella tularensis, which presents itself in oculoglandular form in only 2-14% of cases. Our purpose is to present the case of a young man with ocular tularemia, who was diagnosed from a conjunctival swab and to raise awareness about the disease through a brief review of the literature on oculoglandular tularemia.

METHODS: Review of patient records, search of literature on PubMed with keyword ”oculoglandular tularemia”.

RESULTS: The patient, a 24-year old forest ranger, presented to our emergency department with unilateral granulomatous conjunctivitis and engorged parotid gland and ipsilateral lymphadenopathia. The patient had received a neurological and ENT workup beforehand and we performed a conjunctival swab upon presentation. The patogen was isolated from the conjunctival swab and he was treated with sistemic ciprofloxacine in concordance with infectious disease department.

CONCLUSION: Francisella tullarensis, an uncommon patogen, can cause pronounced ocular manifestations. Conjunctival swabs in cases of granulomatous conjunctivitis and oculoglandular syndrome are therefore a fast and reliable alternative diagnostic tool to help in the diagnosis od the disease, which is otherwise often difficult and delayed.

INDIKACIJE ZA NUJNO NAPOTITEV NA ULTRAZVOČNO PREISKAVO ZRKLA IN ORBITE

INDICATIONS FOR EMERGENT REFERRAL TO ULTRASOUND EXAMINATION OF GLOBE AND ORBIT

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NAMEN: Predstavitev indikacij za nujno napotitev na ultrazvočno (UZ) preiskavo zrkla in orbite.

METODE: Nujna UZ preiskava zrkla in orbite je pomembna diagnostična preiskava pri obravnavi bolnikov po hujši očesni poškodbi, pri nenadni izgubi vida ob nepreglednem očesnem ozadju, pri intraokularnem vnetju in pri akutnih orbitalnih spremembah, ki ogrožajo vid.

INDIKACIJE: Hujše očesne poškodbe po primarni oskrbi so indikacija za nujno napotitev na UZ zaradi izključitve rupture ali perforativne rane sklere v posteriornem delu zrkla, endoftalmitisa in odstopa mrežnice; za potrditev intraokularnega tujka je preiskava izbora CT zrkla in orbite. Nujna napotitev na UZ pregled zrkla je indicirana tudi pri bolnikih z nenadno izgubo vida in motnimi optičnimi mediji, ki onemogočajo pregled očesnega ozadja, kot so motna roženica, ulkus roženice, hifema, hipopion, endoftalmitis, hematovitreus pri bolnikih brez sladkorne bolezni za izključitev rupture ali odstopa mrežnice ter gost vitritis z nepreglednim očesnim ozadjem. Indikacije za nujno napotitev na UZ pregled orbite so sum na rabdomiosarkom, akutne orbitalne lezije, predvsem hematom in absces, ter orbitalni celulitis.

ZAKLJUČEK: Indikacije za nujni UZ zrkla in orbite so stanja, ki akutno ogrožajo vid in je potrebno urgentno ukrepanje, sicer so ostala stanja indikacija za ne-nujno ultrazvočno diagnostiko.

PURPOSE: Introduction of indications for emergent referral to ultrasound (US) examination of globe and orbit.

METHODS: Emergent US examination of globe and orbit is a very important diagnostic procedure for evaluation of severe ocular trauma, acute visual loss with poor view of the fundus, intraocular inflammation and acute orbital changes with loss of vision.

INDICATIONS: After primary surgical treatment of severe ocular trauma there is an indication for an emergent referral to US, in order to exclude the rupture or perforating injury of sclera at posterior part of the globe, endophthalmitis and retinal detachment; for evaluation of intraocular foreign body the CT scan of globe and orbit is the gold standard. Emergent referral to US of globe is also indicated for patients with sudden loss of vision and poor view of the fundus, for example in patients with corneal opacification, corneal ulcer, hyphema, hypopyon, endophthalmitis, patients with haematovitreus and without diabetes to exclude retinal rupture or retinal detachment and patients with dense vitritis without red reflex. Indications for emergent referral to US examination of orbit is rhabdomyosarcoma, acute orbital lesions, like haematoma and abscess, and orbital cellulitis.

CONCLUSION: Indications for emergent US of globe and orbit are conditions with acute loss of vision and the need for emergent treatment, otherwise all other ocular conditions are indications for non-emergent referral.

PREVENTIVNI OČESNI PREGLEDI V DOMOVIH STAREJŠIH OBČANOV

OPHTHALMIC SCREENING IN NURSING HOME RESIDENTS

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NAMEN: Naše raziskave je bil ugotoviti, kakšna je oftalmološka oskrba med varovanci domov za starejše občane in odkriti prisotnost sive mrene, starostne degeneracije makule, glavkoma in diabetične retinopatije.

METODE: Dosežen je bil dogovor za raziskavo med Univerzitetnim kliničnim centrom Maribor, upravo doma za starejše občane in Mestno občino Maribor, Oddelkom za zdravje in socialno skrb. Raziskava je bila izvedena kot »pro bono« prospektivna pilotska študija s prostovoljnim delom.

Raziskavo smo opravili v enem od petih domov za starejše občane v našem mestu s 160 varovanci. Vsi sodelujoči so podali pisno izjavo o sodelovanju. V raziskavo so bili zajeti vsi, kis o lahko sodelovali in izpolnili strukturiran vprašalnik.

Pri pregledu smo uporabljali nekontaktni ročni tonometer (TonoCare 2.0) ain prenosno fundus kamero (andheld Optomed Aurora Full Set non-mydriatic fundus camera).

REZULTATI: V raziskavo je bilo vključenih 40 varovancev oziroma 79 oči. Povprečna starost je bila 87,6 let, več kot 70% je bilo žensk. 60 % varovancev je imelo sistemske kardiovaskularne bolezni. Na podlagi subjektivne ocene vida, jih je 20% menilo, da imajo dober vid, 40% zmerno prizadet in 40% zelo slab vid. 45% jih je že bilo operiranih zaradi katarakte. En varovanec je imel katarakto in je čakal na operacijo, pri ostalih je bila prisotna blaga oblika. Skoraj 60% varovancev je imelo redne očesne preglede. Povprečni očesni pritisk je bile 14,6 mm Hg. Pri 5 očeh je bil izmerjen pritiski višji od 21 mm Hg, vendar ne več kot 25 mm Hg brez sprememb na papili. 2 varovance sta se zdravila zaradi glavkoma. Pri 5% varovancev je bila prisotna degeneracija makule in pri 12,7% geografska atrofija. Diabetične spremembe so bile vidne pri 7,6% varovancev. Vsi diabetični bolniki so bili pod redno kontrolo pri oftalmologu.

ZAKLJUČEK: Slovenski zdravstveni sistem ne vključuje redne obvezne kontrolne očesne preglede pri varovancih domov za starejše. Menja smo, da predstavlja naš model preventivnih pregledov »pro bono« v domovih za starejše občane dodatno možnost očesne oskrbe varovancev še zlasti s vključitvijo humanitarnih organizacij, katerih glavno poslanstvo je preprečevanje izgube vida. Pravočasno ukrepanje lahko prepreči izgubo vida in z njim povezano poslabšanje kvalitete življenja.

PURPOSE: The aim of this pilot study was to determine the prevalence of adequate ophthalmological care among nursing home residents with a focus to recognize cataract, age-related macular degeneration, glaucoma, and diabetic retinopathy.

METHODS: The agreement for this study between University medical centre, nursing home management as well with Municipality of Maribor, Department for Health and Social Care was achieved. The study was performed as prospective pilot study based completely on voluntary work.

The study was performed in one of five nursing homes in our city with 160 residents. Written consent was obtained from all participants. All residents who were able to cooperate and answered the structured questionnaire were included in the study.

Handheld non-contact tonometer TonoCare 2.0 and handheld Optomed Aurora Full Set non-mydriatic fundus camera were used.

RESULTS: A total of 79 eyes in a cohort of 40 residents were examined. The mean age of the residents was 87.6 years, more than 70% were female. Systemic cardiovascular diseases affected 60% of residents. Based on subjective evaluation of vision, 20% of residents had normal vision, more than 40% moderate and nearly 40% severe vision impairment. Nearly half of residents (45%) were already operated for cataract. One resident had cataract in was waiting for operation, by others mild form of cataract was found. Nearly 60% of residents underwent regular ophthalmic examination. The average intraocular pressure was 14.6 mm Hg. In five eyes, the intraocular pressure was higher than 21 mm Hg, but not more than 25 mm Hg without optic disc changes. Two residents were already treated for glaucoma. In 5% of residents, macular degeneration was found and geographic atrophy in 12.7%. Diabetic changes were observed in 7.6%. All diabetic patients were under regular ophthalmologic examination.

CONCLUSION: The Slovenian aged care system does not mandate routine eye health assessments for older people living in nursing home.

We believe this work creates an additional policy regarding eye health care among nursing home residents including humanitary organizations, especially those with mission to prevent blindness and ophthalmologists on voluntary work. A timely intervention may help prevent loss of sight and the associated negative impact on the quality of live in nursing home residents.

SLOVENSKA RAZLIČICA BRALNEGA TESTA MNREAD – MNREAD-SI

THE SLOVENIAN VERSION OF THE MNREAD READING TEST - MNREAD-SI

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NAMEN: V slovenskem jeziku smo pripravili in validirali bralni test MNREAD (*angl*. Minnesota Low-Vision Reading Test), ki ga uporabljamo za celovito ocenjevanje sposobnosti branja pri ljudeh z normalnim vidom in pri slabovidnih ljudeh.

METODE: Test MNREAD-SI smo pripravili ob upoštevanju načel izvirne različice bralnega testa MNREAD, ki so ga razvili v laboratoriju Minnesota Low Vison. S prilagojeno programsko opremo smo sestavili 54 enostavnih deklarativnih stavkov iz besedišča slovenskih šolarjev v tretjem razredu osnovne šole. Stavke je glede slovnične ustreznosti pregledala slovenistka. Stavki nimajo ločil. Ne vsebujejo lastnih imen, z veliko začetnico pa je zapisana samo prva beseda v stavku. Vsi stavki so enako dolgi (60 znakov s presledki) in so napisani v treh vrsticah z velikostjo presledkov med besedami 0,80–1,25 v vsaki vrstici. Presledki med besedami v vsaki vrstici so prilagojeni tako, da je stavek obojestransko poravnan in se tesno prilega predvidenemu okvirju. Nato smo testirali hitrosti branja na vzorcu 100 odraslih oseb z normalno vidno ostrino. Izločili smo stavke, pri katerih smo ugotovili velik standardni odklon v hitrosti branja, in stavke, ki so jih testirani prebrali s ponavljajočimi se napakami.

REZULTATI: V končno različico slovenskega bralnega testa MNREAD-SI smo vključili 19 stavkov, ki se preberejo s primerljivo hitrostjo, imajo enostavno besedišče in ustrezajo zahtevanim oblikovnim načelom. Test je prilagojen za branje na razdalji 40 cm, velikost tiska pa je v razponu od 1,3 logMAR do –0,5 logMAR (0,05 do 3,33 po Snellenu). Vsak stavek je napisan v treh vrsticah. Stavek na vrhu je napisan v največji pisavi, vsak naslednji stavek pa v manjši pisavi v korakih po 0,1 logMAR, kar omogoča oceno branja velikosti tiska po Snellenu in logMAR.

ZAKLJUČEK: Bralni test MNREAD-SI je prvi standardiziran klinični test v Sloveniji, ki omogoča zanesljivo oceno bližinske vidne ostrine, hitrosti branja in kritične velikosti tiska pri slovensko govorečih ljudeh z normalnim vidom in pri slabovidnih ljudeh.

PURPOSE: We prepared and validated the MNREAD reading test (angl. Minnesota Low-Vision Reading Test) in the Slovenian language, which is suitable for the comprehensive assessment of reading ability in normal-sighted and low-vision people.

METHODS: The MNREAD-SI reading test was prepared based on the design principles of the original MNREAD reading test that was developed in the Minnesota Low-Vison laboratory. Using customized software, we made 54 simple declarative sentences from the vocabulary of Slovenian schoolchildren in the third grade of elementary school. The sentences were checked for grammatical adequacy by a Slovenian language expert. The sentences have no punctuation. They do not contain proper nouns, only the initial letter of each sentence is capitalized. All sentences are the same length (60 characters, including spaces) and are written in three lines with a space size between words 0.80-1.25 in each line. The spaces between the words in each line are adjusted to achieve left-right justification so that the sentence snugly fits into the sentence bounding box. Then we conducted reading speed trials on a sample of 100 adults with normal visual acuity. We eliminated the sentences in which a significant standard deviation of reading speed was found and the sentences the test subjects read with repeated errors.

RESULTS: In the final version of the Slovenian reading test MNREAD-SI we included 19 sentences that can be read at a comparable speed, have a simple vocabulary, and correspond to the required design principles. The test is suitable for reading at a distance of 40 cm, and the print size ranges from 1.3 to -0.5 logMAR (0,05 to 3,33 Snellen). Each sentence is written in three lines. The sentence at the top is written in the largest font, and then each subsequent sentence is written in a smaller font using 0.1 logMAR steps, which allows an estimation of Snellen and logMAR print size reading.

CONCLUSION: The MNREAD-SI reading test is the first standardized clinical test in Slovenia that enables a reliable assessment of near visual acuity, reading speed, and critical print size in Slovenian-speaking normal-sighted and low-vision people.

ALI SI SREČEN?
ARE YOU HAPPY?

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NAMEN: Oftalmologija je smer medicine, ki je v zadnjih letih ena najbolj zaželjena pri specializantih, predvsem zaradi splošno znanih dejstev, da smo oftlamologi med najsrečnejšimi zdravniki na svetu. Pa je temu res tako?

METODE: Predstavljene bodo študije, ki oftalmologe uvrščajo med najsrečnejše zdravnike saj okoli 62 % oftalmologov sebe opisuje kot srečne ali zelo srečne. Dotaknili se bomo tudi izgorelosti zaradi usklajevanja poklica in privatnega življenja, kjer oftalmologi zasedamo zadnja mesta v odstotkih izgorelosti med zdravniki (48 %) v primerjavi z internisti urgentne medcine, ki so izgoreli kar v 65 % ali pediatri in internisti npr v 60 % .

REZULTATI: Praktični primeri, kako si lahko življneje naredimo bolj srečno z razmišljanjem o prioritetah v tvojem življenju, kaj te navdaja z zadovoljstvom, kako najdem ravnovesje med službo in drugimi dejavnostimi, ki jih želiš zase v svojem življenju, iskanje rešitev s prijatelji, partnerjem, družino, smer razvoja tvojega življenja ki vodi k zate pomenbnim zadevam. Zavedanje da nisi sam in da se stresu lahko izogneš.

ZAKLJUČEK: Smo res to kar smo želeli biit, je moj poklic res pravi, sem res zadovljen, sem srečen ? Na to si je potrebno odgovoriti večkrat in vedno znova, da so tvoje odločitve prave zate in v skladu s tvojimi željami. Pa je to sploh možno?

PURPOSE: Ophthalmology is a field of medicine that has been one of the most sought after by specialists in recent years, mainly due to the well-known fact that ophthalmologists are among the happiest doctors in the world. Is that really the case?

METHODS: Studies will be presented that rank ophthalmologists among the happiest doctors, as around 62% of ophthalmologists describe themselves as happy or very happy. We will also touch on burnout due to balancing the profession and private life, where ophthalmologists occupy the last places in the percentage of burnout among doctors (48%) compared to internists in emergency medicine, who burn out in as much as 65% or pediatricians and internists, for example, in 60%.

RESULTS: Practical examples of how we can make ourselves happier by thinking about the priorities in your life, what fills you with satisfaction, how to find a balance between work and other activities in your life, finding solutions with friends, partner, family, the direction of the development of your life that leads to important matters for you. Awareness that you are not alone and that you can avoid stress.

CONCLUSION: Are we really what we wanted to be, is my profession really right, am I really satisfied, am I happy? It is necessary to answer this several times , again and again, so that your decisions are right for you and in accordance with your wishes. Is this even possible?

ZUNANJA ORBITALNA DEKOMPRESIJA: RETROSPEKTIVNA ANALIZA PRIMEROV PRI RAZLIČNIH INDIKACIJAH IN PRIMERJAVA Z LITERATURO

EXTERNAL ORBITAL DECOMPRESSION: A RETROSPECTIVE ANALYSIS OF CASES IN VARIOUS INDICATIONS AND COMPARISON WITH THE LITERATURE

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NAMEN: Orbitalna dekompresija je kirurški poseg, s katerim odpravljamo simptome in zaplete pri različnih orbitalnih patologijah. Poseg najpogosteje uporabljamo pri hudi obliki ščitnične orbitopatije (ŠO). Ovrednotili smo rezultate zunanje orbitalne dekompresije iste kirurške ekipe na Očesni kliniki Univerzitetnega kliničnega centra v Ljubljani pri bolnikih z različnimi indikacijami, predvsem ŠO in jih primerjali z rezultati v obstoječi literaturi.

METODE: Retrospektivna analiza zaporednih bolnikov, pri katerih je bila opravljena zunanja orbitalna dekompresija zaradi različnih indikacij med novembrom 2018 in oktobrom 2022. Opazovali smo spremembe proptoze, vidne ostrine, barvnega vida in zaplete.

REZULTATI: Orbitalna dekompresija je bila izvedena pri 15 bolnikih (4 moški in 11 žensk), povprečna starost bolnikov je 55.8 let (SD= 11.02). Indikacije za orbitalno dekompresijo so bile: neaktivna ŠO (11 bolnikov), DON (6 bolnikov), hemangiom, sindrom tesne orbite in orbitalni psevdotumor (vsak po 1 bolnik). Dekompresija je bila obojestranska pri 10 bolnikih in enostranska pri 5. Dvostensko orbitalno dekompresijo je imelo 11 bolnikov, enostensko 3 in trostensko 1.

Pooperativno je bilo povprečno zmanjšanje proptoze za 5 mm (SD=3.02). V celotni skupini ni bilo sprememb vidne ostrine, medtem ko se je v podskupini bolnikov z DON vidna ostrina povprečno izboljšala za 0.12, SD=0.21). Pri bolnikih z DON je prišlo tudi do izboljšanja barvnega vida povprečno za 4.5 številk (SD=2.90). Stopnja zapletov je bila nizka, najpogostejši zaplet je bil novonastali dvojni vid (4 bolniki).

ZAKLJUČEK: Pregled rezultatov zunanjih orbitalnih dekompresij narejenih na Očesni kliniki v Ljubljani, v zadnjih štirih letih je pokazal, da je to varen in učinkovit poseg, ki lahko izboljša klinično sliko predvsem pri bolnikih s ŠO. Naši rezultati so primerljivi z literaturo.

PURPOSE: Orbital decompression is a surgical procedure aimed at alleviating symptoms and complications of various orbital pathologies. The procedure is most commonly used in severe thyroid eye disease (TED). In this study, the results of external orbital decompression performed by the same surgical team at the Eye Hospital, University Medical Centre Ljubljana in patients with various indications were evaluated and compared with existing literature.

METHODS: Retrospective analysis of consecutive patients who underwent external orbital decompression for various indications between November 2018 and October 2022. Changes of proptosis, visual acuity, colour vision, and complications were observed.

RESULTS: Orbital decompression was performed in 15 patients (4 males and 11 females), with a mean age of 55.8 years (SD=11.02). Indications for orbital decompression included: inactive TED (11 patients), DON (6 patients), hemangioma, tight orbit syndrome, and orbital pseudotumor (each 1 patient). Decompression was bilateral in 10 patients and unilateral in 5. Two-wall decompression was performed in 11 patients, one-wall in 3, and three-wall in 1. Postoperatively, the mean reduction of proptosis was 5 mm (SD=3.02). There were no changes in visual acuity in the entire group, while in the DON subgroup visual acuity improved by an average of 0.12 (SD=0.21). Patients with DON also experienced and improvement in colour vision of 4.5 numbers on average (SD=2.90). The complication rate was low, with the most common complication being new-onset diplopia (4 patients).

CONCLUSION: A review of the results of external orbital decompressions performed at the Eye Hospital in Ljubljana in the past four years has shown that this is a safe and effective procedure which can improve clinical signs especially in patients with TED. Our results are comparable with the literature.

ZDRAVLJENJE BAZALNOCELIČNEGA KARCINOMA VEK NA OČESNEM ODDELKU MURSKA SOBOTA

TREATMENT OF BASAL CELL CARCINOMA OF THE EYELIDS AT THE EYE DEPARTMENT MURSKA SOBOTA

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NAMEN: Bazalnocelični karcinom je najpogostejša maligna oblika tumorja vek. Prekmurje velja za kmetijsko okolje, kjer je prebivalstvo veliko izpostavljeno soncu in posledično UV žarkom čez vso leto. Predstavljamo primere bolnikov s pojavom bazalnoceličnega karcinoma na vekah, ki so bili zdravljeni na našem oddelku po različnih operativnih metodah.

METODE: Bolniki so prišli na pregled z navajanjem, da opažajo spremembe na vekah, ki se ne zacelijo, velikost pa se veča, kar opažajo od več mesecev do let. Klinična slika je nakazovala veliko verjetnost bazalnoceličnega karcinoma. Pri vseh bolnikih smo opravili sprednjo in zadnjo biomikroskopijo s slikanjem sprednjega segmenta. Bolnikom smo operativno odstranili tumorje z varnostnim robom po različnih metodah in nato po potrebi predel manjkajoče kože nadomestili z drsnim režnjem. Tumorji so bili poslani na patohistološke preiskave v parafinu.

REZULTATI: V vseh naših primerih je histologija potrdila, da je tumor bazalnocelični karcinom vek, izrezan v zdravo. Na kontrolnih pregledih do sedaj ne ugotavljamo recidivov, klinična slika je pooperativno stabila. Bolniki so z pooperativnim stanjem zadovoljni.

ZAKLJUČEK: Bolniki z večjimi tumorji vek, ki potrebujejo presadke ali režnje za nadomestitev kože v predelu izrezanega tumorja, se lahko uspešno zdravijo z drsnimi režnji, pri manjših tumorjih pa pridejo v upoštev klasične metode ekscizije z varnostnim robom brez presadkov ali režnjev kože.

PURPOSE: Basal cell carcinoma is the commonest malignancy of the eyelid. Prekmurje is considered an agricultural environment, where the population is exposed to the sun and consequently UV rays throughout the whole year. We represent cases of patients with basal cell carcinoma of the eyelids who were treated in our department using various operative methods.

METHODS: Patients came to the examination saying that they notice changes in the eyelids that do not heal and increase in size, which they observe for several months to years. The clinical picture indicated a high probability of basal cell carcinoma. All patients underwent anterior and posterior biomicroscopy with imaging of the anterior segment. Tumors were surgically removed from patients with a safety margin using various methods, and then, if necessary, the area of missing skin was replaced with a sliding flap. Tumors were sent for pathohistological examinations in paraffin.

RESULTS: In all our cases, histology confirmed the tumor to be a basal cell carcinoma of the eyelids excised in healthy. No relapses have been identified during follow-up examinations, and the clinical picture is stable postoperatively. Patients are satisfied with the postoperative condition.

CONCLUSION: Patients with larger eyelid tumors who need grafts or flaps to replace the skin in the area of the excised tumor can be successfully treated with sliding flaps, while for smaller tumors the classical method of excision with a safety margin without grafts or skin flaps is considered.

PTOZA KOT PRVI ZNAK MALT LIMFOMA; PRIKAZ PRIMERA

PTOSIS AS AN INITIAL MANIFESTATION OF MALT LYMPHOMA: A CASE REPORT

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MALT limfom je najpogostejši podtip redkejše oblike nizkomalignih B celičnih ne-Hodgkinovih limfomov, ki se običajno pojavi pri starostnikih. Predstavlja 40-70% vseh orbitalnih limfomov. Približno polovica orbitalnih B-celičnih limfomov so primarni tumorji, ki vzniknejo samostojno znotraj orbitalnih struktur. Običajno se pojavijo unilateralno, v 25% pa bilateralno. Sistemska bolezen je prisotna pri do 40% primerov ob postavitvi diagnoze in v do 60% znotraj 5 let. Zdravljenje (radioterapija, kemoterapija, monoklonalna protitelesa) je odvisno od stopnje in razširjenosti tumorja. V vseh primerih je potrebna multidisciplinarna obravnava pacienta.

Predstavljamo primer 81-letnega gospoda, ki je bil k nam napoten s strani področnega oftalmologa za zdravljenje oz. korekcijo unilateralne ptoze. Zaradi suspektnih kliničnih znakov smo opravili MR slikanje, ki je razkrilo mehkotkivno, omejeno lezijo v zgornjem delu orbite. Odvzeli smo vzorce za biopsijo in operirali ptozo veke. Rezultati so potrdili diagnozo MALT limfoma v desni orbiti. Pacient je bil napoten na Onkološki Inštitut za radioterapijo. Prišlo je do popolnega regresa bolezni.

Včasih se lahko orbitalni limfom sprva izrazi kot uni- ali bilateralna ptoza z oslabljeno funkcijo m. levator palpebrae. S primerom našega pacienta bi želeli izpostavili pomembnost, da ob takšni klinični sliki, pomislimo tudi na možnost limfoma.

MALT lymphoma is the most common subtype of non-Hodgkin´s lymphoma, usually appearing in elder patients. It represents 40-70% of all orbital lymphomas. About 50% of orbital B-cell lymphomas are primary tumours, arising exclusively within the orbit. Mostly unilateral, however, bilateral involvement occurs in 25%; systemic involvement is often present (40% at first diagnosis and in up to 60% at 5 years followup). There are some treatment options, depending on the grade (radiotherapy, chemotherapy, monoclonal antibodies). A multidisciplinary wholistic work up is necessary.

Herewith we report a case of 81-year-old male patient who was sent to our hospital for management of unilateral right-eye ptosis. Due to suspicios clinical apperance of the eye MRI study was performed, which revealed a discrete soft-tissue mass in the superior orbit, highlighted with contrast. A ptosis correction with a tumor biopsy was performed that revealed low-grade proliferation of B-cells, with traits of MALT lymphoma. Our patient underwent orbital radiotherapy, with complete response.

Sometimes, orbital lymphoma presents as uni- or billateral ptosis with impairment of levator muscle function. With this case, we stress importance of differential diagnosis eyelid malpositions.

ŽILNE MALFORMACIJE V ORBITI
ORBITAL VASCULAR MALFORMATIONS

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NAMEN: Predstaviti pristop pri obravnavi bolnikov z žilnimi malformacijami orbite. Prikazati rezultate skupine bolnikov, pri katerih je bila opravljena orbitotomija in popolna odstranitev globoke žilne malformacije orbite.

METODE: Retrospektivna analiza skupine šestih bolnikov z globoko orbitalno žilno malformacijo. Primerjali smo pred- in pooperativno vidno ostrino, gibljivost zrkla, vidno polje, zenične reakcije, barvni vid po Ishihari in proptozo zrkla z eksoftalmometrijo po Hertlu.

REZULTATI: Pooperativno je bila pri 5 od 6 bolnikov prehodno omejena gibljivost zrkla prisotna manj kot tri mesece, pri enem bolniku je vztrajala dlje. Pri eni bolnici so bili prisotni znaki delne pareze okulomotornega živca s prizadetostjo zenice. Sprememb v vidni ostrini, barvnem vidu ali vidnem polju pri bolnikih nismo zaznali. Zmanjšanje proptoze zrkla po odstranitvi lezij je znašalo od 1 do 5mm.

ZAKLJUČEK: Orbitalne žilne malformacije predstavljajo skoraj desetino vseh bolezenskih orbitalnih stanj. Njihova kirurška odstranitev je lahko zahtevna. Skrbna predoperativna priprava in izbira najbolj varnega in neposrednega dostopa ter ustrezna kirurška tehnika omogočajo optimalne funkcionalne in kozmetične rezultate z malo zapleti. Rezultati naše skupine primerov se ne razlikujejo od podatkov, pridobljenih iz literature.

PURPOSE: To review the approach and management of orbital vascular malformations. To present the results of a case series of patients with deep orbital vascular malformations, who underwent orbitotomy with total excision of the lesion.

METHODS: We retrospectively reviewed the medical records of 6 patients affected by deep orbital vascular malformation, who underwent orbitotomy with a total surgical excision of the lesion. We compared data on the outcome measures of visual acuity, ocular motility, colour vision, pupillary function and Hertel exophthalmometry readings.

RESULTS: Complications of the surgical interventions included temporary limitation of the eye movement in 5 out of 6 patients for up to 3 months, in one patient limited eye movement has persisted for over 3 months. One patient had a transient partial oculomotor nerve palsy with pupillary involvement. Visual acuity, colour vision and visual field testing showed no changes in all 6 patients. Postoperative changes in proptosis of the globe ranged from 1 to 5 mm.

CONCLUSION: Orbital vascular malformations account for up to 10% of all orbital pathology and their surgical removal can be demanding. Careful preoperative planning and safest, most practical, direct approach and meticulous surgical technique are critical for achieving optimal cosmetic and functional results. Our postoperative outcomes are consistent with those in previously reported literature.

KAKO SE IZOGNITI IN/ALI PREPREČITI EKTROPIJ OB REKONSTRUKCIJI SPODNJE VEKE

HOW TO AVOID AND CORRECT ECTROPION AFTER LOWER EYELID TUMOR EXCISION AND RECONSTRUCTION

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NAMEN: Spodnja veka deluje skupaj z zgornjo veko kot enota za pokrivanje in zaščito očesa. Pomaga tudi pri preprečevanju izsušitve oči. Če je njegovo delovanje oslabljeno, lahko nepopravljivo okvari oko.

METODE: Rekonstrukcija spodnje veke lahko povzroči ektropij, če ni pravilno izvedena. Pokazal bom nekaj tehnik, kako rekonstruirati manjši defekt in kako rekonstruirati pokrov po pooperativnem ektropiju z izrezom tumorja.

REZULTATI: Vsak tumor je treba pregledati posebej in glede na njegovo velikost ter izbrati ustrezno tehniko postavitve. Navpična napetost mora biti manjša in sile morajo biti usmerjene čim bolj vodoravno.

ZAKLJUČEK: S pravilno napetostjo po rekonstrukciji bi moralo biti celjenje boljše in lepše. Rezultat bo bolj funkcionalen in estetski.

PURPOSE: The lower eyelid works together with the upper eyelid as a unit to cover and protect the eye. It also helps prevent dry eyes. If its function is weakened, it can irreparably damage the eye.

METHODS: Lower eyelid reconstruction can cause ectropion if not performed correctly. I will show some techniques how to reconstruct a small defect and how to reconstruct the lid after postoperative ectropion with tumor excision.

RESULTS: Each tumor should be examined individually and according to its size, and the appropriate placement technique should be chosen. The vertical stress should be less and the forces should be directed as horizontally as possible.

CONCLUSION: With proper tension after reconstruction, healing should be better and more beautiful. The result will be more functional and aesthetic.

RETROSPEKTIVNA ANALIZA LATERALNE KANTOPLASTIKE KOT METODE KIRURŠKE KOREKCIJE ENTROPIJA SPODNJE VEKE

A RETROSPECTIVE ANALYSIS OF LATERAL CANTOPLASTY AS A METHOD FOR SURGICAL LOWER LID ENTROPIUM REPAIR

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NAMEN: prikaz uspešnosti lateralne kantoplastike kot metode kirurške oskrbe entropija spodnje veke pri pacientih Očesnega oddelka UKC Maribor.

METODE: retrogradna analiza elektronskih podatkov kirurške oskrbe entropija spodnje veke z lateralno kantoplastiko pri pacientih na Očesnem oddelku UKC Maribor med oktobrom 2017 in decembrom 2022. Uspešnost smo ocenili s pomočjo ocene anatomske ustreznosti korekcije in ocene deleža ponovitev entropijev in in časa do pojava ponovitve.

REZULTATI: Opravili smo statistično analizo primerov operativne korekcije entropijev spodnje veke s šifro posega 42590-00 (lateralna kantoplastika). Izločili smo predhodno recidivantne in brazgotinske entropije. Analizirali smo obravnave 121 pacientov, od tega 59 moških in 62 žensk. V okviru lateralne kantoplastike (LK) so bile najpogosteje uporabljene metode LK z blok ekscizijo (10,7%), LK z blok ekscizijo in everzijskimi šivom (68,6%) in LTS (5%). Na splošno smo recidiv entropija zdravili pri 18 pacientih (14%), pri tistih z LK z blok ekscizijo in everzijskim šivom je bil ta delež 13,2%. Povprečni čas do prvega recidiva je bil 10 mesecev, od tega najkrajši interval 3 in najdaljši 30 mesecev. Pri 3 pacientih smo beležili sekundarni recidiv. Najpogostejši metodi sekundarne korekcije sta operacija po Quickertu, in ponovna LK z blok ekscizijo in everzijskimi šivi. Najpogostejši pooperativni »zapleti« so dehiscenca operativne rane, granulom in trihiaza. Za dva pacienta, kjer smo revizijo opravili po 3 mesecih smatramo, da je bila korekcija anatomsko neustrezna, pri ostalih je veka primerno prilegala zrklu.

ZAKLJUČEK: Lateralna kantoplastika je kirurški poseg, pri katerem je lateralni kantus pritrdimo na lateralni orbitalni rob po kirurški ločitvi (lateralni kantolizi), indicirana je za korekcijo horizontalne ohlapnosti spodnje veke. Na Očesnem oddelku UKC Maribor prednjači uporaba LK z blok ekscizijo in everzijskimi šivi, ki je enostavna, hitra in učinkovita metoda korekcije entropija. Odstotek recidivov je primerljiv s sicer zelo variabilnimi rezultati iz literature.

PURPOSE: To evaluate the efficacy of lateral canthoplasty as a surgical method for treating lower eyelid entropion in patients at the Ophthalmology Department of the University Medical Centre Maribor.

METHODS: Retrospective analysis of surgical treatment data for lower eyelid entropion with lateral canthoplasty in patients at the Ophthalmology Department of the University Medical Centre Maribor between October 2017 and December 2022. The success rate was assessed by anatomical sufficiency of the correction, the proportion of entropion recurrences and the time to recurrence.

RESULTS: We performed a statistical analysis of cases of operative correction of lower eyelid entropion with procedure code 42590-00 (lateral canthoplasty). Previous recurrent and cicatrical entropions were excluded. We analyzed 121 patients, including 59 males and 62 females. Within lateral canthoplasty (LC), the most frequently used methods were LC with block excision (10.7%), LC with block excision and everting sutures (68.6%), and LTS (5%). The overall recurrence rate was 14% regardless of the surgical method used, with 13.2% recurrence rate in patients where LC with block excision and everting sutures was performed. The average time to first recurrence was 10 months, with the shortest interval being 3 and the longest 30 months. Secondary recurrence was observed in 3 patients. The most common methods of secondary treatment were Quickert's correction and repeat LC with block excision and everting sutures. The most common postoperative "complications" were wound dehiscence, granuloma, and trichiasis. In 2 patients, where surgical revision was performed after 3 months, we found an unsufficient anatomical position postoperatively, in rest of the cases this was satisfactory.

CONCLUSION: Lateral canthoplasty is a surgical procedure in which the lateral canthus is fixed (anchored) to the lateral orbital rim after surgical separation (lateral cantholysis), indicated for correcting horizontal laxity and malposition of the lower eyelid. At the Ophthalmology Department of the University Medical Centre Maribor, the use of LC with block excision and everting sutures predominates, which is a simple, fast, and effective method for correcting entropion. The recurrence rate is comparable to the highly variable results reported in the literature.

TUMORJI VEK, ZDRAVLJENI NA ODDELKU ZA OČESNE BOLEZNI UKCM – RETROSPEKTIVNA ANALIZA

EYELID TUMORS TREATED AT DEPARTMENT OF OPHTHALMOLOGY UKCM – A RETROSPECTIVE ANALYSIS

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NAMEN: Retrogradna analiza kirurške obravnave tumorskih lezij vek na Oddelku za očesne bolezni UKC Maribor.

METODE: Iz elektronskih kartotek in drugih popisov smo pridobili podatke kirurške oskrbe tumorjev vek s histološko verifikacijo, med oktobrom 2017 in decembrom 2022, s šifro posega 31230-00. Zabeležili smo vrsto operativnega posega in metodo rekonstrukcije, rezultat patohistološke analize in ocenili uspešnosti obravnave na podlagi števila recidivov tumorjev in števila tumorjev, izrezanih v zdravo.

REZULTATI: V obravnavo smo vključili 209 pacientov, od tega 94 moških in 115 žensk. Od vseh obravnavanih primerov je prišlo do recidiva lezije pri treh pacientih (1.4%). Večina lezij je bila bazalnoceličnih karcinomov (BCC) – 52.6%, kar predstavlja 93.1% vseh malignih neoplazij (ploščatocelični karcinom in maligni melanom, 4.6% , 1.5% odnosno). Do recidiva je prišlo le pri dveh BCC, ki nista bila izrezana v zdravo in pri eni aktinični keratozi. Povprečni čas do prvega recidiva je bil 18 mesecev, od tega najkrajši čas 7 in najdaljši 39 mesecev. Tumorji so bili histološko povprečno dolgi 6.3 mm. Najpogostejša metoda rekonstrukcije je bila Tenzelov reženj. V petih primerih smo uporabili rekonstrukcijo s »sendvič« metodo, z uporabo prostega kožnega in prostega tarzokonjunktivlanega presadka ter mišičnega režnja, z dobro anatomsko uspešnostjo ter brez recidivov.

ZAKLJUČEK: Tumorji vek predstavljajo pomemben delež okuloplastičnih posegov. Večinoma smo obravnavali BCC, ki predstavljajo več kot 90% malignih neoplazem vek. V primeru večjih ali mejno suspektnih sprememb kože vek smo večkrat predhodno opravili probatorno ekscizijo z patohistološko verifikacijo. Glede na velikost tumorja smo se odločili za tip operativnega posega. Večinoma smo se odločili za klinasti reženj ali Tenzelovo metodo, samostojno ali v kombinaciji z lateralno kantoplastiko. V obeh primerih je bila uspešnost posega zelo dobra, pojavnost recidivov pa nizka. V primeru večjih ter zahtevnejših tumorjev je multidisciplinarno sodelovanje ključnega pomena za uspešnost.

PURPOSE: Retrograde analysis of surgical treatment of eyelid tumour lesions at the Department of Ophthalmology, University Medical Centre Maribor.

METHODS: We collected data from electronic medical records and other censuses on surgical treatment of eyelid tumours with histological verification, between October 2017 and December 2022, with procedure code 31230-00. We recorded the type of surgery and method of reconstruction, the result of the pathohistological analysis. We assessed the success of the treatment based on the number of tumour recurrences and the number of tumours excised to healthy.

RESULTS: 209 patients were enrolled, 94 men and 115 women. Of all cases treated, three patients (1.4%) experienced lesion recurrence. The majority of lesions were basal cell carcinomas (BCC) - 52.6%, representing 93.1% of all malignant neoplasms (squamous cell carcinoma and malignant melanoma, 4.6%, 1.5% respectively). Recurrence occurred in only two BCCs that were not excised to healthy and in one actinic keratosis. The mean time to first recurrence was 18 months, with the shortest time being 7 months and the longest 39 months. The tumours were histologically on average 6.3 mm long. The most common method of reconstruction was Tenzel's incision. In five cases, reconstruction was done with the "sandwich" method, using free skin graft, free tarsoconjunctival graft and muscular flap, with good anatomical success and no recurrences.

CONCLUSION: Eyelid tumours represent a significant part of oculoplastic procedures. BCC is the most common eyelid malignancy, accounting for over 90% of malignant eyelid neoplasms. In case of large or borderline suspicious lesions of the eyelid skin, we performed several prior probatory excision with pathological verification. Depending on the size of the tumour, we decided on the type of surgery. Most of the time, we opted for the wedge incision or the Tenzel method, alone or in combination with lateral canthoplasty. In both cases, the success rate was very good, and the recurrence rate was low. In the case of larger and more complex tumours, multidisciplinary cooperation is crucial for success.

DEVET LET ENDOSKOPSKIH DAKRIOCISTORINOSTOMIJ V SB NOVO MESTO

NINE YEARS OF ENDOSCOPIC TRANSANASAL DACYOCYSTORHINOSTOMIES IN GH NOVO MESTO

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PURPOSE: If the nasolacrimal duct is blocked, excessive tearing or inflammation in the area of the inner corner of the eye occurs. The problem is treated operatively, entirely endoscopically transnasally.

We want to present 9 years of work and the results and adaptations of the ETDCR surgical technique in the ENT department.

METHODS: Preoperatively, the deviation of the nasal septum and the condition of the nasal mucosa is inspected endoscopically. Lacrimal system syringing is performed.

Procedure is performed under general anesthesia. Operative field is prepared topically with 1 mL of adrenaline and 1 mL of 2% xylocaine, avoiding local anesthetic infiltration . Inferiorly based nasal flap of mucosa is raised to expose lacrimal bone and the frontal process of the maxilla. Bone is removed by Kerrison punch and by drilling up to the fundus. Endosteal layer of the sac is exposed and separated from the endothelial. Incision of the sac is followed, flaps are designed and repositioned. Syringing of lacrimal system is performed, insertion of BIKA drain and fixation of the flaps with thick eye ointment is performed. 4 hours after the procedure nasal irrigation is started with saline, eye drops and antibiotic is started.

The lacrimal syringing is conducted regularly every few days after surgery up to 1 month with nasal debridement.

The operation is successful if patients are symptoms free.

RESULTS: Between 2014 and 2023, we operated on 54 patients, 14 men and 40 women. Average age 66.3 years (33.8 to 84.5). 26 were right, 18 left and 5 bilateral cases. In 44 cases, a BIKA drain was inserted, removed after 14 days. 4 operations were unsuccessful, in 3 cases we fixed the problem with reoperation. The causes of failure were granulation formation and synechiae. 1 (1.9%) failed. In 10 (18,5%) we did not insert a BIKA drain.

Septolplasty was performed in 9 (17%) cases and partial conchectomy in 3 (5.6%).

In 1 patient bleeding occurred 6 hours after the procedure. The bleeder was on the nasal septum.

Patients are followed up regularly. The average follow-up time is 287 days (3 weeks to 3 years).

CONCLUSION: With the last modification of ETDCR, we managed to speed up the operation, more accurate coverage of free bone edges are achieved and faster healing. By separating the endosteal from the endothelial layer, the position of mucosal flaps is more stable. The need for BIKA drain is reduced, no nasal tamponade is required.

KAPSULOTOMIJA Z LEŽEČIM YAG LASERJEM PRI OTROCIH
CAPSULOTOMY WITH SUPINE YAG LASER IN CHILDREN

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NAMEN: Namen je predstaviti uporabnost YAG laserske kaspulotomije (YLK) z ležečim YAG laserjem kot dodatne metode pri obravnavi otrok po operaciji sive mrene.

METODE: v serijo prikaza zaporednih primerov so vključeni zadnji 4 otroci, ki so imeli na Očesni kliniki v Ljubljani v februarju in marcu 2023 opravljeno YLK z ležečim YAG laserjem (MR-Q YAG, Meridian Medical). Predstavljeni so primeri uporabe manj invazivne metode za čiščenje optične osi pri 2 deklicah (starih 30 mesecev in 8 let) in dveh dečkih (starih 8 in 14 let) po operaciji sive mrene.

REZULTATI: Primer 1: 30-mesečna deklica je bila v starosti 6 in 7 mesecev operairana zaradi prirojene sive mrene obojestransko. Primarno sta bili operavljeni tudi posteriorna kapsuloreksa in sprednja vitrektomija. Vstavljeni sta bili IOL. Na levem očesu je zaradi burne vnetne reakcije v postoperativnem obdobju prišlo do tvorbe fibrinske mrežice v zenici, ki je medikamentozno nismo uspeli odstraniti. Pri deklici je bil za sprostitev optične osi opravljen YLK (184 pečatov, jakosti 1.5mJ). Primer 2: 8-letna deklica je bila v starosti 3 let operirana zaradi obojestranske juvenilne sive mrene. Primarno je bila opravljena zadnja kapsuloreksa, vstavljena je bila IOL. Prišlo je do zamotnitve optične osi zaradi proliferacije Elschnigovih perl na desnem očesu. Deklica ni bila sposobna sodelovanja za klasično YLK, zato je poseg opravila v splošni anesteziji z ležečim YAG laserjem. Potrebnih je bilo 79 pečatov jakosti 1.3mJ. Primer 3: 8-letni deček je bil operairan zaradi obojestranske juvenilne sive mrene v starosti 7 let. IOL je bila vstavljena v kapsulo, narejena je bila tudi primarna posteriorna kapsuloreksa, vendar brez anteriorne vitrektomije. Opravil je klasično YLK, ki pa ni zadoščala za popolno sprostitev optične osi, zato smo postopek ponovili z ležečim YAG laserjem v splošni anesteziji. Za sprostitev optične osi je bilo D potrebnih 119 pečatov jakosti 1.0-1.6mJ, levo pa 62 pečatov jakosti 1.0mJ. Primer 4: 14-letni deček, ki je bil v starosti 2 mesecev operiran zaradi obojestranske prirojene sive mrene. Primarno je bila opravljena posteriorna kapsuloreksa, vstavljena je bila IOL v kapsulo. Na levem očesu je z leti nastala tračkasta fibroza, ki je zaradi izrazitega nistagmusa s klasično YLK ni bilo mogoče prekiniti. Z ležečim YAG laserjem je bilo potrebnih 61 pečatov jakosti 2mJ.

ZAKLJUČEK: Ležeči YAG laser je uporabna dodatna metoda pri obravnavi otrok po operaciji sive mrene, predvsem kadar sodelovanje pri klasični YLK ni zadostno. Pri vseh 4 prikazanih primerih je bila metoda uspešna, izognili smo se kirurškemu posegu za čiščenje optične osi.

PURPOSE: The purpose of this case series is to study the usefulness of YAG laser capsulotomy (YLC) with supine YAG laser as an additional method in managing paediatric patients after cataract operation.

METHODS: 4 consecutive children after cataract operation (2 girls, aged 30 months and 8 years and 2 boys, aged 8 and 14 years) who were treated with supine YAG laser (MR-Q YAG, Meridian Medical) at the University Eye Clinic Ljubljana in February and March 2023 are presented.

RESULTS: Case 1: A 30-month-old girl was operated for bilateral congenital cataracts at the age of 6 and 7 months. Posterior capsulotomy, anterior vitrectomy and IOL implantation were performed primarily. On her left eye postoperative inflammation has left some fibrinous net in her optic axes, which was resolved by using supine YAG laser (184 laser spots with 1.5mJ energy were needed to clear the optic axis). Case 2: 8-year-old girl was operated due to bilateral juvenile cataracts at the age of 3 years. Posterior capsulorhexis and IOL implantation were performed, but her right optic axis gradually occluded due to Elschnig pearls proliferation. To clear it with supine YAG 79 laser spots with 1.3mJ energy were needed. Case 3: 8-year-old boy was operated for bilateral juvenile cataracts at the age of 7 years. IOL was implanted in the capsule with primary posterior capsulorhexis, but without anterior vitrectomy. 1 year after operation classical YLC was performed, but was insufficient due to poor cooperation. To clear optic axes with supine YAG laser under general anaesthesia 119 laser spots (1.0-1.6mJ) were required on his right and 62 (1.0mJ) on his left eye. Case 4: A 14-year-old boy was operated due to bilateral congenital cataracts at the age of 2 months. Primarily posterior capsulorhexis, anterior vitrectomy and IOL implantation in the capsule were performed bilaterally. With time, a band opacification of his left optic axis developed, but could not be resolved with classical YLC due to nystagmus. To clear the optic axis with supine YLC 61 spots (2.0mJ) were needed.

CONCLUSION: YLC with supine YAG laser under general anaesthesia is a useful additional method in managing children after cataract operation, especially when classical YLC is not possible due to lack of cooperation. All 4 cases would need surgical treatment of supine YLC would be unavailable.

KLINIČNI PRIMER: INDIREKTNA KAROTIDNA-KAVERNOZNA FISTULA

A CASE REPORT: INDIRECT CAROTID-CAVERNOUS FISTULA

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V tem kliničnem primeru predstavljamo primer indirektne karotidno-kavernozne fistule pri pacientu, ki smo ga obravnavali v naši urgentni ambulanti. 50-letni bolnik je prišel zaradi rdečine desnega očesa, ki je bila naključno opažena. Navajal je poslabšanje vidne ostrine desnega očesa ter binokularni dvojni vid, zlasti pri pogledu v desno. Klinični pregled je razkril parezo desnega abducensa, proptozo in hemozo desnega zrkla z razširjenimi in zvijuganimi vezničnimi in episkleralnim krvnimi žilami - ”corkscrew ” žile. Pregled očesnega ozadja je pokazal okluzijo centralne retinalne vene desnega očesa. Opravljene so bile različne diagnostične slikovne preiskave. Diagnoza karotidno-kavernozne fistule je bila dokončno potrjena z digitalno substrakcijsko angiografijo. Obravnaval ga je tudi multidisciplinarni zdravniški konzilij nevrokirurga, oftalmologa in nevrologa zaradi težavnega transvenoznega pristopa, možnih življenjsko nevarnih intra- in pooperativnih zapletov ter klinične slike. Konzilij je sklenil, da se bolnika lahko varno redno spremlja s poudarkom na novih oftalmoloških simptomih in kliničnih najdb. V primeru napredovanja simptomov in znakov (poslabšanje diplopije, poslabšanje vida, povečan očesni tlak), bi bilo potrebno razmisliti o invazivnem zdravljenju.

In this case report we present a case of indirect carotid-cavernous fistula in a patient who presented to our emergency room. 50-years old patient presented due to redness of his right eye, which was incidentally noticed. He reported deterioration of visual acuity in his right eye and double vison binocularly, predominantly in the right side gaze. Clinical examination revealed right abducens paresis, proptosis and chemosis of his right globe accompanied with dilated and tortuous conjunctival and episcleral blood vessels -“corkscrew“ vessels. Fundus examination revealed central retinal vein occlusion of his right eye. Various diagnostic imaging techniques were performed. Diagnosis of carotid-cavernous fistula was finally confirmed with digital substraction angiography. Medical council with a multi-disciplinary approach of neurosurgeon, ophtalmologist and neurologist was held in regard to difficult transvenous approach, possible life-threatening intra- and postoperative complications and clinical presentation. Council concluded that the patient can be safely followed in regards of new ophthalmologic symptoms and exam changes. In case of progression of symptoms and signs (worsening of diplopia, visual deterioration, increased ocular pressure), invasive treatment should be considered.

REZULTATI ZGODNJE VITREKTOMIJE PRI BOLNICI S KRVAVITVIJO POD MEMBRANO LIMITANS INTERNO — PRIKAZ PRIMERA

RESULTS OF AN EARLY VITRECTOMY IN A PATIENT WITH A SUBINTERNAL LIMITING MEMBRANE HAEMORRHAGE — A CASE REPORT

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NAMEN: Prikaz primera zgodnje pars plana vitrektomije (PPV) pri bolnici z gosto krvavitvijo pod membrano limitans interno (MLI). Najpogostejša vzroka krvavitev pod MLI sta Valsava retinopatija in Tersonov sindrom, vendar so lahko povezane tudi z drugimi sistemskimi boleznimi, poškodbami in zlorabo psihoaktivnih zdravil. Zaradi nagnjenosti nastanka v področju rumene pege lahko povzročijo nenadno izgubo vida.

METODE: 19-letna bolnica je bila najprej pregledana v nujni očesni ambulanti zaradi nenadne izgube vida na levo oko med zabavo. Ni imela znanih sistemskih bolezni, zanikala je predhodne glavobole ali bolečine ter fizične napore ali jemanje prepovedanih substanc pred dogodkom. Pri pregledu očesnega ozadja je bila v področju rumene pege vidna preretinalna krvavitev, ki se je raztezala med obema žilnima lokoma. Optična koherentna tomografija (OCT) je prikazala tako preretinalno kot tudi krvavitev pod MLI. Najboljša korigirana vidna ostrina (NKVO) z uporabo Snellenovih optotipov je bila gib pred očmi (GPO) levo in 1,0 desno. Bolnico so spremljali 6 tednov. Ob vsakem obisku je imela opravljen tudi OCT, kjer ni bilo vidnih znakov regresije, NKVO levo je ostala GPO. Napotena je bila v vitreoretinalno ambulanto, kjer je bila indicirana PPV. Opravljena je bila 25 gauge PPV z luščenjem MLI, na področju rumene pege. Ob tem se je prikazal gost krvni strdek, ki je bil v celoti odstranjen.

REZULTATI: Ob zadnjem pregledu, 14 mesecev po operaciji, je bila NKVO levo 1,0. OCT je prikazal izboljšano foveolarno strukturo, z nekaj hiperreflektivnimi vključki in neprizadetost ostalih mrežničnih plasti. Centralna debelina mrežnice je bila 294 µm. Opravljena mikroperimetrija je prikazala normalno foveolarno fiksacijo, brez znižane senzitivnosti v primerjavi z neprizadetim desnim očesom.

ZAKLJUČEK: Zgodnja PPV v tem primeru je pri bolnici vodila v ugoden morfološki in funkcionalni izid. Dolgotrajna prisotnost hemoglobina in železa lahko vodi v ireverzibilne toksične okvare mrežnice in se lahko razvijejo spremembe podobne proliferativni vitreoretinopatiji. Menimo, da je vredno razmisliti o zgodnji PPV pri vseh bolnikih z gosto krvavitvijo v področju rumene pege, ne glede na vzrok krvavitve.

PURPOSE: To describe results of an early pars plana vitrectomy (PPV) in a patient presenting with a dense sub-internal limiting membrane (sub-ILM) haemorrhage. The most common causes of sub-ILM haemorrhages are Valsalva retinopathy and Terson syndrome, but they could be also associated with other systemic diseases, trauma and abuse of psychoactive drugs. Due to its predilection for macular region it is associated with sudden visual loss.

METHODS: A 19-year-old female patient was first presented to the ophthalmic emergency clinic due to a sudden visual loss on the left eye (LE), while being at a party. She had no known prior systemic diseases, denied preceding headache or pain and any physical exertions or taking any illegal substances prior to the event. Fundus examination revealed a large preretinal haemorrhage in the macula extending between temporal vascular arcades. Optical coherence tomography (OCT) showed both preretinal and sub-ILM haemorrhage. Her best corectted visual acuity (BCVA) measured with Snellen letter chart was hand movement (HM) in LE and 20/20 in the right eye. She was observed on weekly basis for 6 weeks, having BCVA measured and OCT made at each visit. BCVA of the LE remained HM and no sign of spontaneous resolution of the haemorrhage was observed. She was referred to the vitreoretinal surgery department, where PPV was indicated. 25-gauge PPV with ILM peel overlaying the macular haemorrhage was performed. A thick blood clot was visualized and completely removed.

RESULTS: At the last follow-up, 14 months after the surgery, BCVA of the LE was 20/20. OCT showed improved foveal morphology with some residual hyperreflective patches on the inner retinal surface and no notable changes in other retinal layers. Central retinal thicknes value was 294 µm. Microperimetry showed normal foveal fixation and no significantly reduced overall macular sensitivity compared to the fellow eye.

CONCLUSION: Early PPV in this case resulted in a favourable morphological and functional outcome. Prolonged contact with haemoglobin and iron may lead to irreversible toxic damage to the retina and morphological changes similar to those of proliferative vitreoretinopathy may develop. We therefore suggest that early surgical intervention is worth to be considered in all cases with dense macular haemorrhage regardless of underlying pathology.

SINDROM ALICE V ČUDEŽNI DEŽELI PO PREDHODNI OKUŽBI S COVID-19

ALICE IN WONDERLAND SYNDROME AFTER A COVID-19 INFECTION

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NAMEN: Sindrom Alice v čudežni deželi zajema različne motnje zaznavanja, kjer ima posameznik spremenjeno percepcijo sebe in sveta okoli njega. Doživljanje velikosti, oblike in barv objektov je popačeno. Izkrivljeno je tudi doživljanje lastnega telesa in zaznavanje časa. Predmeti so manjši ali večji kot v resnici, se zdijo bolj oddaljeni ali bližje kot v resnici in imajo spremenjeno obliko. Čas lahko teče neizmerno hitro ali počasi. Sindrom je pogostejši pri otrocih in mladostnikih. Skupno vsem teorijam o nastanku simptomov naj bi bila slabša prekrvitev delov možganov, kjer potekajo vidne proge. Med možne vzroke sodijo okužbe, migrena, poškodba glave, epilepsija in zastrupitve. Predstavljamo primer 12-letnega fanta s sumom na sindrom Alice v čudežni deželi.

METODE: Pacient je tožil o spremenjenih vidnih senzacijah, kar se je pojavilo približno en mesec po drugič preboleli epizodi okužbe s COVID-19. Imel je občutek, da se mu predmeti včasih približujejo, drugič oddaljujejo in da so se tla v prostoru nenadoma nagnila. Ob tem se je prestrašil. Do motenj v zaznavanju je na začetku prišlo nekajkrat dnevno, v obdobju enega leta pa se je pogostost zmanjšala, sedaj ima težave le občasno. Popačeno doživljanje traja nekaj minut, nato izzveni. Opravili smo testiranje vidne ostrine po Snellenu, sprednjo in zadnjo biomikroskopijo, OCT makul in papil optičnega živca, fotografiranje očesnega ozadja, testiranje vidnega polja s statično perimetrijo na aparatu Octopus, laboratorijske preiskave in EEG. Pregledal ga je še specialist pediatrije, otolaringologije in nevrologije.

REZULTATI: Vidna ostrina tekom spremljanja je bila obojestransko 1,0 brez korekcije. Očesni status je bil brez posebnosti. OCT ni pokazal patoloških sprememb mrežnice. Vidno polje je bilo zaradi slabšega sodelovanje nekoliko nezanesljivo, sicer v mejah normale. Osnovni laboratorijski parametri so bili v mejah normale, za Borrelio burgdorferi specifična protitelesa pa negativna. EEG posnetek ni zabeležil patoloških vzorcev. Klinični in nevrološki status sta bila brez posebnosti.

ZAKLJUČEK: Sindrom Alice v čudežni deželi je večinoma benigno stanje, še posebej pri otrocih, ki simptome prerastejo. Zaradi še nedefiniranih diagnostičnih kriterijev so bolniki pogosto spregledani ali diagnosticirani napačno. Potrebno je poiskati morebitni vzrok, nato pa temu primerno tudi zdraviti.

PURPOSE: Alice in Wonderland syndrome is a perceptual disorder where individuals experience altered perceptions of themselves and the world around them. Objects' sizes, shapes and colors are distorted, and the perception of one's own body and time passing is also affected. Objects may appear smaller or larger, further away or closer than they really are, and disproportionate. Time passes fast or slowly. The syndrome is more common in children and adolescents. Theories suggest decreased perfusion of parts of the brain involving visual pathways as the origin of symptoms. Possible causes include infections, migraines, head injuries, epilepsy and intoxication. This case report introduces a 12-year-old boy with visual distortions consistent with Alice in Wonderland syndrome.

METHODS: The patient reported altered visual sensations about a month after his second episode of COVID-19 infection. He experienced objects moving closer or further away and sudden tilting of the floor, which frightened him. At the onset, perceptual disturbances occurred several times a day, but over a year, the frequency decreased, and the boy now has occasional problems. The cognitive distortion lasts only a few minutes and disappears. The patient underwent several tests. We performed visual acuity by Snellen chart, an anterior and posterior biomicroscopy, macular and papillary OCT, fundus photography, static perimetry, laboratory tests and EEG. He was also examined by a pediatrician, otorhinolaryngologist and neurologist.

RESULTS: Visual acuity during follow-up was 1.0 without correction in both eyes, and ophthalmological status was unremarkable. OCT showed no retinal abnormalities, and the static perimetry was within normal limits, although somewhat unreliable due to poor cooperation. Blood test results were normal, and Borrelia burgdorferi antibodies were negative. EEG did not record any pathological patterns, and clinical and neurological status were normal.

CONCLUSION: Alice in Wonderland syndrome is usually a benign condition, particularly in children who outgrow their symptoms. This condition is often underdiagnosed or misdiagnosed due to unclear diagnostic criteria. It is critical to determine possible causal factors and provide appropriate treatment.

KLINIČNI PRIMER: SUSACOV SINDROM

CLINICAL CASE: SUSAC SYNDROME

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34 letna gospa je bila prvič pregledovana pri oftalmologu zaradi motenj vida in slabšega sluha. Na MRI je bil postavljen sum na demielinizacijsko bolezen, očesni status je bil v mejah normale. Mesec dni kasneje je bila ponovno obravnavana zaradi novonastalega izpada v zgornjem delu vidnem polja levega očesa po predhodni obojestranski izgubi sluha, večdnevni slabosti, vrtoglavici in ataksiji. Ob pregledu je bila ugotovljena zapora spodnje temporalne veje centralne retinalne arterije levo, vidna ostrina in barvni vid sta bila obojestransko normalna. Postavljen je bil sum na Susacov sindrom, za katerega je značilen trias: subakutna encefalopatija, zapora veje centralne retinalne arterije in izguba sluha. S strani nevrologov je bila predpisana imunosupresivna in antiagregacijska terapija. Opravljeno je imela flouresceinsko angiografijo, ki je pokazala znake obojestranskega okluzivnega vaskulitisa z obsežnim akapilarnim področjem levo po zapori veje mrežnične arterije. Obojestransko periferno so bile vidne številne segmentno okludirane arteriole in področja puščanja kontrasta. Vidno polje je pokazalo zgornji altitudinalni izpad na levem očesu. V sklopu spremljanja je imela v naslednjih letih opravljene številne kontrolne flouresceinske angiografije s fazami izboljšanja in poslabšanja avaskularnih področji in področji puščanja kontrasta. Ob sistemski kortikosteroidni terapiji je prišlo do sekundarnega glavkoma in začetne katarakte. Zaradi neurejenih očesnih tlakov ob maksimalni terapiji je bila na levem očesu opravljena trabekulektomija, po kateri so se tlaki normalizirali. V vmesnem času je bila s strani nevrologov večkrat prilagojena imunosupresivna terapija (Medrol, Octagam, Retuximab, Myfenax, Tacrolimus). Po 3 letih se je stanje stabiliziralo. Redno se spremlja, na flouresceinski angiografiji so še vedno vidna posamezna avaskularna področja in področja puščanja kontrasta. Pri bolnikih s Susacovim sindromom je potreben multidisciplinaren pristop, ki zahteva dobro sodelovanje oftalmologov in nevrologov. Pri večini bolnikov je bolezen samoomejujoča z monofaznim potekom brez zagonov po dveh letih. V primeru očesne ali slušne simptomatike je bolezen lahko polifazna in pušča trajne posledice kljub imunosupresivni terapiji. Oftalmologi moramo na to diagnozo pomisliti pri bolnikih z izpadi v vidnem polju zaradi zapore veje mrežnične arterije ob sočasni izgubi sluha in encefalopatiji.

A 34-year-old female was seen by an ophthalmologist for the first time due to visual disturbances and hearing impairment. Demyelinating disease was suspected based on the head MRI, while the eye examination remained normal. A month later, she was re-examined due to a newly formed upper part visual field defect in the left eye having sustained bilateral hearing loss, several days of nausea, vertigo and ataxia. An occlusion of the left inferior temporal branch of the central retinal artery was found, with unaffected central visual acuity and colour vision on both sides. Susac syndrome characterized by the triad of subacute encephalopathy, branch central retinal artery occlusion, and hearing loss was suspected. Neurologists initiated immunosuppressive and antiplatelet therapy. She underwent fluorescein angiography, which showed signs of bilateral occlusive vasculitis with an extensive acapillary area in the left eye corresponding to the branch retinal artery occlusion. Numerous segmentally occluded arterioles and areas of contrast leakage were visible bilaterally peripherally. The visual field test showed an upper altitudinal defect in the left eye. As part of the follow-up, she had numerous fluorescein angiographies performed in the following years with phases of improvement and deterioration of avascular areas and areas of contrast leakage. As a consequence of systemic corticosteroid therapy, secondary glaucoma and incipient cataracts developed. Due to elevated eye pressure on maximal therapy, trabeculectomy was performed on the left eye, after which the pressure normalized. In the meantime, immunosuppressive therapy (Medrol, Octagam, Retuximab, Myfenax, Tacrolimus) was adjusted several times by neurologists. After 3 years, the condition stabilized. Followed regularly, individual avascular areas and areas of contrast leakage are still visible on fluorescein angiography.
In patients with Susac syndrome, a multidisciplinary approach is necessary, which requires a good cooperation between ophthalmologists and neurologists. In most patients, the disease is self-limiting with a monophasic course without relapses after two years. In the case of ocular or auditory symptoms, the disease can be polyphasic and leaves permanent sequelae despite immunosuppressive therapy. Ophthalmologists should consider this diagnosis in patients with visual field loss due to a branch retinal artery occlusion with simultaneous hearing loss and encephalopathy.

SUBAKUTNA PROGRESIVNA OBOJESTRANSKA IZGUBA VIDA ZARADI HEIDENHAINOVE OBLIKE CREUTZFELDT-JAKOBOVE BOLEZNI

SUBACUTE PROGRESSIVE BILATERAL WORSENING OF VISUAL ACUITY AS A RESULT OF HEIDENHAIN VARIANT OF CREUTZFELDT-JAKOB DISEASE

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NAMEN: prikaz primera 75-letne pacientke, ki smo jo obravnavali v oftalmološki ambulanti zaradi hitrega slabšanja vidne ostrine obojestransko. Po opravljeni hospitalizaciji na Nevrološkem odseku, kjer smo jo redno konziliarno spremljali, je bila diagnosticirana s Heidenhainovo obliko Creutzfeldt-Jakobove bolezni (CJB).

METODE: Prva obravnava februarja 2022 zaradi zamegljenega vida 14 dni. Ugotovljena obojestranska katarakta z vidno ostrino desno 0,5 s korekcijo in levo 0,4 s korekcijo po Snellenu. Ob ponovnem pregledu pod nujno čez 7 tednov vidna ostrina desno prsti 50 cm in levo luč +. Bolnica je navajala, da mesec dni ne vidi več, ljudi več ne uspe prepoznati, pred očmi vidi črne pike, barvne haloje, bliskanje. Ob tem je imela blag glavobol frontalno, slabost in bruhanje je zanikala. Na pregledih smo opravili preiskave sprednje in zadnje biomikroskopije, RAPD, fotofunde, avtofluorescenco, OCT makul in papil. Napotena je bila na nadaljnjo diagnostiko k nevrologu, zaradi suma na kortikalni vzrok slabšanja vida. S strani nevrologa v času hospitalizacije so bili opravljeni še CT in MR glave, številne laboratorijske preiskave, CTA vratnih in možganskih arterij, lumbalna pukcija in EEG.

REZULTATI: Razen slabovidnosti ni bilo jasnih nevroloških izpadov. Urgentni CT glave je prikazal lakunarni infarkt ob desnem stranskem ventriklu, kar ni razložilo klinične slike. MR glave ni pokazal značilnosti za neuromyelitis optica. Zaradi suma na bilateralni optični nevritis je prejela intravenozno 5 pulzov 1g Metilprednizolona, po katerem ni bilo izboljšanja. Ob hitrem slabšanju vidne funkcije so se postopno pojavili tudi drugi značilni nevrološki izpadi. Postavljen je bil sum na hitro napredujočo nevrodegenerativno bolezen. Protein 14-3-3 v likvorju je bil povišane vrednosti. EEG je pokazal veliko počasnih valov frekvence 1 do 2 Hz obojestransko in periodični vzorec z ostrimi valovi. Diagnosticirali so Heidenhainovo obliko CJB, tipičen je bil tudi izvid MR glave brez kontrasta z DWI sekvenco. V tem času je bolnica že bila somnolentna, s spastično tetraparezo, nepokretna in slepa. Indicirana je bila paliativna oskrba, bolnica je 5 mesecev od prvega pregleda pri nas umrla. Pri bolnici je bila nato opravljena še obdukcija z nevrosekcijo, kjer so potrdili diagnozo.

ZAKLJUČEK: Pri CJB pride do progresivne, neozdravljive izgube nevronov, katero povzroči mutirani prionski protein. Incidenca v Sloveniji in svetu je 1-2/1.000.000/letno. Heidenhainova oblika CJB, predominantno prizadene okcipitalni in posteriorni parieto-temporalni predel korteksa možganov. Ima jo približno tretjina obolelih, je sporadična. Klinično se lahko kaže z zelo različnimi oftalmološkimi simptomi, med drugim z bilateralnim hitrim poslabšanjem vidne ostrine kot prvim znakom.

PURPOSE: we represent a case of a 75-year old patient, who came for an ophthalmologic examination because of fast deterioration of her vision on both eyes. After hospitalization at the Neurological Department she was diagnosed with the Heidenhain form of Creutzfeldt-Jakob disease (CJD).

METHODS: At the first examination in February 2022, she claimed of blurred vision for about 14 days. Only cataract was present, with vision acuity on right eye 0.5 with correction and left eye 0.4 with correction according to Snellen. At the re-examination after 7 weeks (as an emergency), the vision right was fingers 50 cm and left light +. Anamnestically she's been unable to see for a month, she's no longer able to recognize people, sees black dots, colored halos in front of her eyes and flashes. A mild frontal headache was present, she denied nausea and vomiting. During the examinations, we performed anterior and posterior biomicroscopy, RAPD, photo fundus, autofluorescence, OCT of the macula and papilla. She was referred for further investigations to the neurologist, due to the suspicion of a cortical cause of vision impairment. During hospitalization, she also underwent head CT and MRI examinations, numerous laboratory tests, CTA of the neck and brain arteries, lumbar puncture and EEG.

RESULTS: Apart from bilateral vision acuity, there were no clear neurological deficits. Urgent CT of the head showed a lacunar infarction next to the right lateral ventricle, which did not explain the clinical picture. MRI didn't show features for neuromyelitis optica disorders. She received five pulses of 1g Methylprednisolone intravenously, with no improvement afterwards. In addition to the rapid deterioration of visual function, gradully also appeared other neurologic symptoms. A rapidly progressive neurodegenerative disease was suspected. Protein 14-3-3 was elevated in the cerebrospinal fluid. EEG showed many slow waves of frequency 1 to 2 Hz bilaterally and a periodic pattern with sharp waves. After that Heidenhain form of CJD was suspected, the MRI findings of the head without contrast with the DWI sequence were also typical. At that time, the patient was already somnolent, with spastic tetraparesis, immobile and blind. Palliative care was indicated, and she died 5 months after the first ophthalmologic examination. Diagnosis was confirmed with an autopsy with neurosection.

CONCLUSION: CJD is a progressive, incurable loss of neurons caused by a mutated prion protein. The incidence in Slovenia and the world is 1-2/1.000.000/year. Heidenhain's form of CJD, predominantly affects the occipital and posterior parieto-temporal regions of the brain cortex. About a third of patients have this form, it's sporadic. It can be clinically manifested by very different ophthalmologic sympoms.

MATEMATIKA V NEVROOFTALMOLOGIJI: 1 ½ + 7 + ½ = 9

MATHEMATICS IN NEURO-OPHTHALMOLOGY: 1 ½ + 7 + ½ = 9

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NAMEN: prikaz primera bolnice s ”sindromom 9” kot posledica demielinizacijske lezije v ponsu.

METODE: retrogradna analiza primera 43-letne bolnice z recidivno-remitentno multiplo sklerozo z 2-tedna trajajočo horizontalno diplopijo, mravljinčenjem po levi strani obraza, nestabilnostjo pri hoji in nespretnostjo desne roke. Opravljeni so bili CTA vratnega in možganskega žilja, MR glave ter likvorska diagnostika.

REZULTATI: pri bolnici smo ugotavljali levostranski ”1½ sindrom”, okvaro levega obraznega živca po centralnem tipu ter desnostransko hemiparezo s hipalgezijo in hipestezijo obeh okončin. CTA je bil v mejah normale. MR glave je v zadnjem delu ponsa prikazal aktivno demielinizacijsko lezijo v področju jeder 6. in 7. možganskega živca ter medialnega lemniskusa. V preiskavah likvorja so bili prisotni oligoklonalni trakovi. Klinično stanje se je ob terapiji z metilprednizolonom izboljšalo. Trenutno prejema dimetilfumarat.

ZAKLJUČEK: ”sindrom 9” je varianta ”1½ sindroma”, ki nastane kot posledica ishemične ali demielinizacijske lezije v dorzalnem delu ponsa. ”1½ sindrom” se kaže z ipsilateralno horizontalno paralizo pogleda zaradi kombinacije okvare jedra abducensa ali paramediane pontine retikularne formacije ter medialnega longitudinalnega fascikulusa. Okvara prileţnega fascikla obraznega živca (7), povzroči ”sindrom 8½”. Kadar je pridružena še simptomatika kontralateralne hemianestezije kot posledica okvare medialnega lemniskusa, ali kontralateralne hemipareze kot posledica okvare kortikospinalnega trakta (½), nas matematični izračun privede do diagnoze ”sindrom 9”.

PURPOSE: to present a patient with ”Nine syndrome” caused by a demyelinating lesion in the pons.

METHODS: retrograde case analysis of a 43-year-old female patient suffering from relapsing-remitting multiple sclerosis with a history of 2 weeks of horizontal diplopia, left-sided facial tingles, gait instability, and right arm incompetence. CTA of the carotid and cerebral vessels, MRI of the head, and a lumbar puncture were performed.

RESULTS: the patient was diagnosed with left-sided ”1½ syndrome”, central-type left facial nerve palsy, and right-sided hemiparesis with hypesthesia and hypoalgesia in both extremities. Computed tomography angiography was within normal limits. Head magnetic resonance imaging revealed an active demyelinating lesion next to the nuclei of the 6th and 7th cranial nerves and the medial lemniscus in the posterior region of the pons. Oligoclonal bands were noted in the cerebrospinal fluid. Treatment with methylprednisolone improved the clinical state. The patient is currently receiving dimethyl fumarate.

CONCLUSION: ”Nine syndrome” is a variant of ”1½ syndrome” that results from an ischemic or demyelinating lesion in the dorsal part of the pons. ”1½ syndrome” is manifested by ipsilateral horizontal gaze palsy due to a combination of the affected abducens nucleus or paramedian pontine reticular formation and the medial longitudinal fasciculus. Additional dysfunction of the facial nerve fascicle (7) is causing ”8½ syndrome”. When the symptoms of contralateral hypesthesia as a result of the medial lemniscus defect, or contralateral hemiparesis as a result of the corticospinal tract defect (½) are present, the mathematical calculation leads us to diagnosis of ”Nine syndrome”.

MAKULOPATIJA ZARADI JAMICE OPTIČNEGA DISKA - PRIKAZ PRIMERA

OPTIC DISC PIT MACULOPATHY - CASE REPORT

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Jamica optičnega diska ali jamica na papili vidnega živca je redka prirojena anomalija papile vidnega živca, ki nastane zaradi nepopolnega zapiranja optične fisure v embrionalnem razvoju. Klinično se kaže kot majhen hipopigmentiran, rumeno bel, ekskaviran kolobomski defekt papile vidnega živca, najpogosteje v spodjem temporalu dela papile. Po navadi je enostranski in asimptomatski, lahko pa povzroči makulopatijo zaradi jamice optičnega diska, pri kateri pride do akumulacije intraretinalne in subretinalne tekočine v makuli in poslabšanja vida. Izvor tekočine ni popolnoma pojasnjen. Predpostavlja se, da bi lahko izvirala iz steklovine, cerebrospinalnega likvorja, iz žil na bazi jamice ali iz žilnice.

38-letni pacient je bil napoten v vitreoretinalno ambulanto zaradi 1 teden trajajočega poslabšanja vida na desno oko. Vidna ostrina desno je bila 0,15 in levo 1,0 s korekcijo (optotipi po Snellenu). Klinično smo na desnem očesu ugotavljali jamico optičnega diska in serozni dvig mrežnice v makuli. Na OCT makule je bila vidna subretinalna seroza z edemom mrežnice (CRT 718 µm). Na vidnem polju je bil na desnem očesu prisoten centralni skotom. Indicirana je bila vitrektomija, za katero se sprva pacient ni odločil. Ponovno je bil pregledan čez 18 mesecev, takrat je bila vidna ostrina desno slabša kot na prvem pregledu (prsti na 2,5 m). Prisotno je bilo poslabšanja makulopatije zaradi jamice optičnega diska. Ponovno je bila svetovana vitrektomija, s katero se je strinjal. Opravljena je bila 25 gauge vitrektomija pars plana, luščenje membrane limitans interne (MLI), kritje jamice z inverznim MLI režnjem ter tamponada s plinom. Po operaciji je prišlo do znižanja seroznega dviga mrežnice, vendar je le ta v blažji obliki vztrajal. Prejemal je topikalni koritkosteroid 3 mesece in nesteroidni anitirevmatik 2 meseca po operaciji. Morfološko in funkcionalno stanje se je postopoma izboljševalo. 1 leto po posegu je bila vidna ostrina desno 0,7 s korekcijo, na OCT brez edema. Jamica opičnega diska je bila prekrita z režnjem MLI.

Prognoza makulopatije zaradi z jamice optičnega diska je relativno slaba, če je ne zdravimo, saj lahko povzroči izrazito ireverzibilno poslabšanje vida. V literaturi so opisani različni pristopi zdravljenja. V tem primeru smo prikazali uspešno morfološko in funkcionalno zdravljenje makulopatije povezane z jamico optičnega diska s pars plana vitrektomijo, luščenjem in inverznim režnjem MLI s katero je bila prekrita jamica.

Optic disc pit is a rare congenital defect of the optic disc, caused by incomplete closure of the optic fissure during embryonic development. It appears as a small hypopigmented, yellow-white, excavated colobomatous defect of the optic disc, most commonly in the inferior temporal part of the disc. It is usually unilateral and asymptomatic, but may induce optic pit maculopathy, which cause intraretinal and subretinal fluid accumulation in the macula and visual impairment. The origin of the fluid is not completely understood. It may arise from vitreous, cerebrospinal fluid, the vessels at the base of the pit, or from the choroid.

A 38-year-old patient was referred to the vitreoretinal clinic after experiencing deterioration of vision in the right eye for one week. Best corrected visual acuity was 0.15 (Snellen charts) on the right and 1.0 on the left eye. On fundoscopy, optic pit and serous retinal detachment in the macula were seen in the right eye. OCT of the macula showed subretinal fluid and retinal oedema (CRT 718 µm). Visual field testing showed a central scotoma on the right eye. Vitrectomy was indicated, which the patient initially did not opt for. After 18 months visual acuity of the right eye worsened (counting fingers at 2.5 m). An exacerbation of optic disc maculopathy was observed. Vitrectomy was recommended again, which he agreed to. 25-gauge pars plana vitrectomy with internal limiting membrane (ILM) peeling, coverage of the pit with an inverted ILM flap and gas tamponade was performed. Postoperatively, the retinal serous detachment persisted in a milder form. He was receiving topical corticosteroid for 3 months and nonsteroid anti-inflammatory drops for 2 months postoperatively. Morphological and functional status gradually improved. One year after the surgery, the best corrected visual acuity of the right eye improved to 0.7, with no oedema on OCT. The optic pit was covered with an ILM flap.

The prognosis of optic pit maculopathy is relatively poor if left untreated, as it can cause severe irreversible visual deterioration. Different approaches for the treatment of maculopathy due to optic disc pit have been described in the literature. In our case, we demonstrate successful morphological and functional treatment of optic disc maculopathy with pars plana vitrectomy, peeling and inverse ILM flap with which the pit was covered.

PRESEPTALNI IN ORBITALNI CELULITIS PRI OTROKU PO POŠKODBI OBRAZA – PRIKAZ PRIMERA

PRESEPTAL AND ORBITAL CELLULITIS IN A CHILD FOLLOWING FACIAL TRAUMA – CASE REPORT

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UVOD: Preseptalni celulitis je vnetje kože in mehkih tkiv okoli očesa anteriorno, orbitalni celulitis pa posteriorno od orbitalnega septuma. Klinično se preseptalni celulitis kaže z unilateralnim otekanjem in rdečino okrog očesa, za orbitalni celulitis pa so značilni še očesni simptomi, kot so eksoftalmus, bolečina v očesu, slabši vid in motena bulbomotorika. Orbitalni celulitis je najpogosteje posledica poškodbe ali sinuzitisa.

PRIKAZ PRIMERA: 6-letni deček je z obrazom padel na ročaj hlevskih vil. Naslednji dan je bil zaradi otekanja pregledan v urgentni kirurški ambulanti. CT obraznih kosti je pokazal podkožni hematom levo infraorbitalno in zlom spodnje stene leve orbite. Pacient je navajal dvojne slike, prisotna je bila fotofobija. Sprejet je bil na Oddelek za otroško kirurgijo, uvedena je bila antibiotična terapija z amoksicilinom s klavulansko kislino. Kljub temu se je čez dva dni oteklina periorbitalno levo povečala in razširila še proti desnemu očesu, pojavil se je gnojav iztok iz levega očesa. Oftalmolog je potrdil prisotnost orbitalnega celulitisa levo in preseptalnega celulitisa desno. Vidna funkcija je bila dobra, deček je bil brez znakov optične nevropatije. Zaradi povečanega očesnega pritiska je oftalmolog uvedel brimonidin/timolol kapljice. Infektolog je indiciral zamenjavo antibiotične terapije za cefotaksim in klindamicin intravenozno. Premeščen je bil na KO za maksilofacialno in oralno kirurgijo, kjer je bila istega dne napravljena incizija v predelu zgornje in spodnje veke ter namestitev drenov supra- in infraorbitalno. Med posegom sta bila odvzeta brisa za mikrobiološko preiskavo. V brisu rane spodnje veke je bil izoliran Streptococcus piogenes, v brisu očesne veznice pa Staphylococcus epidermidis. Po dveh tednih je bil pacient preveden na klindamicin peroralno. Oteklina je izzvenela, bulbomotorika je bila primerna, dvojnih slik ni imel več, vidna funkcija je bila dobra.

ZAKLJUČEK: Orbitalni celulitis lahko vodi do resnih oftalmoloških in nevroloških zapletov, zato je pomembno zgodnje prepoznavanje, diagnostika in čimprejšen pričetek zdravljenja.

INTRODUCTION: Preseptal cellulitis refers to infections of the soft tissues anterior to the orbital septum, whereas orbital cellulitis refers to infections posterior to it. Clinically, preseptal cellulitis presents with unilateral eyelid swelling and redness around the eye. Orbital cellulitis presents with similar findings in addition to ocular symptoms such as proptosis, eye pain, decreased vision and limited eye movement. Orbital cellulitis is most often caused by trauma or sinusitis.

CASE REPORT: A 6-year-old boy fell face first onto the handle of a pitchfork. The next day, he was examined in the emergency department due to a swelling. A CT scan of the facial region showed a left infraorbital subcutaneous hematoma and a fracture of the lower wall of the left orbit. The patient claimed he had double images and photophobia was present. He was admitted to the Department of Pediatric Surgery, where intravenous antibiotic treatment with amoxicillin with clavulanic acid was initiated. Two days later, purulent discharge appeared from the left eye with the periorbital swelling worsening and spreading towards the right eye. The ophthalmologist confirmed the presence of orbital cellulitis on the left and preseptal cellulitis on the right side. Visual function was good, no signs of optic neuropathy were found. Due to increased eye pressure, the ophthalmologist prescribed brimonidine/timolol eye drops. The infectious disease specialist indicated changing the antibiotic therapy to cefotaxime and clindamycin intravenously. The patient was transferred to the Clinical department of Maxillofacial and Oral surgery, where an incision was immediately performed in the area of the upper and lower eyelid, supraorbital and infraorbital drains were placed. During the procedure, the wound was swabed for microbiological examination. Streptococcus pyogenes was isolated from the lower eyelid wound swab, and Staphylococcus epidermidis from the conjunctival swab. After two weeks, substitution for oral clindamycin was made. The swelling subsided. Eye movement was adequate, the patient no longer had double images, visual function was good.

CONCLUSION: Orbital cellulitis can lead to serious ophthalmological and neurological complications, so early diagnosis and management are cruical.

Z LINEZOLIDOM INDUCIRANA OPTIČNA NEVROPATIJA
LINEZOLID-INDUCED OPTICNEUROPATHY (LION)

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NAMEN: Prikaz primera bolnice z multirezistentno pljučno tuberkulozo, ki je ob antibiotičnem zdravljenju z linezolidom razvila znake obojestranske toksične optične nevropatije ter periferne polinevropatije.

METODE: Retrogradna analiza primera 31-letne bolnice z anamnezo obojestranskega poslabšanja vida in nespretnostjo pri hoji, zaradi občutka pekočih stopal, po 11-ih mesecih antibiotične terapije z linezolidom v dnevnem odmerku 600 mg. Stanje pred in po ukinitvi terapije smo ocenili z očesno slikovno ter funkcionalno diagnostiko. Opravili smo tudi merjenje vidnih evociranih potencialov (VEP), EMG spodnjih udov, MR glave in laboratorijske preiskave krvi.

REZULTATI: Klinično smo ugotavljali obojestransko toksično optično nevropatijo. Najboljša korigirana vidna ostrina desnega očesa je bila 0,8p. in levega 0,5p. Barvni vid po Ishihari je bil desno 12/15 in levo 9/15. OCT papil je prikazal oteklino RNFL. Statična perimetrija je obojestransko prikazala cekocentralni skotom. Z VEP smo izmerili podaljšane latence vala P100. Nevrolog je klinično ugotavljal senzorično nevropatijo tankih vlaken do nivoja gležnjev. EMG spodnjih okončin je potrdil znake začetne polinevropatije. MR glave in laboratorijske preiskave krvi so bile brez posebnosti. Dva meseca po ukinitvi terapije z linezolidom je prišlo, ob nadomeščanju B-kompleksa, do popolne normalizacije vidne funkcije. Po 6-ih mesecih smo na OCT makul videli diskretno stanjšanje GCL nazalno, na OCT papil pa levo blago stanjšanje RNFL temporalno. Po enem letu še vztraja zmanjšana senzibiliteta na hrbtišču III.–V. prsta stopal obojestransko.

ZAKLJUČEK: Linezolid je antibiotik, ki selektivno zavira sintezo bakterijskih beljakovin preko mesta 23S na ribosomalni podenoti 50S. Podenota 23S je podobna človeški mitohondrijski ribosomalni podenoti 16S, zato inhibicija le-te vodi v motnjo v dihalni verigi in posledično nevrotoksičnost ob podaljšani uporabi linezolida. V večini primerov gre za reverzibilno stanje. Ob terapiji z linezolidom, ki traja več kot mesec dni, svetujemo vključitev oftalmologa z namenom zgodnjega odkrivanja LION.

PURPOSE: To present a case of a patient with multidrug-resistant pulmonary tuberculosis who developed signs of bilateral toxic optic neuropathy and peripheral polyneuropathy during antibiotic treatment with linezolid.

METHODS: Retrospective case-control analysis of a 31-year-old female patient with a history of bilateral visual impairment and walking instability, due to burning sensation of the feet, after 11 months of linezolid therapy at a daily dose of 600 mg. The pre- and post-treatment status was assessed by ocular imaging and functional diagnostics. We also performed visual evoked potential (VEP) measurements, lower limb EMG, head MRI and laboratory blood tests.

RESULTS: Clinically, we observed bilateral toxic optic neuropathy. The best corrected visual acuity of the right eye was 0.8p. and of the left eye 0.5p. Colour vision according to Ishihara was 12/15 on the right and 9/15 on the left. Static perimetry demonstrated a cecocentral scotoma bilaterally. VEP was used to measure the prolonged latencies of the P100 wave. The neurologist clinically diagnosed sensory thin-fibre neuropathy up to ankle level. EMG of the lower limbs confirmed signs of incipient polyneuropathy. Head MRI and laboratory blood tests were within the normal range. Two months after withdrawal of linezolid and regular B-complex substitution, complete normalisation of visual function occurred. After 6 months, we observed a discrete thinning of the GCL nasally on macular OCT and a mild thinning of the RNFL temporally on papillary OCT. After 1 year, decreased sensation persisted at the dorsum of the III-V toes bilaterally.

CONCLUSION: Linezolid is an antibiotic that selectively inhibits bacterial protein synthesis via the 23S site on the 50S ribosomal subunit. The 23S subunit is similar to the human mitochondrial ribosomal 16S subunit. Therefore, inhibition of the 23S subunit leads to a disruption in the respiratory chain and consequent neurotoxicity with prolonged use of linezolid. In most cases, this condition is reversible. For linezolid therapy lasting more than one month, we advise theinvolvement of an ophthalmologist for early detection of LION.

KOŽA ME VEČ NE SRBI, ZDAJ IMAM PORDELE OČI; Z DUPILUMABOM POVZROČENA BOLEZEN OČESNE POVRŠINE

SKIN ITCHING IS GONE, BUT MY EYES ARE RED LIKE A PRAWN; DUPILUMAB-INDUCED OCULAR SURFACE DISEASE

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NAMEN: Prikaz treh primerov bolnikov z atopijskim dermatitisom, ki so ob terapiji z imunomodulatornim zdravilom dupilumab razvili znake bolezni očesne površine povzročene z zdravilom dupilumab (DIOSD).

METODE: Retrospektivna analiza treh primerov bolnikov z DIOSD z do 1 mesec trajajočim občutkom peska v očeh, prekomernega solzenja, pordelih oči in občutljivosti na svetlobo, ki so se pojavili 4-6 mesecev po pričetku zdravljenja z dupilumabom. Opravljen je bil oftalmološki pregled in slikanje sprednjega segmenta očesa. Pri enem izmed bolnikov smo opravili še patohistološki pregled vzorca bulbarne veznice. Uvedli smo topikalno terapijo s kortikosteroidi in ciklosporinom.

REZULTATI: Klinično smo opažali znake obojestranskega konjunktivitisa, fluoresceinsko barvanje inferonazalnega dela bulbarne veznice, epitelijske defekte roženice ter znake blefaritisa. Patohistološka preiskava bulbarne veznice je prikazala znake, ki so značilni v sklopu atopijskega dermatitisa, s pridruženim večjim številom intraepitelijskih nevtrofilnih granulocitov. Imunofenotipizacija vnetnega infiltrata je opredelila večje število limfocitov T (CD3+) in fokalne skupke limfocitov B (CD20+). Skupini limfocitov T ,CD4+ in CD8+, sta bili v razmerju 5:1. Število čašastih celic na 1mm^2 je bilo blago znižano (24/mm^2). Klinična slika se je ob dodatku umetnih solz, topikalnega kortikosteroida in ciklosporina izboljšala.

ZAKLJUČEK: Dupilumab je biološko zdravilo, ki deluje protivnetno preko inhibicije receptorjev IL-4 in IL-13. Na očesni veznici omogoča IL-13 proliferacijo čašastih celic ter s tem produkcijo mucina in vzdrževanje epitelijske bariere veznice. Ob uporabi zdravila pride posledično do zmanjšanja proliferacije čašastih celic, okvare veznične bariere, zmanjšane produkcije mucina ter povečane infestacije z Demodexom. Inhibicija IL-4 povzroči povečano produkcijo IFN-γ, kar preko stimulacije vnetja vodi v sindrom suhega očesa. Kadar bolnik ob terapiji z dupilumabom razvije klinično sliko blefarokonjunktivitisa je potrebno pomisliti na DIOSD. V literaturi je malo podatkov o patohistološkem videzu DIOSD. Pred ukinitvijo zdravljenja z dupilumabom se svetuje uvedbo topikalnega kortikosteroida in ciklosporina.

PURPOSE: Review of three patients with atopic dermatitis, who developed signs of dupilumab-induced ocular surface disease (DIOSD) while on therapy with the immunomodulatory drug dupilumab.

METHODS: Retrospective analysis of three cases of DIOSD patients with up to 1 month sand-like feeling in the eyes, excessive lacrimation, red eyes, and light sensitivity, which occurred 4-6 months after initiation of dupilumab treatment. An ophthalmological examination and imaging of the anterior segment of the eye was performed. In one of the patients, we also performed a pathohystological examination of the bulbar conjunctival sample. Topical therapy with corticosteroids and cyclosporine was initiated.

RESULTS: Clinical findings revealed signs of bilateral conjunctivitis, fluorescein staining of the inferonasal part of the bulbar conjunctiva, corneal epithelial defects and signs of blepharitis. The pathohystological examination of the bulbar conjunctiva showed charateristic signs typical for atopic dermatitis, with an associated increased number of intraepithelial neutrophilic granulocytes. Immunophenotyping of the inflammatory infiltrate identified an increased number of T lymphocytes (CD3+) and focal clusters of B lymphocytes (CD20+). The CD4+/CD8+ T-cell ratio was 5:1. The number of goblet cells per 1mm^2 was mildly decreased (24/mm^2). The clinical picture improved with the application of artificial tears, topical corticosteroid and cyclosporine.

CONCLUSION: Dupilumab is a biological drug that has anti-inflammatory effects by inhibiting IL-4 and IL-13 receptors. It promotes IL-13-induced goblet cell proliferation on the conjunctiva, which leads to mucin production and maintenance of the conjunctival epithelial barrier. The use of the drug results in a decrease in goblet cell proliferation, impairment of the conjunctival barrier, decreased mucin production, and increased Demodex infestation. IL-4 inhibition leads to increased IFN-γ production, which stimulates inflammation and leads to dry eye syndrome. When patients treated with dupilumab develop a clinical picture of blepharoconjunctivitis, DIOSD should be considered. There is limited amount of knowledge available in the literature on the pathohystological appearance of DIOSD. The introduction of topical corticosteroids and cyclosporine is advised before discontinuation of treatment with dupilumab.

ATAKSIJA-TELANGIEKTAZIJA PRI 12-LETNEM DEČKU

ATAXIA-TELANGIECTASIA IN A 12-YEAR-OLD BOY

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NAMEN: prikaz primera pediatričnega bolnika z očesno prizadetostjo v sklopu ataksije-telangiektazije oz. Luis-Bar sindroma.

METODE: oftalmološki pregled, slikovna diagnostika sprednjega in zadnjega očesnega segmenta, obsežne laboratorijske preiskave, EEG, MR glave, UZ trebuha, spirometrija, analiza genoma s sekvenciranjem nove generacije (NGS).

REZULTATI: V očesnem statusu smo ugotavljali hipometrične sakade, motnje sledenja, okulomotorno dispraksijo, telangiektatično spremenjeno žilje bulbarne veznice ter obojestransko slabšo vidno ostrino brez korekcije. Nevrolog je ugotavljal sočasno pridruženost kožnih madežev bele kave po trupu, nizek aksialni tonus s torakalno kifozo, ataksijo, drobne horeatične zgibke, intencijski cerebelarni tremor ter dizartrijo. Spirometrija je opredelila restriktivno motnjo ventilacije. UZ trebuha je prikazal steatozo jeter. EEG ni prikazal odstopanj. MR glave je prikazal izrazito atrofija vermisa, cerebelarnih hemisfer ter cerebelarnih pedunklov. V laboratorijski preiskavah krvi je izstopal povišan alfa-fetoprotein (AFP). Z metodo NGS smo pri pacientu v genu ATM potrdili dve patogeni različici: c.5932G>T in c.1564_1565delGA. Uveden je bil poskus zdravljenja z amantadinom.

ZAKLJUČEK: Ataksija-telangiektazija je redka avtosomno recesivna nevrodegenerativna bolezen, ki spada med fakomatoze. Za bolezen so značilne kožne telangiektazije, cerebelarna atrofija s progresivno ataksijo in motnjami bulbomotorike, višja incidenca malignomov, imunodeficienca, radiosenzitivnost in zvišana vrednost alfa-fetoproteina (AFP) v serumu. Vzrok za bolezen je mutacija v ATM genu s posledično napako v DNA popravljalnih mehanizmih. Bolnikom so posledično rentgenski žarki izraziteje škodljivi, zato se jim je v največji meri potrebno izogibati. Vzročna terapija bolezni ne obstaja, vendar smo v skladu z nekaterimi priporočili pričeli zdravljenje z dopaminskim agonistom in NMDA antagonistom, amantadinom. Kadar pri otroku odkrijemo telangiektazije veznice s pridruženimi motnjami bulbomotorike, moramo v diferencialni diagnostiki pomisliti na bolezen ataksija-telangiektazija, saj je potrebna multidisciplinarna obravnava.

PURPOSE: To present a case of a pediatric patient with ocular involvement in the context of ataxia-telangiectasia or Luis-Bar syndrome.

METHODS: Ophthalmological examination, imaging diagnostics of the anterior and posterior eye segment, extensive laboratory tests, EEG, head MRI, abdominal ultrasound, spirometry, analysis of the genome using next-generation sequencing (NGS) method.

RESULTS: Eye examination revealed hypometric saccades, tracking disorder, oculomotor dyspraxia, telangiectatic changes of the bulbar conjunctival vessels, and bilateral reduced visual acuity without correction. The neurologist observed concurrent presence of café-au-lait skin spots on the trunk, poor axial muscle tone with thoracic kyphosis, ataxia, small choreatic movements, intention tremor, and dysarthria. Spirometry identified restrictive ventilation disorder, while abdominal ultrasound showed liver steatosis. EEG did not reveal any abnormalities. Head MRI showed marked atrophy of the vermis, cerebellar hemispheres, and cerebellar peduncles. In the blood laboratory tests, elevated alpha-fetoprotein (AFP) was observed. Using NGS, we confirmed two pathogenic variants in the ATM gene in the patient: c.5932G>T and c.1564_1565delGA. Treatment with amantadine was introduced.

CONCLUSION: Ataxia-telangiectasia is a rare autosomal recessive neurodegenerative disease that belongs to the phacomatoses. The disease is characterized by cutaneous telangiectasias, cerebellar atrophy with progressive ataxia and bulbomotor disorder, a higher incidence of malignancies, immunodeficiency, radiosensitivity, and elevated alpha-fetoprotein (AFP) levels in the serum. The cause of the disease is a mutation in the ATM gene, which results in a defect in DNA repair mechanisms. As a result, X-rays are more harmful to patients, so they should be avoided as much as possible. There is no specific therapy for the disease, but in accordance with some recommendations, treatment with a dopamine agonist and NMDA antagonist, amantadine, has been initiated. When telangiectasias of the conjunctiva with associated bulbomotor disorder are detected in a child, the differential diagnosis should include ataxia-telangiectasia, as multidisciplinary management is necessary.

KRATKOROČNI STRUKTURNI IN FUNKCIONALNI IZID OPERATIVNEGA ZDRAVLJENJA ANTERIORNEGA STAFILOMA S PRESADKOM DONORSKE BELOČNICE

SHORT-TERM STRUCTURAL AND FUNCTIONAL OUTCOME OF SURGICAL TREATMENT OF ANTERIOR STAPHYLOMA WITH DONOR SCLERAL PATCH GRAFT

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Stafilom je izbočenje stanjšane beločnice, skozi katero proseva žilnica. Nastane zaradi očesne poškodbe, operacije, visoke kratkovidnosti, glavkoma, degenerativnih, infekcijskih in imunoloških procesov. Stafilom predstavlja tveganje za integriteto zrkla, lahko namreč pride do perforacije in prolapsa znotrajočesnih struktur.

Kirurško kritje se lahko napravi z različnimi materiali – avtologna tkiva, kadaverska tkiva in sintetični material. Uporaba presadka donorske sklere se je zaradi relativno dolgotrajne možnosti hranjenja v donorski banki od odvzema, trdnosti, a hkrati fleksibilnosti tkiva ter naravne ukrivljenosti, ki se dobro prilega zrklu, izkazala kot učinkovita izbira. Poleg tega povzroča malo vnetja ter so zavrnitvene reakcije redke.

Pri 33-letnem bolniku z anteriornim kongenitalnim stafilomom sklere, velikosti 7x5 mm, so bili predoperativno izključeni avtoimunski in infekcijski vzroki ter ultrazvočno izključena lokalna solidna lezija zaradi zgodovine prebolelega malignega obolenja. V splošni anesteziji je bilo napravljeno kirurško kritje stafiloma s presadkom donorske beločnice, preko katerega je bila temeljito ter v celoti zašita na začetku posega preparirana očesna veznica. Medoperativno je bila zaradi uravnavanja očesnega tlaka (OT) napravljena paracenteza. Po operaciji je bil OT urejen sprva s sistemsko nato z lokalno antihipertenzivno terapijo. Po mesecu dni je imel bolnik normalen OT brez zdravil. Zdravljenje je potekalo brez zapletov. Nekorigirana vidna ostrina na operiranem očesu na zadnjem pregledu dva meseca po operativnem posegu je bila 1,0. Z uporabo presadka donorske beločnice je bil torej dosežen odličen estetski in funkcionalni rezultat. Bolnika bomo spremljali na kontrolnih pregledih.

A staphyloma is a localized defect in the sclera with protrusion of uveal tissue. It can occur as a result of eye trauma, surgery, high myopia, glaucoma and degenerative, infectious and immunological processes in the eye that can affect the integrity of the sclera. This can lead to perforation of the sclera and exposure of intraocular tissue. Various types of grafts have been used in the surgical treatment of scleral thinning, including autologous tissue, donor tissue and synthetic material. Autologous preserved scleral tissue has the advantage that it can be stored in a donor bank for months before use. It is also strong but flexible and conforms better to the sclera of the host due to the natural curvature of the sclera. It is well tolerated by the host, with little inflammation and rare rejection.

A 33-year-old male patient presented with a 7x5 mm anterior congenital staphyloma. Infectious and immunological causes were excluded. As he had a history of previous malignancy, a solid tissue tumour was also ruled out. The patient underwent scleral transplantation under general anaesthesia using a preserved donor scleral graft. The graft was completely covered with conjunctiva, which was dissected at the beginning of the surgical procedure. Intraoperatively paracentesis was performed. The postoperative intraocular pressure (IOP) was initially treated with systemic and then also with topical IOP-lowering medications. As the IOP was within the normal range after one month, the antihypertensive medication was discontinued. No complications occurred after surgery. At the last examination two months after surgery, the best uncorrected visual acuity in the operated eye was 1.0. In summary, the aesthetic and functional outcome of the surgery was excellent. The patient will have regular examinations in the future.

POZABLJENO OKO POSTANE NOVA ZVEZDA VIDNE OSTRINE – PRIKAZ PRIMERA

A FORGOTTEN EYE BECOMES A SHINING STAR OF VISUAL ACUITY – A CASE REPORT

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Predstavljamo poročilo o primeru 74- letne bolnice z obojestranskim keratokonusom in kroničnim glavkomom odprtega zakotja po obojestranski penetrantni keratoplastiki pred več kot 30 leti. Zaradi iregularnega astigmatizma je uporabljala različne trde in poltrde kontaktne leče, ki ji niso povsem ustrezale. Desno je imela leta 2004 opravljeno operacijo katarakte, najboljše vidna ostrina je bila 0,6. Leta 2010 je na desnem očesu prišlo do zavrnitvene reakcije roženičnega transplantata, leta 2019 je imela opravljeno rekeratoplastiko na tem očesu. Zaradi dekompenzacije glavkoma je bila leta 2022 opravljena trabekulektomija desno, ob operaciji je prišlo do nastanka suprahoroidalne krvavitve, vidna ostrina je padla na dojem svetlobe. Levo je pred leti kmalu po keratoplastiki prišlo do delne dehiscence transplantata in je bilo ves čas slabše, manj uporabljano oko, z vidno ostrino štetje prstov na 1m in neugodnim profilom za opasovanje poltrde kontaktne leče. Po zapletu zadnje operacije na desnem smo se odločili za operacijo sive mrene na levem. Nadalje smo opasali semiskleralno kontaktno lečo, s katero ima prvič po 27 letih vidno ostrino 0,6, s tem lahko normalno živi in opravlja svoje najljubše aktivnosti.

Prikazan je primer bolnice, ki se dotika več očesnih kirurških področij in prikazuje vzpone in padce pri kronični obravnavi takšnih pacientov. Pri vsem tem je pomembno, da imamo skupaj s pacienti še nekaj orodij za izboljšavo vida in kvalitete življenja, čeprav se položaj včasih zdi brezupen.

We present a case report of a 74-year-old female patient with bilateral keratoconus and chronic open-angle glaucoma after bilateral penetrating keratoplasty more than 30 years ago. Due to irregular astigmatism, she used various rigid and rigid gas-permeable (RGP) contact lenses that did not suit her perfectly. In 2004, she underwent cataract surgery on her right eye, achieving best-corrected visual acuity of 0.6. In 2010, she experienced a rejection of the corneal transplant on her right eye and underwent a re-keratoplasty on the same eye in 2019. Due to glaucoma decompensation, trabeculectomy was performed on her right eye in 2022, suprachoroidal hemorrhage occurred during the operation and a subsequent visual acuity drop to light perception. Her left eye suffered from partial dehiscence of the transplant shortly after keratoplasty and had been a less used eye since then, with a visual acuity of counting fingers and an unfavorable profile for fitting RGP contact lenses. After current complication of the last surgery on the right eye, we decided to perform cataract surgery on her left eye. Additionally, we fitted her with a semi-scleral contact lens, resulting in a best-corrected visual acuity of 0.6 for the first time in 27 years. This enabled her to live normally and carry out her favorite activities.

This case report highlights managing of a complex chronic ophthalmic patient, with ups and downs. It is important to have a range of tools available to improve patients' vision and quality of life, even in situations that may initially seem hopeless.

ZDRAVLJENJE PERIFERNE EKSUDATIVNE HEMORAGIČNE HORIORETINOPATIJE Z ZAVIRALCI VEGF IN LASERSKO FOTOKOAGULACIJO - KLINIČNI PRIMER

TREATMENT OF PERIPHERAL EXUDATIVE HAEMORRHAGIC CHORIORETINOPATHY WITH ANTIVEGF INJECTIONS AND LASER PHOTOCOAGULATION - A CASE REPORT

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NAMEN: Predstaviti klinični primer 85-letne pacientke s periferno eksudativno hemoragično horioretinopatijo (PEHCR), ki je bila uspešno zdravljena z intravitrealnimi injekcijami zaviralcev VEGF in lasersko fotokoagulacijo periferne mrežnice.

KLINIČNI PRIMER: 85-letna pacientka z znano arterijsko hipertenzijo, dislipidemijo, sladkorno boleznijoI, obojestransko neproliferativno diabetično retinopatijo in starostno degeneracijo mrežnice je bila pod nujno napotena na pregled v vitreoretinalno ambulanto zaradi odstopa mrežnice na levem očesu. Pacientka ni navajala poslabšanja vida, spremembe na mrežnici so bile ugotovljene na pregledu pri področnem oftalmologu. Najboljša korigirana vidna ostrina desnega očesa (DO) po Snellenu je bila 0,4 in levega očesa (LO) 0,1. Očesni pritisk je bil normalen. Pregled sprednjih delov s špranjsko svetilko razen obojestranske starostne sive mrene ni pokazal posebnosti. Pregled očesnega ozadja je na LO pokazal temporalno lezijo s subretinalno fibrozo in krvavitvami in pridružen eksudativni odstop mrežnice, ki se s temporalnega roba makule širi v infero-temporalni kvadrant. Raztrganin mrežnice ni bilo videti. Slikanje z OCT preko mrežnične lezije temporalno je pokazalo odstop pigmentnega epitela (PED), hiperreflektiven material pod nevrosenzorno mrežnico in subretinalno tekočino. Fluoresceinska angiografija (FA) LO je v zgodnjih fazah v področju hemoragičnega PED pokazala blok fluorescence, v pozni fazi pa hiperfluorescentno žarišče puščanja kontrasta. Indocianin zelena angiografija je v zgodnjih fazah pokazala hipocianescence v področju periferne subretinalne krvavitve in področje iregularne hipercianescence, ki je sovpadalo s področjem puščanja kontrasta na FA. Pacientka je pričela zdravljenje z intravitrealnimi injekcijami zaviralcev VEGF. V razmaku 1 meseca je prejela 3 injekcije, po čemer je prišlo do resorpcije subretinalne tekočine, in opravila pečatenje periferne horoidalne neovaskularizacije (CNV) z argonskim laserjem. Ob zadnjem kontrolnem pregledu ni bilo znakov za ponovno CNV.

REZULTATI: PEHCR, poznana tudi kot periferna starostna degeneracija mrežnice, je degenerativna bolezen, ki se kaže s hemoragičnimi in eksudativnimi spremembami mrežnice, kot so serozni in hemoragični PED, subretinalne krvavitve, lipidni eksudati in eksudativni odstop mrežnice.

ZAKLJUČEK: Čeprav je PEHCR redek, je med oftalmologi potrebno poznavanje tega kliničnega stanja, ki zahteva obravnavo s strani specialista za bolezni mrežnice.

PURPOSE: To present a case of peripheral exudative haemorrhagic chorioretinopathy (PEHCR) in a 85-year old patient who was successfully treated with intravitreal antiVEGF injections and retinal laser photocoagulation.

CASE PRESENTATION: A 85-year old female with a past medical history of hypertension, dyslipidemia and diabetes mellitus and a past ocular history of nonproliferative diabetic retinopathy and dry age-related macular degeneration in both eyes was urgently referred to the vitreoretinal department due to retinal detachment in her left eye. The patient did not notice any visual impairment, retinal changes were found on a regular check up at a local ophthalmologist. The best corrected visual acuity measured on a Snellen chart was 0.4 in the right eye (RE) and 0.1 in the left eye (LE). Intraocular pressure was normal. Slit-lamp evaluation showed senile cataract in both eyes, other anterior segment findings were unremarkable. Fundus examination of the LE showed a temporal lesion with subretinal fibrosis and haemorrhages with associated exudative retinal detachment extending peripherally from the temporal macular border in the inferior-temporal quadrant. No retinal tears were noted.

OCT imaging through the temporal lesion revealed a pigment epithelial detachment (PED) with overlying hyperreflective subretinal material and subretinal fluid. Fluorescein angiography (FA) of the LE showed early blockage in the areas of the haemorrhagic PEDs and a hyperfluorescence foci with leakage in late phase. Indocyanine green angiography showed early hypocyanescence in the areas of peripheral subretinal haemorrhage with an area of irregular hypercyanescence that corresponds to the leaking hyperfluorescence seen on FA.

Treatment with intravitreal antiVEGF injections was started, after 3 monthly intravitreal injections subretinal fluid resolved and argon laser photocoagulation of the peripheral choroidal neovascularization (CNV) was performed. At the last follow-up, there was no recurrence of peripheral CNV.

RESULTS: PEHCR, also referred to as peripheral age-related retinal degeneration, is a degenerative condition and manifests with hemorrhagic and exudative alterations of the retina including serous or hemorrhagic PEDs, subretinal haemorrhage, lipid exudation and exudative retinal detachment.

CONCLUSION: Although PEHCR is rare, ophthalmologists should be aware of this clinical entity, that requires a referral to a retinal specialist.

GENETSKO OZADJE VISOKE KRATKOVIDNOSTI PRI OTROCIH
GENETIC BACKGROUND OF HIGH MYOPIA IN CHILDREN

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NAMEN: Namen raziskave je s pomočjo genetske analize eksomskega sekvenciranja ugotoviti delež genetsko pojasnljivih vzrokov za visoko kratkovidnost (VK) v zgodnjem otroštvu.

METODE: Gre za retrospektivno kohortno raziskavo. Uporabili smo podatke o otrocih, ki so bili med letoma 2010 in 2022 napoteni v Ambulanto za rizične otroke na Očesni kliniki v Ljubljani ter ustrezajo naslednjim vključitvenim kriterijem: starost do vključno 15 let, VK, ki je enaka ali presega -5D pred dopolnjenim 10. letom starosti. Izključili smo otroke pri katerih je VK z veliko verjetnostjo nastala kot posledica naslednjih stanj: retinopatija nedonošenčka (ROP), poslabšanje oz. nastanek VK kot zaplet kirurškega zdravljenja druge očesne patologije ali kot posledica očesne poškodbe. Seznam otrok smo pridobili s pomočjo elektronske baze Očesne klinike (sistem Hipokrat), do izvidov genetskih preiskav pa smo dostopali na Kliničnem inštitutu za genomsko medicino in v genetski ambulanti Pediatrične klinike v Ljubljani. Genetska analiza je vključevala eksomsko sekvenciranje in/ali molekularno kariotipizacijo. Vključili smo 47 otrok; 24 dečkov in 23 deklic. Srednja starost s standardnim odklonom ob vključitvi v raziskavo je 8,9 ± 3,7 let. Pri 11 otrocih so genetske preiskave še v teku, 4 pa so iz raziskave izpadli (nesoglašanje z genetsko preiskavo ali nedosegljivost).

V našem pregledu smo otroke razdelili v dve skupini: VK v sklopu sindroma in nesindromska oblika VK.

REZULTATI: Enaindvajset (65,6%) otrok je imelo klinično sliko VK v sklopu sindromske prizadetosti, pri čemer smo pri 14 otrocih (43,8%) opredelili genetski vzrok. Od tega je bila pri 9 (28,1 %) otrocih ugotovljena monogenska, pri 5 (15,6%) otrocih pa kromosomska patogena sprememba. Najpogosteje sta bila zastopana Sticklerjev sindrom (3x) in sindrom Pitt-Hopkins (2x).

V skupini otrok z nesindromsko obliko VK (11; 34,4%) smo genetski vzrok ugotovili pri 7 (21,9%) otrocih ((verjetno) patogene različice v ARR3, NDP, RP2, ZEB1, CACNA1F, RPGR).

Raziskava je še v teku.

ZAKLJUČEK: Na podlagi našega vzroca lahko sklepamo, da se visoka kratkovidnost v otroštvu pogosteje pojavlja v sklopu sindromskih obolenj. Z genetsko analizo smo opredelili vzrok VK pri dveh tretjinah preiskovancev, pri čemer je bil diagnostičen izplen primerljiv v skupini preiskovancev s sindromsko in nesindromsko obliko VK.

PURPOSE: The aim of this study is to determine the proportion of genetically explainable causes of high myopia (HM) in early childhood by genetic analysis of exome sequencing.

METHODS: The study is a retrospective cohort study. We used data on children referred to the Outpatient Clinic for Children at Risk at the Ljubljana Eye Clinic between 2010 and 2022, who met the following inclusion criteria: age up to and including 15 years, HM equaling to or greater than -5D before the age of 10 years. We excluded children with a high probability of developing HM as a consequence of the following conditions: retinopathy of prematurity (ROP), worsening or development of HM as a complication of surgical treatment of other ocular pathology or as a consequence of ocular trauma. The list of children was obtained using the electronic database of the Eye Clinic (Hipokrat system), and the results of genetic testing were accessed at the Clinical Institute of Genomic Medicine and the genetic outpatient clinic of the Paediatric Clinic in Ljubljana. Genetic analysis included exome sequencing and/or molecular karyotyping. We included 47 children; 24 boys and 23 girls. The mean age with standard deviation at inclusion was 8.9 ± 3.7 years. For 11 children, genetic testing is still in progress and 4 children dropped out of the study (non-consent to genetic testing or unavailability).

We divided the children into two groups: syndromic HM and non-syndromic HM.

RESULTS: Twenty-one (65.6%) children had a clinical picture of HM in the context of syndromic involvement, and in 14 (43.8%) cases we identified a genetic cause. Of these, 9 (28.1%) children were found to have a monogenic and 5 (15.6%) a chromosomal mutation. Stickler syndrome (3x) and Pitt-Hopkins syndrome (2x) were the most frequently represented.

In the group of children with non-syndromic HM (11; 34.4%), a genetic cause was identified in 7 (21.9%) children ((likely) pathogenic variants in ARR3, NDP, RP2, ZEB1, CACNA1F, RPGR).

The study is still ongoing.

CONCLUSION: Based on our sample, we can conclude that high myopia in childhood is more likely to occur in the context of syndromic diseases. Genetic analysis was used to identify the cause of HM in two-thirds of the subjects, with comparable diagnostic yields in the syndromic and non-syndromic HM groups.

AKANTAMEBO TEŽKO POKONČAŠ - PRIKAZ PRIMERA

ACANTHAMOEBA DIES HARD - A CASE REPORT

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Predstavljamo primer bolnice nosilke kontaktnih leč z akutnim keratitisom desnega očesa, sprva vodenega kot postadenovirotični keratitis in na koncu opredeljenega kot akantamebni.

Izvedli smo retrogradno analizo primera 27-letne bolnice z anamnezo pordelega očesa s fotofobijo in izcedkom ob klinični sliki keratitisa na desnem očesu.

Ugotavljali smo številne numularne satelitske subepitelne motnjave s fotofobijo, postavili smo sum na postadenovirotični keratitis in uvedli zdravljenje s topičnim kortikosteroidom in vlažilno očesno terapijo. Odvzeti brisi na HSV, VZV in adenovirus so bili negativni. Na kontroli smo ugotavljali akutno poslabšanje kroničnega keratitisa s pojavom večjega gostega centralnega infiltrata. Zdravili smo z lokalno antibiotično terapijo, nato še antimikotično terapijo. Brisi na glive in bakterije so ostali sterilni. Glede na in vivo konfokalno mikroskopijo smo posumili na okužbo z akantamebo, saj so bile vidne tipične ciste. Uvedena je bila lokalna terapija s Flukonazolom, 0,02% Poliheksanidom (PHMB) in 0,02% Klorheksidinijevim diglukonatom. Odvzeli smo skarifikat roženice, kjer smo potrdili Acanthamoeba sp. Po uvedeni terapiji je prišlo do izboljšanja klinične slike in do vrnitve vidne ostrine. Po 12 mesecih smo ob mirnem očesu terapijo počasi ukinili. Prišlo je do recidiva, ki smo ga ujeli v zgodnjih stadijih, zato smo terapijo podaljšali še za nadaljnjih 14 mesecev. Trenutno je 8 mesecev po ukinitvi brez težav, s končno vidno ostrino 0.8.

Akantamebni keratitis je redka, vid ogrožajoča parazitska okužba očesne površine, ki se najpogosteje pojavlja pri nosilcih kontaktnih leč. Diagnoza je zaradi začetnega subakutnega poteka težka in pogosto pozno postavljena. Zdravi se s kombinirano politerapijo iz topičnega antibiotika, vorikonazola, 0.02% PHMB in 0.02% klorheksidina, pogosto tudi več let.

We here present the case of a contact lens-wearing patient with acute keratitis of the right eye, initially managed as postadenovirotic keratitis and finally diagnosed as acanthamoebic keratitis.

We conducted a retrograde case analysis of a 27-year-old female patient with a history of red eye with photophobia and discharge accompanied by a clinical presentation of keratitis in the right eye.

Numerous nummular satellite subepithelial opacities with photophobia were observed, we suspected postadenovirotic keratitis and started treatment with topical corticosteroid and moisturizing ocular therapy. Swabs for HSV, VZV and adenovirus were negative. At follow-up, acute exacerbation of chronic keratitis with the appearance of a large dense central infiltrate was observed. We treated with topical antibiotic therapy followed by antimycotic therapy. The swabs for fungi and bacteria remained sterile. In vivo confocal microscopy suggested an acanthamoeba infection, as typical cysts were visible. Topical therapy with fluconazole, 0.02% polyhexamethylene biguanide (PHMB) and 0.02% Chlorhexidine digluconate was applied. Corneal scraping was performed and Acanthamoeba sp. was confirmed. After the treatment, the clinical picture improved and visual acuity was restored. After 12 months, with a healthy eye, the therapy was slowly discontinued. A recurrence occurred and was caught in the early stages, so we extended the therapy for another 14 months. Currently, 8 months after discontinuation, she is problem-free, with a final visual acuity of 0.8.

Acanthamoebal keratitis is a rare, sight-threatening parasitic infection of the ocular surface that occurs most commonly in contact lens wearers. Diagnosis is difficult and often delayed due to the initial subacute presentation. It is treated with combination polytherapy consisting of a topical antibiotic, voriconazole, 0.02% PHMB and 0.02% chlorhexidine, often for several years.

DVA PRIMERA OTROK Z ŽARIŠČNO IZGUBO FOTORECEPTORJEV

TWO CASES OF FOCAL PHOTORECEPTOR LOSS IN PEDIATRIC PATIENTS

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NAMEN: Predstaviti dva pediatrična bolnika z žariščnim izpadom fotoreceptorjev, ki smo ju obravnavali v Ambulanti za rizične otroke Očesne klinike v Ljubljani med oktobrom 2022 in marcem 2023, njuno diagnostično obravnavo in izide.

METODE: 13-letni deček je obiskal našo otroško ambulanto zaradi šest mesecev trajajočega poslabšanja vida na levem očesu. Pred poslabšanjem je na zabavi vdihoval rekreacijski plin (prvi primer). V drugem primeru gre za 9-letnega dečka, ki je našo ambulanto obiskal zaradi področij nejasnega vida v centralnem vidnem polju. Z natančno anamnezo smo izvedeli, da se je deček pred nastankom težav igral z laserjem.

Oba dečka sta imela obojestransko ohranjeno najboljšo korigirano vidno ostrino (10/10) po Snellenu. Z biomikroskopskim pregledom nismo ugotavljali patoloških najdb. Pri pregledu očesnega ozadja smo opazili spremembe pigmentacije v predelu makule in spremenjene odbleske v foveah. S SLO-OCT slikanjem smo prikazali žariščne izpade v elipsoidnem sloju notranjih segmentov (ISe) v makuli levega očesa. V drugem primeru so bile spremembe prisotne v istem mrežničnem sloju obojestransko in so bile pod pragom občutljivosti elektrofizioloških preiskav. Dečkov izvid multifokalnega in slikovnega elektroretinograma je bil v mejah normale.

REZULTATI: Na makulopatijo, ki jo povzroča vdihovanje rekreativnih plinov (*ang*. poppers) in je redko enostranska, moramo pomisliti pri otrocih z enostransko žariščno izgubo ISe. Klinično in slikovno je neločljiva od fototoksične makulopatije, ki jo pogosto posledica laserske poškodbe mrežnice.

ZAKLJUČKI: Ob izoliranem žariščnem izpadu ISe v rumeni pegi moramo pomisliti na makulopatijo, povzročeno z zunanjimi dejavniki. Anamneza, klinični pregled in OCT slikanje zadostujejo za postavitev diagnoze fototoksične makulopatije in makulopatije, ki jo povzroča vdihovanje rekreativnih plinov. Invazivnejša slikovna diagnostika, kot je fluoresceinska angiografija, za postavitev diagnoze ni potrebna. Predstavljena klinična primera kažeta na potrebo po učinkovitejši regulaciji dostopa otrok do potencialno škodljivih laserskih izdelkov in plinov za rekreativno uporabo.

PURPOSE: To introduce two cases of focal photoreceptor loss in two pediatric patients who consulted the Outpatient clinic for children at risk at the University Eye Hospital in Ljubljana between October 2022 and March 2023, their diagnostic workup, and outcomes.

METHODS: In case I, a 13-year-old boy presented with a 6-month complaint of left eye (LE) vision deterioration. The boy reported inhaling gas at a party prior to the symptom onset. In case II., a 9-year-old boy reported bilateral central and paracentral visual field changes. Detailed clinical history revealed that he played with a laser penlight prior to the onset of visual disturbances. In both cases, ophthalmic examination revealed preserved best-corrected visual acuity at 10/10 on Snellen charts. Anterior chamber biomicroscopy was without pathological findings, whereas fundoscopy showed focal pigmentation changes in the macula, foveal reflex alteration, and mottling. In the first case, SLO-OCT imaging showed unilateral (LE) focal disruption of the inner segment ellipsoid zone (ISe). In the second case, bilateral alterations, noted at the same retinal level, were below the electrophysiologic testing threshold, and full-field and multifocal electroretinography were within normal limits.

RESULTS: Although unusual, poppers maculopathy can be unilateral (case I) and should be considered in teenage patients with focal ISe loss. Clinically and on imaging, it is inseparable from phototoxic maculopathy, commonly induced by a laser injury (case II).

CONCLUSION: Isolated focal ISe loss should evoke exposure maculopathy. Clinical history, clinical examination, and OCT imaging are sufficient to establish the diagnosis of poppers and phototoxic maculopathy. The condition requires no treatment. Invasive diagnostic procedures, such as retinal angiography, are not required. The two presented cases call for stricter regulation of access to laser products and inhaling gases, particularly in the pediatric population.

ANAMNEZA BLISKANJA IN ŽIVLJENJE OGROŽUJOČA DIAGNOZA

A HISTORY OF FLASHES AND LIFE THREATENING DIAGNOSIS

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NAMEN: Predstavitev kliničnega primera bolnice z levostransko hemianopsijo in motnjavami vida kot prvimi znaki intracerebralne krvavitve.

METODE: Pregled dokumentacije bolnika.

REZULTATI: 56-letna bolnica je po 24 urni delovni izmeni opažala bliskanje po levi strani vidnega polja levega očesa. Kasneje tekom jutra je opazila tudi, da jo nekoliko zanaša pri hoji. Ob kliničnem pregledu je večkrat obračala glavo v smeri pogleda in zvoka, zato smo se odločili opraviti še konfrontacijsko vidno polje, kjer je bila nakazana levostranska hemianopsija, v ostalem očesni status ni odstopal od fiziološkega. Bolnico smo takoj prepeljali na nevrološko kliniko, kjer je opravila slikanje glave z magnetno resonanco. Vidna je bila ekspanzivna lezija parietookcipitalno desno z robnim hipodenznim signalom sumljivim za tumor ali infekcijo. Zaradi postopnega slabšanja klinične slike v naslednjih 5 dneh s splošno oslabelostjo in levostransko hemiparezo, so opravili CT slikanje glave, kjer so ugotavljali povečanje ekspanzivne fomacije, zato so izvedli urgentno operacijo z evakuacijo intracerebralne krvavitve ter žilno tvorbo parietalno desno. Glede na histopatološke teste je šlo za kavernom, ki je zakrvavel. Gospa je po posegu opravila rehabilitacijo; levostranska hemipareza in hemianopsija sta izzveneli, v 6 mesecih je prišlo do popolne rehabilitacije.

ZAKLJUČEK: Opisovanje kliničnih simptomov s strani pacientov je lahko zavajujoče. Med pregledom je smiselno skrbno opazovanje pacienta in potrebno je raziskati morebitna odstopanja ali nenavadna gibanja, tudi če jih pacient ni opazil ter ga ne motijo. V primeru intracerebralnih krvavitev je še posebej pomembno hitro odreagiranje za pravočasno razrešitev in dober končni izid.

PURPOSE: To present a clinical case of a patient with left-sided hemianopsia and visual disturbances as the first signs of intracerebral hemorrhage.

METHODS: Review of patient documentation.

RESULTS: After a 24-hour work shift, a 56-year-old patient noticed flashes on the left side of the visual field of the left eye. Later in the morning, she also noticed that she was leaning a bit when walking. During the clinical examination, she repeatedly turned her head in the direction of sight and sound, so we decided to perform a confrontation visual field, where left-sided hemianopsia was indicated, otherwise the eye status did not deviate from physiological. The patient was immediately transferred to the neurology clinic, where she underwent magnetic resonance imaging of the head. An expansive right parieto-occipital lesion was seen with marginal hypodense signal suspicious for tumor or infection. Due to the gradual worsening of the clinical picture over the next 5 days, with general weakness and left-sided hemiparesis, a CT scan of the head was performed, where an increase in the expansive formation was noted, therefore an emergency operation was performed to evacuate the intracerebral hemorrhage and vascular formation in the right parieto-occipital region. Histopathological tests confirmed a cavernoma that had bled. After the procedure, the patient underwent rehabilitation, the left-sided hemiparesis and hemianopsia disappeared, and in 6 months she was fully rehabilitated.

CONCLUSION: Patients' description of clinical symptoms may be misleading. During the examination, it is reasonable to carefully observe the patient and it is necessary to investigate possible deviations or unusual movements, even if the patient has not noticed them and they do not bother him. In the case of intracerebral hemorrhages, a quick reaction is especially important for a timely resolution and a good final outcome.

PACIENT S FOTOPSIJAMI V AMBULANTI ZA VITREORETINALNO KIRURGIJO, KLINIČNI PRIMER

PATIENT WITH PHOTOPSIAS IN VITREORETINAL CLINIC, CLINICAL CASE

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NAMEN: Predstaviti diagnostično obravnavo pacienta s fotopsijami, pri katerem je bila diagnosticirana retinopatija.

METODE: 55 - letni pacient je bil napoten v Ambulanto za vitreoretinalno kirurgijo z napotno diagnozo fotopsije. Zadnje leto dni je opažal občasen pojav svetle svetlobe pred obema očesom, ob tem se mu je slabšal vid na daljavo in bližino, imel je občutek slabšega perifernega vida. Zaradi težav je bil pregledan pri področnem oftalmologu, ki je gospodu ugotovil nizko refraktivno napako z optimalno korigirano vidno ostrino 1,0. V očesnem statusu ugotovljen blefaritis, pregleda pri široki zenici bolnik zaradi upravljanja motornega vozila ni želel. Ob pregledu v Ambulanti za vitreoretinalno kirurgijo smo pri gospodu v kliničnem statusu ugotovili distrofične spremembe ekstrafoveolarne mrežnice s skupki pigmenta v obliki kostnih celic. V ostalem je bil očesni status v mejah normale, z vidno ostrino 1,0 cc in normalnim znotrajočesnim pritiskom. Z OCT slikanjem je bila odkrita atrofija in stanjšanje zunanjih plasti mrežnice ekstrafoveolarno, z avtofluorescenco (FAF) vidna hipoavtofluorescenčno področje ekstrafoveolarne mrežnice. Pri gospodu je bil postavljen sum na pigmentno retinopatijo. Dodatno je opravil preiskavo vidnega polja, ki je pokazala koncentrično zožanje vidnega polja. Elektrofiziološka preiskava je pokazala genarilizirano okvaro mrežnice z izrazito nenormalnim SFERG in PERG. Gospod je bil napoten na genetsko testiranje in z opravljeno diagnostiko za nadaljne spremljanje napoten v Ambulatno za nevrooftalmologijo in mrežnične distrofije.

REZULTATI: Pri bolniku z nespecifičnimi težavami fotopsij je bila z natančnim kliničnim pregledom in opravljenimi razširjenimi diagnostičnimi preiskavami postavljena diagnoza pigmentne retinopatije.

ZAKLJUČEK: V vsakdanji praksi se pogosto srečujemo s simptomi fotopsij. Fotopsije so definirane kot subjektivna zaznavanja svetlobe brez dejanskega fotonskega ali svetlobnega stimulusa, ki jih lahko povzročajo različna očesna stanja. S prikazanim kliničnim primerom želimo poudariti pomembnost pregleda očesnega ozadja pri široki zenici ter natančen pregled periferne mrežnice. V predstavljenem primeru z nespecifičnimi težavami fotopsij je bila z natančnim kliničnim pregledom in opravljenimi razširjenimi diagnostičnimi preiskavami potrjena pigmentna retinopatija.

PURPOSE: To present clinical case of a patient with photopsias who was diagnosed with pigmentary retinopathy.

METHODS: A 55-year-old patient was referred to the Vitreoretinal Surgery Unit with a referral diagnosis of photopsias. For the past year, he was occasionally noticing bright light in front of both eyes, while his distance and near vision were deteriorating, he had a feeling of poor peripheral vision. Due to the problems, he was examined by a local ophthalmologist, who diagnosed the patient with a low refractive error and an optimally corrected visual acuity of 1,0. Blepharitis was diagnozed, hower the patient did not want the examination with a wide pupil due to driving motor vehicles. At the Vitreoretinal Surgery Unit we found dystrophic changes in the extrafoveolar retina with pigment clusters in the form of bone cells. Otherwise, the eye status was within normal limits with visual acuity of 1.0 cc and normal intraocular pressure. With OCT imaging atrophy and thinning of the outer layers of the extrafoveolar retina was detected, with autofluorescence (FAF) a hypoautofluorescent area of the extrafoveolar retina was visible. The patient was suspected of having pigmentary retinopathy. He additionally performed a visual field examination, which showed a concentric narrowing of the visual field. Electrophysiological examination revealed a generalised retinal defect with markedly abnormal SFERG and PERG. The patient was referred for genetic testing and, with completed diagnosis referred to the Neuro-Ophthalmology and Retinal Dystrophies Outpatient Department for follow-up.

RESULTS: In a patient with non-specific photopsia problems, a diagnosis of pigmentary retinopathy was made with a detailed clinical examination and extensive diagnostic tests.

CONCLUSION: In everyday practice, we often encounter photopsia symptoms. Phoyopsias are defined as subjective perceptions of light without an actual photonic or light stimulus and can be caused by a variety of eye conditions. With the clinical example shown, we want to emphasise the importance of detailed fundus check up in a good mydriasis and thus the early diagnosis of an eye disease as in our presented case.

IZHOD ZDRAVLJENJA MAKULARNE LUKNJE PO RUPTURI MAKROANEVRIZME RETINALNE ARTERIJE

OUTCOME OF MACULAR HOLE TREATMENT FOLLOWING RETINAL ARTERIAL MACROANEURYSM RUPTURE

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NAMEN: Predstaviti izhod zdravljenja makularne luknje in makularne krvavitve, ki sta nastali zaradi rupture makroanevrizme retinalne arterije. Bolnica je bila zdravljena z vitrektomijo pars plana (VPP) in avtologno presaditvijo membrane limitans interne (MLI) med primarnim posegom.

METODE: Predstavitev kliničnega primera.

REZULTATI: 60-letna bolnica s pridruženo arterijsko hipertenzijo je bila obravnavana zaradi nenadne neboleče izgube centralnega vida na desnem očesu. Do izgube vida je prišlo pri delu v sklonjenem položaju. Anamneza za Valsalva manever in poškodbo je bila negativna. Vidna ostrina desno je znašala štetje prstov na 0,5 m ekscentrično. Pri pregledu sprednjih očesnih delov ni bilo posebnosti. Pri oftalmoskopskem pregledu očesnega ozadja je bilo desno videti preretinalno krvavitev ter gosto krvavitev pod MLI in pod nevrosenzorno mrežnico, ki je zajela področje rumene pege. Na očesnem ozadju levega očesa je bila prisotna hipertenzivna retinopatija.

Narejena je bila 25-gauge VPP in luščenje MLI nad krvavitvijo. Med posegom je bila ugotovljena rupturirana makroanevrizma inferotemporalne veje centralne retinalne arterije. Krvni strdek pod MLI je bil odstranjen z vitrektomom. Pod strdkom je bilo opaziti makularno luknjo in submakularno krvavitev. Del submakularnega strdka, ki je prodiral skozi luknjo, je bil odstranjen. Del MLI je bil dodatno odluščen zunaj žilnih arkad ter postavljen kot prosti reženj na makularno luknjo. Na koncu posega je bila narejena tamponada s plinom. Med in po operativnem posegu ni bilo zapletov.

Pooperativno je prišlo do anatomskega zaprtja makularne luknje ter resorbcije submakularne krvavitve in ponovne vzpostavitve zunanjih mrežničnih plasti. Pozneje je bolnica imela operacijo sive mrene na tem očesu. Na zadnjem pregledu 5 let po posegu, je bila vidna ostrina desnega očesa z najboljšo korekcijo 0,9 po Snellenu. Pri pregledu očesnega ozadja desno je bila v makuli prisotna fina pregrupacija pigmenta in spodaj na temporalni arteriji fibrozirani makroanevrizmi.

ZAKLJUČEK: Avtologna presaditev MLI med primarno VPP je učinkovit kirurški pristop za zdravljenje makularne luknje in krvavitvijo pod MLI, povezane z rupturo retinalne arterijske makroanevrizme. V našem primeru je bilo doseženo anatomsko zaprtje makularne luknje in s tem znatno izboljšanje vidne ostrine. 5 let po primarni operaciji in po operaciji sive mrene je bilo morfološko stanje mrežnice izboljšano z izboljšano vidno ostrino.

PURPOSE: To report the outcome of treatment of macular hole and macular haemorrhage, secondary to ruptured retinal arterial macroaneurysm (RAMA). The patient was treated with pars plana vitrectomy (PPV) and autologous internal limiting membrane (ILM) transplantation within primary surgery.

METHODS: Case report.

RESULTS: A 60-year old female patient with associated arterial hypertension was treated for a sudden painless loss of central vision in the right eye. Vision loss occurred while she was working in a bent position. The anamnesis for Valsalva manoeuvre and eye injury was negative. The best corrected visual acuity (BCVA) in the right eye was counting fingers at 0.5 meters eccentrically. Anterior segment examination revealed normal status. Ophthalmoscopic examination of the right fundus revealed a mild preretinal haemorrhage, and dense haemorrhage under the ILM and also under the neurosensory retina, involving macular area. Hypertensive retinopathy was present in the fundus of the left eye.

A 25-gauge PPV and ILM peeling over the haemorrhage was performed. A ruptured macroaneurysm of infratemporal branch of the retinal artery was noticed during the procedure. A blood clot under the ILM was removed with the vitreous cutter. A macular hole and submacular haemorrhage were seen below the clot. Part of the submacular clot that was protruding through the hole was removed. The MLI flap outside the vascular arcades was additionally peeled and placed as a free flap on the macular hole and gas tamponade was instilled at the end of the procedure. No complications were observed during or after the surgery.

Postoperatively, the macular hole was anatomically closed, the submacular haemorrhage was resorbed and the outer retinal layers were restored. The patient later had cataract surgery on the same eye. At the last follow-up, 5 years after the primary procedure, the BCVA in the right eye was 0.9 on Snellen charts. On the right fundus we noticed fine pigment dispersion in the macula and occluded RAMA.

CONCLUSION: Autologous MLI transplantation is an effective surgical approach for the treatment of macular hole and subILM haemorrhage associated with RAMA rupture. In our case, an anatomical closure of the macular hole was achieved with significant improvement of visual acuity. 5 years after the primary surgery, the retina was morphologically improved with excellent recovery of visual acuity.

PREPOZNAVA OBRAZOV PRI BOLNIKIH S STAROSTNO DEGENERACIJO MAKULE

FACE RECOGNITION PATTERNS IN PATIENTS WITH AGE RELATED MACULAR DEGENERATION

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NAMEN: določiti karakteristike vzorcev prepoznave obrazov pri bolnikih s starostno degeneracijo makule (SDM) z uporabo očal za navidezno resničnost (VR) in sledenjem očesnih gibov.

METODE: študija je vključevala 18 bolnikov s SDM (7 moških, 11 žensk; mediana starost 85,5, razpon 70-91 let; in 11 zdravih kontrol (2 moška, 9 žensk; mediana starost 65, razpon 57-78 let). Mediana nekorigirane ostrine vida na boljšem očesu je bila pri bolnikih 0,1 (razpon 0,01-0,5) in pri zdravih 1,00 (razpon, 0,6 – 1,00). Vsi preiskovanci so imeli manj kot 2,00 refraktivne napake (sferični ekvivalent).Preiskovanci so opravili testiranje z IC FACES (Sythesius), ki je bil sestavljen iz 13 obrazov znanih ljudi, predstavljenih na VR zaslonu za največ 10 sekund. Pri testu so zaslon opazovali binokularno in brez korekcije. Analiza je vključevala število prepoznanih obrazov, trajanje do prepoznave in kvalitativno oceno vzorcev fiksacije. Z namenom opredelitve vpliva kognitivnega funkcioniranja na prepoznavo obrazov, so bolniki s SDM so opravili tudi modificiran test za demenco (MoCA – brez vizualnega dela testa). Opazili smo trend slabše prepoznave obrazov pri bolnikih s slabšim rezultatom na modificiranem MoCA testu, vendar povezava ni bila signifikantna.

REZULTATI: Bolniki so prepoznali signifikantno nižje število obrazov kot kontrole (mediana 5,5 v primerjavi z 12,0 pri zdravih, $p < 0,00001$). Bolniki so prav tako potrebovali dlje časa do prepoznave obraza kot kontrole (mediana 3,75s v primerjavi z 2,00s pri zdravih; $p < 0,001$). Fiksacijske točke pri večini preiskovancev so zajele regije okrog oči in ust. Kvalitativno se niso bistveno razlikovale pri bolnikih in kontrolah.

ZAKLJUČEK: VR s slednjem očesnih gibov je moderni sistem za preučevanje fiksacijskih vzorcev pri bolnikih z izgubo vida. S študijo smo kvantificirali problem zaznave obrazov bolnikov s SDM. Slednji so bili sposobni prepoznati le približno polovico prikazanih obrazov in so potrebovali približno dvakrat dalj časa za prepoznavo. Fiksacijski vzorci so bili podobni kot pri zdravih preiskovancih. Demenca je verjetno dodaten dejavnik, ki otežuje prepoznavo obrazov pri bolnikih s SDM, vendar je potrebna večja študija za opredelitev stopnje vpliva.

PURPOSE: to determine the characteristics of face recognition patterns in patients with age related macular degeneration (ARMD) using virtual reality (VR) headset with eyetracking.

METHODS: study included 18 patients with ARMD (7 male, 11 female; median age 85,5, range 70-91 years and

11 healthy controls (2 male, 9 female; median age 65, range 57-78 years). The median uncorrected visual acuity of ARMD patients on the better eye was 0,1 Snellen decimal (range 0,01-0,5); and 1,0 (range, 0,6-1,0) in controls. All had less than 2,00 refractive error (spheric equivalent). Participants underwent testing with IC FACES (Synthesius) that consisted of faces of 13 famous people, presented on a VR screen for a maximum duration of 10 seconds. The screen was viewed binocularly without refractive correction. Analysis included the number of recognized faces, duration to recognition of the faces that were recognized and qualitative assessment of fixation patterns. In order to control for the effect of cognitive functioning on face recognition, patients with ARMD also undertook a modified test for dementia (MoCA; without the visual part of the test).

RESULTS: ARMD patients recognized significantly lower number of faces than controls (median 5,5 vs 12,0, $p < 0,00001$) and took a longer time to recognize each face than controls (median 3,75 vs. 2,00 seconds; $p < 0,001$). Fixation points in most participants consisted of regions around the eyes and mouths. They did not significantly differ qualitatively between patients and control. There was a trend of poorer face recognition in patients with lower modified MoCA test score, however the correlation was not significant.

CONCLUSION: VR headset with eyetracking is a novel system to study fixation patterns in patients with visual loss. The study quantified face recognition problems in ARMD patients, who were able to recognize only approximately half of presented faces and took approximately twice longer to recognize each face. The fixation patterns however were similar than in normally sighted controls. Dementia may be an additional factor affecting face recognition in ARMD patients, however a larger study is needed to explore the degree of its effect.

OCENA BARVNEGA VIDA Z METODO ODDALJENEGA SLEDENJA OČESNIH GIBOV

COLOUR VISION ASSESSMENT USING THE REMOTE EYE TRACKING METHOD

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NAMEN: Barvni vid pomeni sposobnost ločevanja 2 svetlobnih dražljajev različnih valovnih dolžin. Trenutno uporabljeni testi za oceno motenj barvnega vida so subjektivni in niso izvedljivi pri populaciji z omejenimi komunikacijskimi sposobnostmi, zlasti pri otrocih. Namen raziskave je razviti objektivno metodo za testiranje barvnega vida, ki za izvedbo ne zahteva komunikacije.

METODE: V prvi del raziskave je bilo vključenih 10 odraslih z normalno vidno ostrino in barvnim vidom. Za vsakega preiskovanca je bilo potrebno umeriti napravo za sledenje očesnim gibom (Tobii Pro X3 120), pritrjeno vzdolž roba računalniškega zaslona. Nato smo na sredino ekrana pritrdili nosilec s 5 dražljaji iz Mollon-Refin-minimalsit testa (MRM), ki vključuje 3 serije barvnih dražljajev (protan-P, deutan-D in tritan-T osi). Uporabili smo 3 nasičenosti vzdolž vsake osi. Testiranje se je začelo s pritegnitvenim dražljajem (PD) v obliki risanke, pred prvo sejo smo v nosilec vstavili 5 dražljajev MRM testa (1 barvni in 4 sivi motilci). V vsaki naslednji seji iste barvne osi je bila nasičenost dražljaja nižja. Vsaka seja je trajala 5 sekund, vseh sej je bilo 9.

REZULTATI: Vsi presikovanci so uspešno zaključili test. Iz podatkov smo izračunali povprečno vrednost časa porabljenega za gledanje barvnega dražljaja in povprečno vrednost časa porabljenega za gledanje vseh dražljajev skupaj pri dani seji za vseh 10 preiskovancev, iz česar smo izračunali delež časa, ki ga je v eni celotni seji preiskovanec porabil za gledanje samo v barvni dražljaj, in ga izrazili v odstotkih. Za prag uspešne zaznave dražljaja smo določili 75%. Povprečja deležev časov porabljenih za gledanje barvnega dražljaja vseh treh nasičenosti so za posamično barvno os znašala za P-94,6%, za D-91,4% in za T-91,2%. Za vse tri osi tudi velja, da je delež časa, ko preiskovanec gleda najbolj nasičen dražljaj (P-94,8%;D-96,4%;T-95,0%) višji od deleža časa, ko gleda najmanj nasičen dražljaj (P-91,9%;D-83,8%;T-82,8%).

ZAKLJUČEK: Testiranje barvnega vida z napravo za sledenje očesnih gibov se je pri odraslih izkazalo za učinkovito, saj so vsi preiskovanci uspešno zaznali dražljaje vseh 3 nasičenosti v vseh 3 barvnih oseh. Raziskava je pokazala, da je P-os je najobčutljivejša, nasičeni dražljaji so občutljivejši od manj nasičenih.

PURPOSE: Colour vision is the ability to distinguish between 2 light stimuli of different wavelengths. The tests currently used to assess colour vision disorders are subjective and not feasible in populations with limited communication abilities, especially children. The aim of this study is to develop an objective method for colour vision testing that does not require communication.

METHODS: 10 adults with normal visual acuity and colour vision were included in the first part of the study. Calibration of a remote eye tracking device (Tobii Pro X3 120) mounted along the edge of a computer screen was performed for each subject. A stimulus holder containing stimuli from Mollon-Refin-minimalist (MRM) test was attached to the centre of the computer screen. 3 series of colour stimuli (P-proton, D-deutane and T-tritan axes) with 3 saturations along each axis, were applied. Testing started with a cartoon attraction stimulus (AS). After the AS, we started the first session and inserted 5 stimuli (1 colour, 4 grey distractors) into the holder, from most to least saturated stimulus in each axis. Procedure consisted of 9 sessions (5sek each).

RESULTS: All subjects have successfully completed the test. We calculated the mean value of the time spent looking at the colour stimulus and the mean value of the time spent looking at all stimuli combined in a given session for all 10 subjects, from which we calculated the proportion of time spent by a subject looking at the colour stimulus alone in one complete session and expressed it as a percentage. The threshold for successful stimulus detection was set at 75%. The averages of the proportions of times spent looking at the colour stimulus of all three saturations for a single colour axis were P-94.6%, D-91.4% and T-91.2%. For all three axes, the proportion of time spent looking at the most saturated stimulus (P-94,8%;D-96,4%;T-95,0%) is higher than the proportion of time spent looking at the least saturated stimulus (P-91,9%;D-83,8%;T-82,8%).

CONCLUSION: Colour vision testing with an eye tracker proved to be effective in adults, as all subjects successfully perceived stimuli of all 3 saturations in all 3 colour axes. It was demonstrated that P-axis is most sensitive of all three. Sensitivity also decreased with decreasing stimulus saturation.

MORFOLOGIJA ENDOTELNIH CELIC ROŽENICE PO USPEŠNEM POSEGU DESCEMETOREKSE BREZ PRESADITVE ENDOTELA (DWEK)

CORNEAL ENDOTHELIAL CELL MORPHOLOGY AFTER SUCCESSFUL DESCEMETORHEXIS WITHOUT ENDOTHELIAL KERATOPLASTY (DWEK)

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Predstavljamo primera dveh bolnic s Fuchsovo endotelno distrofijo, pri katerih je bil uspešno opravljen postopek descemetorekse brez presaditve endotela (DWEK). Obe bolnici imata po koncu sledenja na operiranem očesu dobro vidno ostrino in povsem prozorno roženico, razlikuje pa se morfologija roženičnih endotelnih celic v centralnem področju roženice.

Bolnici s Fuchsovo endotelno roženično distrofijo, stari 55 in 69 let, sta bili leta 2019 prvič pregledani v ambulanti za bolezni roženice. Ob prvem pregledu sta imeli centralno na roženici izrazito konfluentno gutato in centralno debelino roženice 768 in 605 mikrometrov. Pri obeh bolnicah je bil opravljen kombiniran poseg operacije katarakte in descemetorekse brez presaditve endotela na slabši roženici. Pri obeh se je roženica zbistrila že v roku 1 meseca, centralni del roženice je bil popolnoma brez gut, prozoren in brez edema. Na kontrolnem pregledu 3 mesece po posegu se je debelina centralnega dela roženice pri prvi bolnici zmanjšala za 209 in pri drugi za 99 mikrometrov, bolnici sta dosegli najboljšo korigirano vidno ostrino 1,0 in 0,8. Ob koncu sledenja (po 4 in 3 letih) sta roženici še vedno prozorni in vidna ostrina stabilna. Opazili pa smo razlike med roženicama v morfologiji endotelnih celic centralnega dela roženice na spekularni mikroskopiji – celice so podobne velikosti, vendar so pri eni od bolnic prisotni znaki novonastalih izboklin in zabrisanih medceličnih stikov.

Iz predstavljenih primerov lahko povzamemo, da je DWEK dobra alternativa transplantaciji roženice pri določenih bolnikih s Fuchsovo endotelno distrofijo, vendar obstajajo razlike med roženicami v morfologiji novonastalega endotela na mestu odstranjene Descemetove membrane.

This is a case series of two patients diagnosed with Fuchs endothelial corneal dystrophy in whom successful descemetorhexis without endothelial keratoplasty (DWEK) was performed. Approximately 4 years on, they show comparable outcome in terms of best corrected visual acuity (BCVA), central corneal clarity and central corneal thickness, but exhibit different corneal endothelial cell morphology.

Then 55- and 69-year-old females with Fuchs endothelial corneal dystrophy first presented to corneal outpatient department in 2019 with confluent central guttata and central corneal thickness of 768 in 605 micrometres, respectively. They underwent combined phacoemulsification and DMEK procedure. One month later both patients showed markedly improved clinical corneal appearance with central corneas completely devoid of guttae, transparent, and no central corneal oedema present in either. At the follow up 3 months after the procedure, central corneal thickness decreased for 209 and 99 micrometres, and BCVA reached 1.0 and 0.8, respectively. Some 4 years after the surgery, BCVA remains stable and central corneas completely transparent. Interestingly, on specular microscopy the patients show different central corneal endothelial cell morphology. Whereas the cells are of similar sizes, there are signs of newly developed excrescences and uneven cell borders in one of the patients.

In conclusion, DMEK is a viable alternative to corneal transplantation procedures in specific early cases of Fuchs endothelial dystrophy, although there are differences in corneal endothelial cell morphology even between successful cases.

HETEROGENOST KLINIČNE SLIKE IN DIAGNOSTIČNI KRITERIJI STARGARDTOVE BOLEZNI

CLINICAL HETEROGENEITY AND DIAGNOSTIC CRITERIA OF STARGARDT DISEASE

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NAMEN: Opisati heterogenost klinične slike in tipične značilnosti bolnikov s Stargardtovo boleznijo (STGD1).

METODE: Predstavljamo tri tipične bolnike z različnimi kliničnimi slikami, ki jih lahko vidimo pri STGD1. Pri vseh treh je bila bolezen genetsko potrjena z metodami nove generacije. Primerjali smo starost ob začetku simptomov, vidno ostrino (VA), avtofluorescenco očesnega ozadja (AF), optično koherentno tomografijo (OCT) in elektrofiziološke (ERG) preiskave.

REZULTATI: Prva bolnica, nosilka različic p.(Gly550Arg) in p.(Gly1961Glu) v genu ABCA4, je pričela opažati težave z vidom v starosti 14 let. V starosti 65 let je bila njena VA štetje prstov na 1 meter, AF je pokazala hiper- in hipoAF lise v makuli in ohranjeno mrežnico okoli papile, OCT je pokazal odsotne fotoreceptorje v fovei, na ERG pa je bila funkcija makule in periferne mrežnice v mejah normale. Druga bolnica, nosilka različic p.(Trp431*)(;)(Met1777Leu) in p.(Asn1868Ile) v genu ABCA4, je pričela opažati težave kasneje, v starosti 42 let. V starosti 52 let je imela VA po Snellenu še vedno 1,0, AF je pokazala hiper in hipoAF lise v makuli in ohranjeno mrežnico okoli papile, OCT je pokazal parafoveolarno odsotnost fotoreceptorjev z ohranjeno foveo (t.i. »foveal sparing«), ERG pa znižano funkcijo makule v parafoveolarnem področju in ohranjeno funkcijo periferne mrežnice. Tretji bolnik, nosilec različic p.(Ser1993fs) in p.[Thr1821Aspfs*6,Thr1821Valfs*13] v genu ABCA4, je pričel opažati težave že v starosti 9 let. V starosti 20 let je bila njegova vidna ostrina štetje prstov na 2,5 metra. Na slikah AF je bila vidna večja hipoAF lezija centralno in posamezne manjše hiper- ter hipoAF spremembe periferne mrežnice, ki so segale izven žilnih lokov, ter ohranjena mrežnico okoli papile. Na OCT je bila vidna obsežna atrofija fotoreceptorjev v makuli, ERG pa je pokazal znake generalizirane disfunkcije mrežnice, tako sistema čepnic kot paličnic.

ZAKLJUČEK: Kljub temu, da imajo bolniki s STGD1 izjemno raznoliko klinično prezentacijo (npr. distrofija makule ali distrofija čepnic in paličnic, atrofija ali ohranjenost fovee), si lahko pri prepoznavi bolezni pomagamo s tremi znaki, ki so prisotni pri večini bolnikov: atrofija fotoreceptorjev v makuli, hiperAF lise in ohranjenost mrežnice ob papili. Zaradi možnosti atipičnih primerov STGD1 in fenotipskega prekrivanja z drugimi boleznimi mrežnice, pa je za dokončno potrditev diagnoze kljub temu ključna genetska potrditev bolezni.

PURPOSE: This study aimed to describe phenotypic heterogeneity and typical characteristics of patients with Stargardt disease (STGD1).

METHODS: We present three typical patients with different clinical features of STGD1. The patients had the disease genetically confirmed with next-generation sequencing methods. We analysed age at onset, visual acuity (VA), fundus autofluorescence (AF), optical coherence tomography (OCT) and electroretinography (ERG).

RESULTS: Age at onset of the first female patient, harbouring p.(Gly550Arg) and p.(Gly1961Glu) in the ABCA4 gene, was 14 years. At the age of 65 years, her VA was counting fingers at 1 meter, AF showed hyper- and hypoAF lesions in the macula and preserved retina around the papilla, OCT displayed absent photoreceptors in the fovea, while macular function and the function of the peripheral retina was normal. Age at onset of the second patient, harbouring p.(Trp431*)(;)(Met1777Leu) and p.(Asn1868Ile) in the ABCA4 gene, was later at the age of 42 years. At the age of 52 years, her VA was still 1.0 decimal Snellen, AF showed hyper- and hypoAF lesions in the macula and preserved retina around the papilla, OCT displayed parafoveal absence of photoreceptors with preserved fovea (i.e., »foveal sparing«), while ERG showed reduced macular function in the parafoveal area and preserved function of the peripheral retina. Age at onset of the third male patient, harbouring p.(Ser1993fs) and p.[Thr1821Aspfs*6,Thr1821Valfs*13] in the ABCA4 gene, was already at 9 years. At the age of 20 years, his VA was counting fingers at 2.5 meters, AF showed larger hypoAF lesion centrally and individual smaller hyper- and hypoAF changes of the peripheral retina, reaching outside vascular arcades. Peripapillary sparing was also observed on AF images. OCT showed extensive atrophy of photoreceptors in the macula, while ERG displayed signs of generalised cone-rod dysfunction.

CONCLUSION: Even though the clinical presentation of Slovenian STGD1 patients is extremely diverse (e.g., macular dystrophy or dystrophy of cones and rods, atrophy or preservation of the fovea), the three common clinical characteristics present in the majority of patients help us to recognise the disease: macular atrophy of photoreceptors, hyperAF flecks and peripapillary sparing. However, genetic confirmation is crucial for the final disease confirmation due to the possibility of atypical STGD1 cases and phenotype often overlapping with other retinal diseases.

AKUTNA SLEPOTA KOT POSLEDICA RAZSEJANEGA PLJUČNEGA KARCINOMA

ACUTE VISION LOSS SECONDARY TO METASTATIC LUNG CARCINOMA

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NAMEN: Predstaviti primer pacienta z nenadno slepoto na edinem funkcionalnem očesu.

METODE: Predstavitev kliničnega primera.

REZULTATI: 69-letni gospod po operativnem zdravljenju adenokarcinoma pljuč, brez znanega recidiva, je bil pri nas obravnavan zaradi nekaj ur trajajoče prehodne izgube vida na levo, edino funkcionalno oko. Težave so se stopnjevale, tretji dan je prišlo do popolne slepote. V očesnem pregledu smo beležili upad vidne ostrine levega očesa z 1,0 pred nastopom težav, na 0,7 ob nastopu težav in tretji dan brez zaznave svetlobe. Očesni status z opravljenim OCT mrežnice in papile levega očesa je bil brez odstopanj, ob nastopu amavroze je bila leva zenica širša in slabše reaktivna. Gospod je bil napoten na nujno nevrološko obravnavo, CT in MR glave sta pokazala možganske metastaze, LP in citološke preiskave so potrdile adenokarcinozo mening z origom v pljučih. Pacient je prejel paliativno oskrbo; sistemsko zdravljenje z deksametazonom in obsevanje. Ob zadnjem pregledu je VLO brez zaznave svetlobe, leva zenica srednje široka in nereaktivna na osvetlitev.

ZAKLJUČEK: Prisotnost enega funkcionalnega očesa predstavlja izziv pri opredelitvi vzrokov nenadne izgube vida. Ob znanem onkološkem obolenju je nujna slikovna diagnostika glave za izključevanje metastatske bolezni.

PURPOSE: To present a case of complete vision loss in a patient with one functional eye.

METHODS: Case report.

RESULTS: 69-year-old male after surgical treatment of lung adenocarcinoma with no known recurrence, presented with transitory loss of vision in the only functional, left eye. On the third day, he presented with complete blindness. BCVA before presentation was 1,0, at presentation 0,7, and on the third day NLP. Ophthalmic examination with retinal and papilla OCT was unremarkable, with left mid-mydriasis and diminished pupillary response upon presentation with amaurosis. Upon urgent referral to a neurologist, head CT and MRI revealed cerebral metastases, LP and CF cytology confirmed meningeal adenocarcinosis originating from lungs. Patient received palliative care; systemic dexamethasone and radiotherapy. Upon follow-up, BCVA remained NLP, left pupil was mydriatic and unresponsive.

CONCLUSION: Presence of one functional eye presents a challenge in determining the cause of sudden blindness. In patients with a history of oncologic conditions it is imperative to perform head imaging in case of metastatic disease.

VZORCI MREŽNIČNE OKVARE PRI NOSILKAH PATOGENIH RAZLIČIC V RPGR IN RP2

PATTERNS OF RETINAL DEGENERATION IN FEMALE CARRIERS OF PATHOGENIC VARIANTS IN RPGR AND RP2

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NAMEN: Gena RPGR in RP2 se dedujeta X-vezano in zapisujeta beljakovini, ki imata v fotoreceptorjih vlogo pri transportu fototransdukcijskih beljakovin. Njune patogene različice povzročajo pri moških pigmentno retinopatijo (RP), pri ženskah pa zaradi naključne inaktivacije X-kromosoma različen spekter prizadetosti mrežnice.

METODE: Vključenih je bilo slovenskih 8 žensk s heterozigotno patogeno različico v RPGR (N=6) ali RP2 (N=2), starih od 6 do 73 let. Retrospektivno smo pregledali podatke o vidni ostrini (VO) (Snellen), vidnem polju (VP– Octopus G2 top, C-Goldmann ali mikroperimetrija), avtofluorescenco (AF) očesnega ozadja, optično koherentno tomografijo (OCT) in elektrofiziološke (ERG) odzive. Glede na vzorec AF smo bolnice razdelili v štiri skupine: 1) normalen ali skoraj normalni, 2) radiarni, 3) fokalni in 4) moški vzorec.

REZULTATI: 2 ženski sta imeli normalen, 2 fokalni, 2 radiarni, 1 kombinacijo fokalnega na enem in moškega na drugem očesu ter 1 moški vzorec na obeh očesih. Ženski z normalnim vzorcem sta imeli ob prvem pregledu (10 in 35 let) povprečno VO 1,0, VP je bilo pri mlajši v mejah normale, pri starejši pa z otočki zmanjšane občutljivosti. ERG ni bil opravljen. Po 1 in 2 letih spremljanja ni bilo sprememb. Ženski s fokalnim vzorcem sta imeli ob prvem pregledu (45 in 66 let) povprečno VO 0,8 (0,5-1,0), VP je pokazalo asimetrično področje zmanjšane občutljivosti. ERG je pri obeh pokazal asimetrično znižane odzive paličnic ter ohranjene vendar znižane in zakasnele odzive čepnic. Spremljali smo mlajšo bolnico, ki je imela ob zadnjem pregledu po 21 letih (66 let) zmanjšano VO in zoženo VP, mikroperimetrija je pokazala dobro centralno fiksacijo in ohranjeno občutljivost mrežnice v zgornjem polu. Ženski z radiarnim vzorcem sta imeli ob prvem pregledu (6 in 28 let) povprečno VO 0,8 (0,5-1,0) ter zoženo VP. ERG je pri mlajši pokazal znižane odzive paličnic in normalne odzive čepnic. Pri mlajši bolnici smo po 4 letih (10 let) opazili zmanjšano VO ter zoženo VP. Ženska s kombinacijo fokalnega na enem in moškega vzorca na drugem očesu je imela ob prvem pregledu (51 let) na očesu s fokalnim vzorcem VO 1,0, VP je pokazalo skotom temporalno; na očesu z moškim vzorcem pa je bila VO ob prvem pregledu 0,4, VP je bilo koncentrično zoženo. ERG je pokazal asimetrično znižane odzive paličnic ter ohranjene vendar znižane in zakasnele odzive čepnic. Longitudinalno smo opazili zmanjšano VO ter zoženo VP. Ženska z moškim vzorcem je imela ob prvem pregledu (73 let) zelo slabo VO (dojem-), ostale preiskave niso bile izvedljive.

ZAKLJUČEK: Spremembe AF pri ženskih nosilkah patogenih različic v X-vezanih RP genih so patognomonične in lahko pomagajo usmeriti družinsko diagnostiko.

PURPOSE: RPGR and RP2 genes have X-linked inheritance and encode proteins that play a significant role in transport of photoreceptors' phototransduction components. Pathogenic variants in males cause retinitis pigmentosa (RP), in females the severity of retinal degeneration varies due to the skewed X-chromosome inactivation.

METHODS: 8 Slovenian female patients were recruited, harbouring pathogenic variants in RPGR (N=6) or RP2

(N=2), aged 6-73 years. Retrospectively we collected data of their visual acuity (VA) (Snellen decimal), visual field (VF–Octopus G2 top, C-Goldmann or microperimetry), fundus autofluorescence (FAF), optical coherence tomography (OCT) and electrophysiology (ERG). Due to different AF patterns, we divided patients into 4 groups: 1) normal, 2) radial, 3) focal and 4) male pattern.

RESULTS: 2 females had normal pattern, 2 focal, 2 radial, 1 combination of focal in one eye and male in other eye; and 1 male pattern in both eyes. Females with normal pattern had at their first examination (10 and 35 years) average VA 1.0, VF in younger patient was normal, whereas older patient had some spots of reduced sensitivity. ERG was not performed. After 1 and 2 years they had no worsening yet. Females with focal pattern had at their first examination (45 and 66 years) average VA 0.8 (0.5-1.0), VF showed asymmetrical area of reduced sensitivity.

ERG in both showed asymmetrically reduced rod specific and preserved but reduced and delayed cone specific responses. After 21 years (66 years), younger patient showed reduced VA and constricted VF. Microperimetry showed good central fixation and preserved retinal sensitivity in the upper pole. Females with radial pattern had at their first examination (6 and 28 years) average VA 0.8 (0.5-1.0) and constricted VF. ERG performed in younger patient showed reduced rod specific and normal cone specific responses. After 4 years (10 years) the younger patient showed reduced VA and constricted VF. 1 female with combination of focal pattern in one eye and male pattern in the other eye at first examination (51 years) her VA in the eye with focal pattern was 1.0, VF showed temporal scotoma; in the eye with male pattern her VA was 0.4 and VF was constricted concentrically. ERG showed asymmetrically reduced rod specific and preserved but reduced and delayed cone specific responses. On the last follow-up she showed reduced VA and constricted VF. Female with male pattern in both eyes at her first examination (73 years) was already legally blind and further examination was not performed.

CONCLUSION: Alterations in female FAF are pathognomonic and may lead to family diagnostics.

KRONIČNI BILATERALNI UVEITIS POVZROČEN S TROPHERYMA WHIPPLEI – PREDSTAVITEV PRIMERA

CHRONIC BILATERAL UVEITIS CAUSED BY TROPHERYMA WHIPPLEI INFECTION – CASE REPORT

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NAMEN: poudariti pomen temeljite diagnostične obravnave v primerih kroničnega uveitisa, še posebej pri bolnikih s sistemskimi simptomi.

METODE: predstavitev primera

REZULTATI: predstavljamo redek primer kroničnega, bilateralnega uveitisa pri 55 letni ženski, ki ga je povzročila Tropheryma whippelii. Dva tedna po operaciji sive mrene se je pojavil meglen vid, stanje se je slabšalo. Nekaj dni pred sprejemom se je pojavila tudi hujša bolečina v predelu levega očesa. Leta 2018 je bil pri gospe diagnosticiran kronični anteriorni uveitis s sekluzijo zenice, ki se je po operaciji katarakte leta 2019, še poslabšal. V splošni anamnezi je bolnica navajala nehoteno izgubo telesne teže, slabosti, bolečine v trebuhu, zaprtost in sakroiliitis. Ob pregledu je bila vidna ostrina (VO) 0,2 na desnem očesu in 0,3 na levem. Gospa je bila v preteklosti obravnavana zaradi suma na T-celični limfom, ki je bil v naši ustanovi ovržen. Opravili smo obširno diagnostiko, opravljena je bila tudi biopsija steklovine. S PCR metodo smo iz steklovine in blata potrdili Trophery mo Whipplei. Intraokularno smo bolnico zdravili z vancomycinom. Uvedena je bila intravenska terapija s ceftriaksonom, nato pa dolgotrajna peroralna terapija z trimetoprim-sulfametoksazolom. Prejemala je tudi topikalno kortikosteroidno terapijo. Zdravljenje je privedlo do kliničnega izboljšanja stanja. Ob zadnjem pregledu smo ugotavljali izboljšanje stanja, brez aktivnega vnetja, VO na desnem očesu je bila 0,4, na levem pa 0,9-1,0.

ZAKLJUČEK: Temeljita diagnostična obravnava je v primerih kroničnega uveitisa izrednega pomena, še posebej pri bolnikih s sistemskimi simptomi, saj je Whipplova bolezen usodna, če se je ne prepozna in zdravi ustrezno.

PURPOSE: To report and highlights the importance of a thorough diagnostic work-up in cases of chronic uveitis, especially in patients with systemic symptoms.

METHODS: a case report

RESULTS: we describe a rare instance of chronic, bilateral uveitis caused by Tropheryma whippelii in a 55-year-old female. The patient presented with progressive blurred vision in the left eye, two weeks after cataract surgery, accompanied by stinging pain for the last four days. She had chronic anterior uveitis with pupillary seclusion in the right eye since 2018, which worsened after cataract surgery in 2019. The patient also had a history of weight loss, malaise, abdominal pain, obstipation, and sacroiliitis. Upon presentation, the patient's best-corrected visual acuity (BCVA) was 0.2 in the right eye and 0.3 in the left. An extended uveitis screening was performed, all of which were negative. A diagnostic pars plana vitrectomy was done. Tropheryma whipplei nucleic acid in the vitreous was confirmed with PCR, and later confirmed in stool samples as well. The diagnosis of Whipple's uveitis was made. Intraocular vancomycin, intravenous ceftriaxone, and a prolonged course of oral trimethoprim-sulfamethoxazole with topical corticosteroid therapy led to clinical improvement and recovery of visual acuity in the left eye. At the last check-up, the inflammation was quiet and BCVA in the right eye was 0.4 and in the left eye was 0.9-1.0.

CONCLUSION: Thorough diagnostic work-up in cases of chronic uveitis, especially in patients with systemic symptoms is of utmost importance, as Whipple disease can be fatal if not treated properly.

PRVA POTRJENA SLOVENSKA DRUŽINA Z DOMINANTNO NEOVASKULARNO VNETNO VITREORETINOPATIJO

THE FIRST CONFIRMED SLOVENIAN FAMILY WITH DOMINANT NEOVASCULAR INFLAMMATORY VITREORETINOPATHY

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NAMEN: Avtosomno dominantna neovaskularna vnetna vitreoretinopatija (ADNIV) je progresivna očesna bolezen povezana z različicami v CAPN5, za katero so značilni znaki uveitisa in distrofije mrežnice, v zadnjem stadiju vodi v ftizo zrkla. Namen raziskave je bil opredeliti spekter klinične slike pri prvi potrjeni slovenski družini z ADNIV.

METODE: Raziskava je vključevala bolnico (Bolnica 1) z različico p.Arg243Leu v CAPN5, njeno mamo (Bolnica 2) in bratranca po materini strani (Bolnik 3).

REZULTATI: Bolnica 1 je bila napotena na Očesno kliniko v starosti 40 let zaradi suma na distrofijo mrežnice.

Ob pregledu je bila najboljša korigirana vidna ostrina (BCVA) na desnem očesu (DO) 0,7 in na levem očesu (LO)

1,0. Prisoten je bil cistoidni makularni edem (CME) in pigmentacije v obliki kostnih celic. Elektrofiziologija (ERG) je prikazala znižan b-val, nakazujoč disfunkcijo na nivoju notranjih slojev mrežnice. Po štirih letih se je na avtofluorescenci (AF) pojavil hiperavtofluorescentni obroč, na ERG dodatno nižji a-val, nakazujoč abnormno funkcijo fotoreceptorjev (FR), na LO so bile v steklovini prisotne celice 1+. CME je dobro odgovoril na terapijo z acetazolamidom. Bolnica 2 je imela težave z vidom od 40. leta. Ob pregledu v starosti 64 let je zaznavala svetlobo, na DO je bila prisotna napredovala distrofija mrežnice s pigmentacijami v obliki kostnih celic in shizo makule na OCT, na LO pa gosta katarakta s posteriornimi sinehijami in nepreglednim ozadjem. Bolnik 3 se je vodil od 17. leta zaradi intermediarnega uveitisa s CME. V starosti 20 let je opravil ERG, ki je prikazal znižan b-val s prizadetostjo notranjih slojev mrežnice. V starosti 30 let so bile na DO v steklovini celice 1+ in na LO 2+. V starosti 29 let je imel operirano sivo mreno in za tem prejemal kortikosteroide intavitrealno, pri čemer je razvil sekundarni glavkom. CME je dobro odgovoril na terapijo z acetazolamidom, vendar je bil bolnik slabo sodelujoč pri jemanju terapije, zato je bila opravljena tudi trabekulektomija. Na zadnjem pregledu v starosti 34 let je bila prisotna napredovala glavkomska optična nevropatija z BCVA 0,2 obojestransko.

ZAKLJUČEK: Bolniki z ADNIV so imeli različno težke klinične slike z znaki mrežnične distrofije (znižan ERG, kostne celice) in uveitisa (CME, intermediarni uveitis). Zaradi progresivne narave bolezni in številnih možnih zapletov je pomembno kontinuirano spremljanje. Acetazolamid se je pri dveh bolnikih izkazal kot učinkovit pri zdravljenju CME.

PURPOSE: Autosomal dominant neovascular inflammatory vitreoretinopathy (ADNIV) is a progressive eye disease associated with variants in CAPN5, characterised by uveitis and retinal dystrophy, leading to end-stage eyeball phthisis. The aim of the study was to define the spectrum of clinical presentation in the first confirmed Slovenian family with ADNIV.

METHODS: The study included a patient (female; Patient 1) with the p.Arg243Leu variant in CAPN5, her mother (Patient 2) and a maternal cousin (male; Patient 3).

RESULTS: Patient 1 was referred to the Eye Hospital at the age of 40 years for suspected retinal dystrophy. On examination, best corrected visual acuity (BCVA) in the right eye (RE) was 0.7 and in the left eye (LE) 1.0. Cystoid macular edema (CME) and spicules were present. Electrophysiology (ERG) showed a decreased b-wave, suggesting dysfunction at the level of the inner retinal layers. Four years later, autofluorescence (AF) showed a hyperautofluorescent ring, ERG showed an additional lower a-wave, suggesting abnormal photoreceptor function (FR), and 1+ cells in the vitreous in the LE. CME responded well to acetazolamide therapy. Patient 2 had visual problems since the age of 40. On examination at the age of 64 years, she had light perception, advanced retinal dystrophy with bone spicules and macular schisis on OCT in the RE and dense cataract with posterior synechiae and opaque background in the LE. Patient 3 was managed since the age of 17 for intermediate uveitis with CME. At the age of 20, he underwent an ERG showing a decreased b-wave with involvement of the inner retinal

layers. At the age of 30 years, there were vitreous cells 1+ in the RE and 2+ in the LE. At the age of 29 years, he had cataract surgery and was treated with intravitreal corticosteroids and developed a secondary glaucoma. The CME responded well to acetazolamide therapy, but the patient was not very cooperative with therapy and a trabeculectomy was performed. At the last follow-up at the age of 34 years, there was advanced glaucomatous optic neuropathy with a BCVA of 0.2 bilaterally.

CONCLUSION: Patients with ADNIV had clinical pictures of varying severity with signs of retinal dystrophy (decreased ERG, bone spicules) and uveitis (CME, intermediate uveitis). Continuous follow-up is important due to the progressive nature of the disease and the many potential complications. Acetazolamide has been shown to be effective in the treatment of CME in two patients.

ZDRAVLJENJE NEINFEKCIJSKIH OČESNIH VNETNIH STANJ, ODPORNIH NA MULTIPLO SISTEMSKO IMUNOMODULATORNO TERAPIJO, Z ZAVIRALCI JANUS KINAZE – PREDSTAVITEV PRIMEROV

TREATMENT OF NON-INFECTIOUS OCULAR INFLAMMATORY CONDITIONS, RESISTANT TO MULTIPLE SYSTEMIC IMMUNOMODULATORY THERAPY, WITH JANUS KINASE INHIBITORS - CASE SERIES

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NAMEN: Predstavitev treh kliničnih primerov bolnikov z neinfekcijskimi očesnimi vnetnimi stanji, rezistentnimi na multiplo sistemsko imunomodulatorno terapijo, ki smo jih uspešno zdravili z zaviralci janus kinaz (JAK).

METODE: Retrospektivni pregled dokumentacije treh bolnikov z očesnim vnetnim stanjem rezistentnim na imunomodulatorno zdravljenje, pri katerih smo kot izhodno zdravljenje uvedli terapijo z zaviralci JAK.

REZULTATI: Vključili smo bolnico z obojestranskim panuveitisom, bolnika z anteriornim in intermediarnim uveitisom (AIU) in bolnika z obojestranskim recidivantnim skleritisom. Pri vseh bolnikih je bila opravljena obsežna laboratorijska in slikovna diagnostika, s katero je bila izključena infekcijska in sistemska vnetna etiologija. Vsi bolniki so bili sprva zdravljeni s sistemskimi kortikosteroidi, po katerih je prišlo do prehodnega izboljšanja. Pri vseh treh bolnikih je bila ob poslabšanju uvedena sistemska imunomodulatorna terapija, med drugim metotreksat, eno ali dvotirna terapija z mofetil mikofenolatom in adalimumabom in ob vztrajajočem vnetju sistemska terapija s takrolimusom. Bolnika s skleritisom in bolnik z AIU sta bila zdravljena tudi lokalno, eden striamcinolon acetonidom (TA) subtenonialno in eden z dexametazonskim intravitrealnim vsadkom. Pri vseh bolnikih je vnetje kljub zdravljenju vztrajalo, vidna ostrina je upadala, razvila se je katarakta. Pri enem bolniku je bila opravljena operacija katarakte. Pri obeh bolnikih z uveitisom je prišlo do nastanka cistoidnega makularnega edema (CME) in epiretinalne membrane (ERM). Bolnik z AIU uveitisom je razvil sekundarni glavkom, zaradi česar je bila potrebna trabekulektomija. Pri vseh bolnikih smo kot izhodno terapijo uvedli zaviralec JAK baricitinib, po čemer je pri dveh bolnikih prišlo do umiritve vnetja, pri bolniku z AIU pa je bil baricitinib kasneje zamenjan z upadacitinibom. Ob terapiji z zaviralci JAK in dodatni lokalni terapiji s TA subtenonialno oziroma z dexametazonskim intravitrealnim vsadkom je pri vseh bolnikih prišlo do kliničnega in angiografskega izboljšanja z izboljšanjem vidne ostrine.

ZAKLJUČEK: Sistemska terapija z zaviralci JAK je učinkovita reševalna terapija pri očesnih vnetnih stanjih, zlasti pri uveitisu ali skleritisu, odpornih na zdravljenje s konvencionalno imunomodulatorno terapijo ter biološkimi zdravili, vključno z zaviralci dejavnika tumorske nekroze alfa (TNF-α).

PURPOSE: To present three cases of noninfectious ocular inflammation refractory to conventional immunomodulatory treatment, were inflammation was relieved with Janus kinase (JAK) inhibitors.

METHODS: A retrospective analysis of three cases of noninfectious ocular inflammation in patients that did not respond to treatment with conventional immunomodulatory treatment and were consequently treated with JAK inhibitors.

RESULTS: We present a patient with bilateral panuveitis, a patient with anterior and intermediate uveitis (AIU) and a patient with bilateral scleritis. Extensive ocular and systemic diagnostic work-up was noncontributory. Patients were first treated with systemic corticosteroids with an initial improvement of inflammation that worsened upon tapering. They were started on corticosteroid sparing treatment. Monotherapy with methotrexate, mycophenolate mofetil, adalimumab or tacrolimus or combination therapy with adalimumab and mycophenolate mofetil was ineffective. Patient with refractory scleritis and patient with AUI received additional local therapy with subtenon triamcinolone acetonide (TA) injection and intravitreal dexamethasone implant. Despite multiple courses of immunomodulatory treatment inflammation persisted in all cases. Visual acuity (VA) gradually declined.

Epiretinal membrane (ERM) and cystoid macular oedema (CMO) developed in both patients with uveitis. All three patients developed cataract, cataract surgery was performed in one case. Secondary glaucoma developed in a patient with AIU, for which a trabeculectomy was performed. Since the inflammation was ongoing in all three patients they were all started on JAK inhibitor baricitinib, which was later exchanged for upadacitinib in one case. VA improved in all three cases and inflammation stabilized and remained quiet while continuing a combination of systemic immunomodulatory therapy with JAK inhibitors and local therapy with TA in one and intravitreal dexamethasone implant in another case.

CONCLUSION: These three cases show that JAK inhibitors relieve inflammation in patients with noninfectious uveitis and scleritis and are a promising treatment option, especially for patients who do not respond to conventional immunomodulatory treatment including treatment with tumour necrosis factor alpha (TNF- α) inhibitors.

PRISTOP K PACIENTU Z ROŽENIČNIM ASTIGMATIZMOM PRED OPERACIJO SIVE MRENE

APPROACH TO THE PATIENT WITH CORNEAL ASTIGMATISM BEFORE CATARACT SURGERY

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NAMEN: Operacija sive mrene je najpogosteje opravljen refraktivni poseg na očesu. S korekcijo roženičnega astigmatizma med operacijo sive mrene s torično IOL (intraokularno lečo) omogočimo pacientu, da bo po operaciji na daljavo lahko videl brez korekcije.

METODE: V našo raziskavo smo vključili 120 pacientov, ki so bili redno naročeni na predoperativni pregled za operacijo sive mrene. Paciente smo razdelili v dve skupini, ki sta bili po spolu in letih brez pomembnih statističnih razlik. 64 pacientov je bilo primernih za implantacijo toričnih IOL, 32 pacientov v prvi in 32 pacietov v drugi skupini. Prvi skupini pacientov smo o pomembnosti in koristi operacije s torično IOL razlagali 2 do 3 min, drugi skupini pacientov pa 20 do 30 minut.

REZULTATI: V prvi skupini pacientov se ja za torično IOL odločilo 6 od 32 pacientov, v drugi skupini pa 16 od 32 pacientov.

ZAKLJUČEK: Pri pacientih z roženičnim astigmatizmom je izrednega pomena, da se pred operacijo sive mrene natančno pogovorimo o pričakovanem pooperativnem rezultatu glede kvalitete vida in potrebe po nošenju očal.

PURPOSE: Cataract surgery is the most frequently performed refractive procedure. By correcting corneal astigmatism during cataract surgery with a toric IOL (intraocular lens), we enable best uncorrected far vision for the patient.

METHODS: 120 patients, regularly scheduled for a preoperative examination before cataract surgery, were included in our study. The patients were divided into two groups with no significant statistical differences in terms of gender and age. 64 patients were suitable for toric IOL implantation, 32 patients in the first group and 32 patients in the second group. We explained the importance and benefits of toric IOL implantation to the first group for 2 to 3 minutes, and to the second group for 20 to 30 minutes.

RESULTS: In the first group, 6 out of 32 patients decided for toric IOL implantation, and in the second group 16 out of 32.

CONCLUSION: It is extremely important to properly discuss the expected postoperative result regarding the need for spectacles and quality of life in patients with corneal astigmatism undergoing cataract surgery.

INTRASKLERALNA FIKSACIJA ZNOTRAJOČESNE LEČE S TEHNIKO YAMANE PRI PEDIATRIČNIH PACIENTIH

INTRAOCULAR LENS IMPLANTATION WITH INTRASCLERAL FIXATION TECHNIQUE IN PEDIATRIC EYES WITH INSUFFICIENT CAPSULAR SUPPORT

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NAMEN: Namen je predstaviti serijo otrok, zdravljenih z intraskleralno fiksacijo znotrajočesne leče (IOL) z modificirano tehniko Yamane zaradi nezadostne kapsularne podpore.

METODE: V retrospektivni študiji smo analizirali klinične podatke otrok po intraskleralni fiksaciji IOL s tehniko Yamane, opravljeni s strani istega operaterja, v obdobju od aprila 2018 do marca 2023. Ocenjevali smo najboljšo korigirano vidno ostrino, astigmatizem, znotrajočesni tlak ter med- in pooperativne zaplete.

REZULTATI: V raziskavo je bilo vključenih skupno 20 oči 11 otrok, starih med 4 in 14 let, s povprečno starostjo ob operaciji 6,6 ± 2,6 let. Indikaciji za poseg sta bili ektopična leča idiopatsko [n=9] in sekundarno zaradi Marfanovega sindroma [n=9] ali homocistinurije [n=2]. Vidna ostrina pred operacijo je v povprečju znašala 0,22 ± 0,17, po operaciji pa 0,66 ± 0,27, s statistično značilno razliko (P < 0,001). Povprečni pooperativni astigmatizem je znašal 1,37 ± 0,67 (n=16). Znotrajočesni tlak je bil pri vseh pacientih tekom zdravljenja v mejah normale. Medoperativnih zapletov ni bilo. Pooperativno je 3 mesece po operaciji pri enem izmed otrok prišlo do ujetja šarenice za optiko IOL, potrebna je bila ponovna operacija za repozicijo IOL.

ZAKLJUČKI: Tehniko intraskleralne fiksacije IOL po Yamane je možno ustrezno prilagoditi otroškemu očesu. Zagotavlja stabilno fiksacijo IOL brez uporabe šivov ali lepila in omogoča doseganje dobre končne vidne ostrine ter nizko pojavnost neželenih med- in pooperativnih zapletov.

PURPOSE: To present a pediatric case series of intrascleral intraocular lens (IOL) fixation using modified Yamane technique due to insufficient capsular support.

METHODS: In a retrospective study, clinical data of pediatric patients after intrascleral IOL fixation using the Yamane technique were analysed. Surgeries were performed by a single surgeon between April 2018 and March 2023. Best-corrected visual acuity, astigmatism, intraocular pressure (IOP) and intra- and postoperative complications were collected.

RESULTS: A total of 20 eyes of 11 patients were included. Mean patient age at time of surgery was 6,6 ± 2,6 years (range, 4-14). Indications for scleral fixation were ectopic lens idiopathic [n=9] and secondary to Marfan syndrome [n=9] or homocystinuria [n=2]. The mean pre- and postoperative best-corrected visual acuities were 0,22 ± 0,17 and 0,66 ± 0,27, respectively (P < 0,001). The mean postoperative astigmatism was 1,37 ± 0,67 (n=16). IOP was within normal limits throughout the treatment in all patients. No major intraoperative complications occurred. One patient required IOL optic repositioning 3 months after surgery due to optic capture.

CONCLUSION: With minor adjustments, the Yamane technique can be adapted to the pediatric eye. It provides stable IOL fixation without the use of sutures or glue and good visual outcome with little intra- and postoperative complications.

ATIPIČEN POTEK ”BIRDSHOT” UVEITISA - IZZIV V VSAKODNEVNI PRAKSI

ATYPICAL PRESENTATION OF ”BIRDSHOT” UVEITIS - A CHALLENGE IN DAILY PRACTICE

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NAMEN: Prikaz pomena natančnih diagnostičnih postopkov z zdravljenjem pri bolniku z atipično klinično sliko ”birdshot” uveitisa.

METODE: Prikaz primera.

REZULTATI: 57-letni bolnik je bil k nam napoten za diagnostiko 3 mesece trajajočega slabšega vida na obe očesi. Zadnje 3 mesece je navajal tudi omotico in mravljince po telesu. Opravil je pregled pri nevrologu, ki je stanje opredelil kot etiološko nepojasnjeno ishemično možgansko kap, do pregleda pri nas je simptomatika izzvenela. Ob sprejemu je bila naboljša korigirana vidna ostrina desnega očesa 0,6, levega 1,0 (Snellen), zenične reakcije ter bulbomotorika so bili primerni. Klinično je bila obojestransko vidna vnetna eksudacija v sprednjem prekatu s posameznimi celicami in v steklovini (celice 1+) ter žilje neenakomernega kalibra s posameznimi krvavitvami po očesnem ozadju. Papili sta bili primerni ter ni bilo videti vnetnih žarišč horioretine. Preiskava vidnega polja je pokazala centralni skotom in povečano slepo pego. Na optični koherentni tomografiji makul je bil viden razredčen sloj RPE, brez tekočine v mrežnici ali pod njo. Fluorescinska angiografija (FA) mrežnice je potrdila vaskulitične spremembe mrežničnih ven brez ishemije mrežnice, na angiografiji z indocianinom (ICG) ni bilo videti specifičnih sprememb. Elektrofiziološke preiskave so pokazale generalizirano prizadetost mrežnice. Krvne preiskave za določitev infekcijskih/paraneoplastičnih/sistemskih avtoimunih vzrokov niso pokazale odstopanj, prav tako je bila slikovna diagnostika glave, srca in pljuč bila brez odstopanj. HLA tipizacija je pokazala prisotnost HLA-A 29 antigena. Glede na diagnostične kriterije je bila postavljena diagnoza ”birdshot” uveitisa. Bolnik je zaradi hitrega slabšanja vidne ostrine prejel 5 doz 500 mg metilprednizolona i.v., po čemer smo angiografsko beležili izboljšanje stanja. Zdravljenje smo nadaljevali s padajočimi dozami Medrola in mikofenolat mofetilom, uveden je adalimumab. Vnetje se je stabiliziralo, vidna ostrina je bila stabilna (desno 0,6 s korekcijo, levo 1,0 s korekcijo (Snellen)).

ZAKLJUČEK: ”Birdshot” uveitis je redka bolezen, ki pogosto poteka atipično in se manifestira z nespecifičnimi znaki, kar lahko vodi v zapoznelo potrditev diagnoze. Pri našem bolniku je koincidenca nevroloških težav še dodatno zavrla hitro diagnostiko. Brez ustreznega zdravljenja je prognoza vida tovrstnega uveitisa slabša kot pri večini drugih uveitičnih entitet.

PURPOSE: To present the importance of accurate diagnostic procedures with treatment in a patient with an atypical clinical course of ”birdshot” uveitis.

METHODS: Case presentation.

RESULTS: A 57-year-old patient was admitted for diagnostics due to a three-month-long vision impairment in both eyes. In the last 3 months he also had dizziness and tingling all over his body. The neurologist defined the condition as an etiologically unexplained ischemic stroke. By the time of the examination on our clinic, the symptoms had disappeared. The best corrected visual acuity of the right eye was 0.6 and of the left 1.0 (Snellen), pupillary light reflex and eye movements were normal. Clinically, inflammatory exudation was visible bilaterally in the anterior chamber with some cells and in the vitreous (cells 1+) and vascular attenuation with some hemorrhages on the fundus. The optic disc nerve bilaterally was normal, no chorioretinal inflammatory lesions were seen. Visual field examination revealed central scotoma and an enlarged blind spot. Optical coherence tomography showed rarefication of RPE, without fluid in or under the retina. Fluorescein angiography confirmed vasculitic changes of the veins without retinal ischemia and there were no specific changes on indocyanine green angiography. Electrophysiological examinations showed generalized involvement of the retina.

We made blood tests to determine infectious/paraneoplastic/systemic autoimmune causes, results were normal. Additionally, we performed imaging of the head, heart and lungs, which was normal. HLA typing showed the presence of HLA-A 29 antigen. A diagnosis of ”birdshot” uveitis was made. Due to the rapid deterioration of visual acuity, the patient received 5 doses of 500 mg methylprednisolone i.v., after which we detected improvement on angiography. Treatment was continued with decreasing doses of Medrol and mycophenolate mofetil, and adalimumab was introduced. The inflammation was controlled, visual acuity was stable (right eye 0.6, left eye 1.0 (Snellen)).

CONCLUSION: ”Birdshot” uveitis is a rare disease that often has an atypical course and initially manifests with non-specific signs, which can lead to delayed confirmation of the diagnosis. In our patient, the coincidence of neurological problems hindered rapid diagnosis. Without adequate treatment, the visual prognosis of this type of uveitis is worse than that of most other uveitic entities.

25 LET | *kliničnih raziskav v Sloveniji*

V 25 letih smo sponzorirali ali podprli 57 intervencijskih kliničnih raziskav, ki so gonilo razvoja in napredka v medicini, in s tem je več kot 780 bolnikov dobilo možnost inovativnega zdravljenja.

M-SI-00000814 (V2.0)
Informacija pripravljena v marcu 2023.

NOVO

Roche

Kjer se dva svetovov srečata

1 MOLEKULA

2 MEHANIZMA DELOVANJA[1,2]

3 INJEKCIJE LETNO V 2 LETU ZDRAVLJENJA[3,4]

VABYSMO®
faricimab 6 mg

Reference: 1. Heier JS, et al. Lancet. 2022; 399(10326):729-40; **2.** Wykoff CC, et al. Lancet. 2022; 399(10326): 741-755; **3.** Holz FG, et al. Predstavljeno na kongresu EURETINA 2022, Hamburg, Germany, 1–4 September 2022; **4.** Schlottmann PG, et al. Predstavljeno na kongresu EURETINA, Hamburg, Germany, 1–4 September 2022.

Zdravilo še ni krito iz obveznega zdravstvenega zavarovanja.

Samo za strokovno javnost.

Skrajšan povzetek glavnih značilnosti zdravila Vabysmo

▼Za to zdravilo se izvaja dodatno spremljanje varnosti. Tako bodo hitreje na voljo nove informacije o njegovi varnosti. Zdravstvene delavce naprošamo, da poročajo o katerem koli domnevnem neželenem učinku zdravila. Kako poročati o neželenih učinkih, si poglejte skrajšani povzetek glavnih značilnosti zdravila pod ‚'Poročanje o domnevnih neželenih učinkih''.

Ime zdravila: Vabysmo 120 mg/ml raztopina za injiciranje. **Kakovostna in količinska sestava:** Faricimab je humanizirano protitelo, pridobljeno v kulturi celic jajčnika kitajskega hrčka s tehnologijo rekombinantne DNK. En ml raztopine vsebuje 120 mg faricimaba. Ena viala vsebuje 28,8 mg faricimaba v 0,24 ml raztopine. Ta količina zadošča za injiciranje enkratnega odmerka 0,05 ml raztopine, ki vsebuje 6 mg faricimaba. **Terapevtske indikacije:** Zdravilo Vabysmo je indicirano pri odraslih bolnikih za zdravljenje: neovaskularne (vlažne) starostne degeneracije makule (SDM) in okvare vida zaradi diabetičnega makularnega edema (DME). **Odmerjanje in način uporabe:** Zdravilo sme injicirati le usposobljen zdravnik, ki ima izkušnje z dajanjem intravitrealnih injekcij. Vsako vialo je treba uporabiti le za zdravljenje enega očesa. Odmerjanje: *Neovaskularna (vlažna) SDM:* Priporočeni odmerek zdravila je 6 mg (0,05 ml raztopine), injiciran intravitrealno na 4 tedne (vsak mesec) za prve 4 odmerke. Po 20 in/ali 24 tednih od začetka zdravljenja je priporočljivo oceniti aktivnost bolezni na podlagi anatomskega izida in/ali vidne ostrine. Pri bolnikih brez aktivne bolezni se lahko faricimab uporablja na 16 tednov. Bolnike, pri katerih je bolezen še aktivna, se lahko zdravi na 8 tednov ali 12 tednov. *Okvara vida zaradi DME:* Priporočeni odmerek zdravila je 6 mg, injiciran intravitrealno na 4 tedne za prve 4 odmerke. Na podlagi zdravnikove presoje bolnikovih anatomskih izidov in/ali spremembe vidne ostrine je mogoče odmerni interval podaljšati na največ 16 tednov v korakih po največ 4 tedne. Če se anatomski izid in/ali vidna ostrina spremenijo, je treba presledek med injiciranji zdravila ustrezno prilagoditi; presledek med injiciranji mora biti krajši, če se anatomski izid in/ali vidna ostrina poslabša. *Trajanje zdravljenja:* Zdravilo je namenjeno za dolgotrajno zdravljenje. Če vidna ostrina in/ali anatomski izid kažeta, da nadaljnje zdravljenje bolniku ne koristi, je treba zdravljenje ukiniti. *Zamujen ali izpuščen odmerek:* V primeru zamujenega ali izpuščenega odmerka mora bolnik čim prej opraviti naslednji obisk pri zdravniku, ki bolnika oceni in po lastni presoji nadaljuje zdravljenje. Način uporabe: Samo za intravitrealno injiciranje. Zdravilo Vabysmo je treba pred uporabo pregledati in se prepričati, da ne vsebuje delcev in ni spremenjene barve. Intravitrealno injiciranje je treba opraviti v aseptičnih pogojih. Pred intravitrealnim injiciranjem je treba skrbno oceniti bolnikovo zdravstveno anamnezo o preobčutljivostnih reakcijah. **Kontraindikacije:** Preobčutljivost na učinkovino ali katero koli pomožno snov. Aktivna okužba očesa ali okolice očesa ali sum na takšno okužbo. Akutno intraokularno vnetje. **Posebna opozorila in previdnostni ukrepi:** Reakcije na intravitrealno injiciranje: Tako kot pri drugih intravitrealnih injekcijah se tudi pri injiciranju faricimaba lahko pojavijo endoftalmitis, intraokularno vnetje, regmatogeni odstop mrežnice in raztrganina mrežnice. Bolnikom je treba naročiti, da morajo nemudoma povedati za kakršne koli simptome, na primer bolečino, izgubo vida, fotofobijo, zamegljen vid, plavajoče motnjave v vidnem polju ali pordelost, ki nakazujejo endoftalmitis, ali katerega od drugih zgoraj naštetih neželenih učinkov, da je mogoče takojšnje in ustrezno ukrepanje. Zvišanje intraokularnega tlaka: V 60 minutah po intravitrealnem injiciranju so opažali prehodno zvišanje intraokularnega tlaka; to velja tudi za faricimab. Posebna previdnost je potrebna pri bolnikih s slabo urejenim glavkomom. Po injiciranju je vedno treba kontrolirati očesni tlak in perfuzijo papile vidnega živca ter po potrebi ustrezno ukrepati. Sistemski učinki: Po intravitrealnih injekcijah zaviralcev žilnega endotelijskega rastnega dejavnika so poročali o sistemskih neželenih učinkih, med drugim tudi o arterijskih trombemboličnih dogodkih. Teoretično obstaja tveganje, da so ti učinki lahko povezani z zavrtjem VEGF. Imunogenost: Faricimab je terapevtska beljakovina, zato je lahko imunogen. Bolnikom je treba naročiti, naj zdravnika obvestijo o vseh znakih ali simptomih intraokularnega vnetja, npr. o izgubi vida, bolečinah v očesu, večji občutljivosti na svetlobo, plavajočih motnjavah v vidnem polju ali vse močnejši pordelosti oči; to so lahko klinični znaki preobčutljivosti na faricimab. Obojestransko zdravljenje: Obojestransko zdravljenje lahko vodi do neželenih učinkov na obeh očesih in lahko vodi do povečanja sistemske izpostavljenosti, kar lahko poveča tveganje za sistemske neželene učinke. Dokler podatki za obojestransko zdravljenje niso na voljo, to predstavlja teoretično tveganje faricimaba. Prekinitev zdravljenja: Zdravljenje je treba prekiniti pri bolnikih: z regmatogenim odstopom mrežnice, makularno luknjo III. ali IV. stopnje, raztrganino mrežnice; pri katerih se je po zdravljenju najboljša korigirana vidna ostrina zmanjšala za ≥ 30 črk v primerjavi z zadnjo oceno vidne ostrine; z intraokularnim tlakom ≥ 30 mmHg; s subretinalno krvavitvijo, ki zajema središče fovee, ali če krvavitev zajema ≥ 50 % celotne površine lezije; z izvedeno ali načrtovano intraokularno operacijo v zadnjih ali prihodnjih 28 dneh. Pretrganje pigmentnega epitelija mrežnice: Med dejavniki tveganja za pretrganje pigmentnega epitelija mrežnice po zdravljenju vlažne SDM z zaviralci VEGF je obsežen in/ali visok odstop pigmentnega epitelija mrežnice. Pri uvedbi zdravljenja s faricimabom pri bolnikih s takšnimi dejavniki tveganja za pretrganje pigmentnega epitelija mrežnice je potrebna previdnost. **Medsebojno delovanje z drugimi zdravili in druge oblike interakcij:** Glede na biotransformacijo in izločanje faricimaba ni pričakovati medsebojnih delovanj z drugimi zdravili. Vseeno faricimaba ne smemo dati sočasno z drugimi zaviralci VEGF ne sistemsko ne očesno. **Neželeni učinki:** Najpogostejši neželeni učinki, o katerih so poročali, so bili katarakta, veznična krvavitev, zvišan očesni tlak, motnjave v steklovini, bolečina v očesu in pretrganje pigmentnega epitelija mrežnice (samo pri vlažni SDM). Poročanje o domnevnih neželenih učinkih: Poročanje o domnevnih neželenih učinkih zdravila po izdaji dovoljenja za promet je pomembno. Omogoča namreč stalno spremljanje razmerja med koristmi in tveganji zdravila. Od zdravstvenih delavcev se zahteva, da poročajo o katerem koli domnevnem neželenem učinku zdravila na: Javna agencija Republike Slovenije za zdravila in medicinske pripomočke, Sektor za farmakovigilanco, Nacionalni center za farmakovigilanco, Slovenčeva ulica 22, SI-1000 Ljubljana, Tel: +386 (0)8 2000 500, Faks: +386 (0)8 2000 510, e-pošta: h-farmakovigilanca@jazmp.si, spletna stran: www.jazmp.si. Za zagotavljanje sledljivosti zdravila je pomembno, da pri izpolnjevanju obrazca o domnevnih neželenih učinkih zdravila navedete številko serije biološkega zdravila. **Režim izdaje zdravila:** ZZ. **Imetnik dovoljenja za promet:** Roche Registration GmbH, Emil-Barell-Strasse 1, 79639 Grenzach-Wyhlen, Nemčija.
Verzija: 2.0/22

DODATNE INFORMACIJE SO NA VOLJO PRI:
Roche farmacevtska družba d.o.o., Stegne 13G, Ljubljana

Datum priprave informacije: april 2023
M-SI-00000848 (v 1.0)

NAPREDNI NADZORNI CENTER, POD VAŠIMI PRSTI

CENTURION® Vision System[1] z ročnikom ACTIVE SENTRY®[2] zagotavlja izid posega s kontinuiranim fako učinkom:*

- Z zaznavanjem spremembe pritiska in aktivacijo natančnih mehanizmov se zmanjša možnost fluktuacije po okluziji[3,4]
- S tehnologijo Active Fluidics™ ohranja ciljni IOP - ne glede na nivo bolnikovega očesa (PEL)[3-6]
- Ohranja stabilnost pri različnih ravneh vakuuma[4,5,7]
- Skrajša čas fako postopka in porabo tekočine[8,9]
- Varuje oko pred toplotnimi poškodbami[8,10,11]
- Hibridna konica INTREPID® pripomore k zmanjševanju tveganja za poškodbo kapsule[12,13]

Obrnite se na Alcon predstavnika in izvedite več o tem, kako lahko varnost in učinkovitost posega dvignete na še višjo raven.

Celoten seznam indikacij, opozoril, previdnostnih ukrepov in opomb najdete v navodilih za uporabo in priročniku za uporabo.

* V primerjavi s prejšnjimi generacijami sistema Alcon fako.

Medicinski pripomočki CENTURION® Vision System, ročnik ACTIVE SENTRY® in hibridna konica INTREPID® izpolnjujejo zahteve za oznako CE0123.

1. Centurion® Vision System priročnik za uporabo. **2.** Active Sentry® navodila za uporabo ročnika z zaznavanjem pritiska. **3.** Alcon data on file, Ref. 02559, 03.05.2017. **4.** Thorne A. et al. Phacoemulsifier occlusion break surge volume reduction. J Cataract Refract Surg 2018; 44:1491–1496. **5.** Nicoli CM, Dimalanta R, Miller K. Experimental anterior chamber maintenance in active versus passive phacoemulsification fluidics systems. J Cataract Refract Surg. 2016;42(1):157-162. **6.** Boukhny M, Sorensen G, Gordon R. A novel phacoemulsification system utilizing feedback based IOP target control. ASCRS-ASOA Symposium and Congress; April 25-29, 2014; Boston, MA. **7.** Aravena et al. Aqueous volume loss associated with occlusion break surge in phacoemulsifiers from 4 different manufacturers. J Cataract Refract Surg 2018; 44:884–888. **8.** Khokhar S, Aron N, Sen S, Pillay G, Agarwal E. Effect of balanced phacoemulsification tip on the outcomes of torsional phacoemulsification using an active-fluidics system. J Cataract Refract Surg. 2017;43(1):22-28. **9.** Solomon et al. Clinical study using a new phacoemulsification system with surgical intraocular pressure control. J Cataract Refract Surg 2016; 42:542–549. **10.** Zacharías J. Laboratory assessment of thermal characteristics of three phacoemulsification tip designs operated using torsional ultrasound. Clinical Ophthalmology 2016:10 1095–1101. **11.** Zacharías J. Comparative thermal characterization of phacoemulsification probes operated in elliptical, torsional and longitudinal ultrasound modalities. ASCRS-ASOA Symposium and Congress; April 25-29, 2014; Boston, MA. **12.** Shumway C et al. Evaluation of the capsular safety of a new hybrid phacoemulsification tip in a cadaver eye model. J Cataract Refract Surg 2019; 45:1660–1664. **13.** Centurion® FMS navodilo za uporabo.

IOP = intraokularni pritisk
PEL = patient eye level (nivo bolnikovega očesa)

Proizvajalec: Alcon Laboratories, Incorporated, 6201 South Freeway, Fort Worth, TX, 76134-2099, ZDA.
Pooblaščeni predstavnik: Alcon Laboratories Belgium, Lichterveld 3, 2870 Puurs-Sint-Amands, Belgija

Za več informacij se obrnite na lokalnega zastopnika:
Swixx Biopharma d.o.o., Pot k sejmišču 35, 1231 Ljubljana - Črnuče
T: +386 1 23 55 100, E: slovenia.info@swixxbiopharma.com

Alcon

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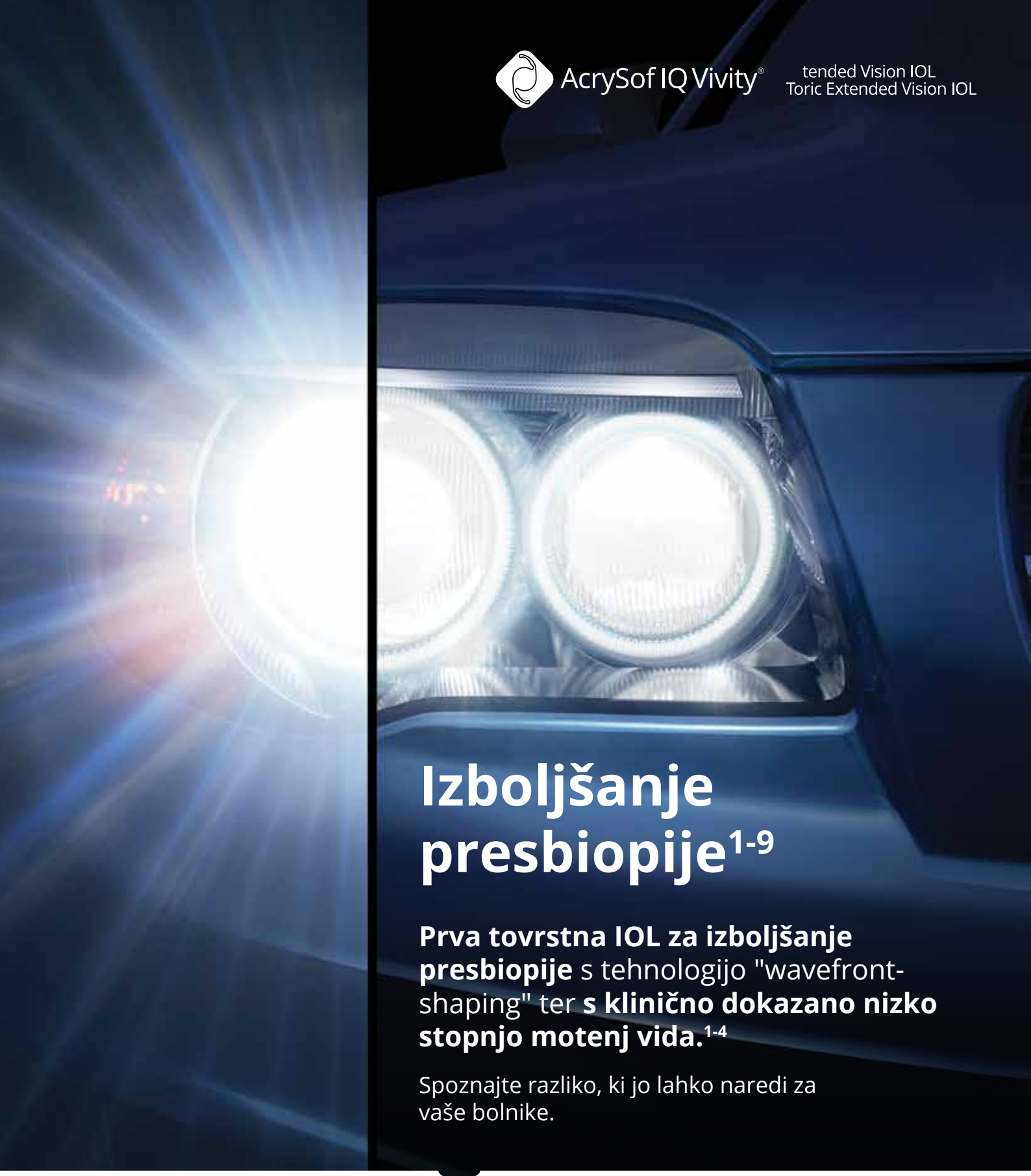
PM-SI-2023-4-1725, 04/2023

Centurion® VISION SYSTEM WITH ACTIVE SENTRY® HANDPIECE

Advancing CATARACT SURGERY



AcrySof IQ Vivity® tended Vision IOL
Toric Extended Vision IOL

Izboljšanje presbiopije[1-9]

Prva tovrstna IOL za izboljšanje presbiopije s tehnologijo "wavefront-shaping" ter **s klinično dokazano nizko stopnjo motenj vida.[1-4]**

Spoznajte razliko, ki jo lahko naredi za vaše bolnike.

Reference: 1. AcrySof® IQ Vivity® Extended Vision IOL Directions for Use. **2.** Alcon Data on File, US Patent 9968440 B2. 15. maj 2018. **3.** Alcon Data on File, TDOC-0055575. 9. april 2019. **4.** Alcon Data on File. TDOC-0055576. 23. julij 2019. **5.** Alcon Data on File, TDOC-0056718. 18. junij 2019. **6.** Ligabue E, et al. ACRYSOF IQ VIVITY: Natural vision at a range of distances provided by a novel optical technology. Cataract & Refractive Surgery Today. April 2020 // **7.** Alcon Data on file. A02062-REP-043696, Optical Evaluations of Alcon Vivity®, Symfony*, Zeiss* AT LARA* AT LISA IOLs. Februar 2020. **8.** Lawless M. Insight news. "An IOL to change the cataract surgery paradigm?" dostopno na "https://www.insightnews.com.au/an-iol-to-changethe-cataract-surgery-paradigm/". Dostopano: 17. 07. 2020. **9.** Ike K. Ahmed, et al. The Vivity Extended Depth of Focus IOL: Our Clinical Experience. Cataract & Refractive Surgery Today. Februar 2021//

Za celoten seznam indikacij, kontraindikacij in opozoril glejte navodila za uporabo izdelka.

IOL - intraokularna leča

Medicinski pripomoček AcrySofIQ Vivity® IOL izpolnjuje zahteve za oznako CE0123.
Proizvajalec: Alcon Laboratories, Incorporated, 6201 South Freeway, Fort Worth, TX, 76134-2099, ZDA.
Pooblaščeni predstavnik: Alcon Laboratories Belgium, Lichterveld 3, 2870 Puurs-Sint-Amands, Belgija

Za več informacij se obrnite na lokalnega zastopnika:
Swixx Biopharma d.o.o., Pot k sejmišču 35, 1231 Ljubljana - Črnuče
T: +386 1 23 55 100, E: slovenia.info@swixxbiopharma.com

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PM-SI-2023-4-1550, 04/2023

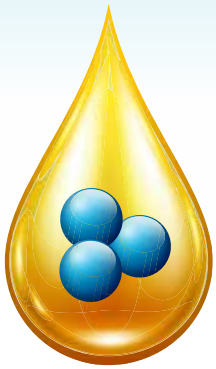
AcrySof IQ Vivity® | Extended Vision IOL
Toric Extended Vision IOL

Advancing

DESODROP®

MEDICINSKI PRIPOMOČEK

OFTALMOLOŠKA RAZTOPINA
za odrasle in otroke



DESODROP se uporablja kot podpora:

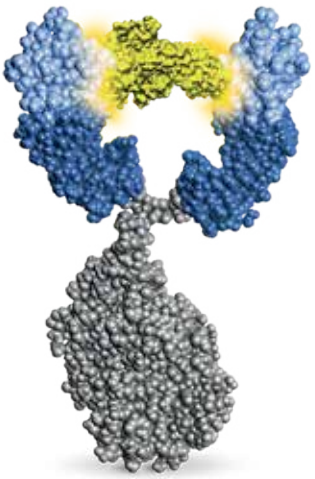
- kot del profilakse pred operacijo in po njej (npr. katarakta, intravitrealne injekcije itd.). Uporaba je priporočljiva tri dni pred operacijo;
- v primeru vnetnih bolezni roženice (keratitis) in veznice (konjunktivitis), vključno z okužbami (z bakterijami, virusi, glivicami);
- pri zdravljenju z antibiotiki, pri odraslih in otrocih.

Proizvajalec: FB VISION S.p.A., Via San Giovanni Scafa
San Benedetto del Tronto (AP), Italija, fb-vision.it DES-SI-2207-05, julij 2022.
Medicinski pripomoček izpolnjuje zahteve za oznako CE 0477.
Glejte navodila za uporabo, da se seznanite z verjetnimi tveganji.

BAUSCH+LOMB

EYLEA BISPECIFIČNI FUZIJSKI PROTEIN

VEGF-A



PlGF

- veže VEGF-A in PlGF[1]
- možnost odmerjanja od Q4 do Q16[1]*
- RWE podpira RCT[2-11]
- dokazana varnost skozi 10 let[1]

* Po režimu "zdravi in podaljšaj" (preberite Povzetek glavnih značilnosti zdravila Eylea)

RWE, Real World Evidence (vsakodnevna klinična praksa); RCT, randomized controlled trial (randomizirane kontrolne študije);
PlGF, placentarni rastni dejavnik; VEGF, žilni endotelijski rastni dejavnik; Q4; na vsake 4 tedne; Q8, na vsakih 8 tednov.

Viri: 1. Povzetek glavnih značilnosti zdravila Eylea. **2**. Lukic M, *et al. Eur J Ophthalmol* 2021;31:1940–1944. **3.** Garweg JG. *Clin Ophthalmol* 2019;13:1289–1295. **4.** Traine PG, *et al. Ophthalmol Retina* 2019;3:393–399. **5.** Lukic M, *et al. Eur J Ophthalmol* 2021;31:1201–1207. **6.** Lukic M, *et al. Eur J Ophthalmol* 2020;30:557–562. **7.** Korobelnik J-F, *et al. Graefes Arch Clin Exp Ophthalmol* 2020;258:521–528. **8.** Eleftheriadou M, *et al. Ophthalmol Ther* 2019;8:289–296; **9.** Ohji M, *et al. Adv Ther* 2020;37:1173–1187. **10.** Garweg JG, *et al. Adv Ther* 2022;39:2701–2716. **11.** Korobelnik J-F, *et al. Am J Ophthalmol* 2021;227:106–115.

Eylea 40 mg/ml raztopina za injiciranje v napolnjeni injekcijski brizgi
Pred predpisovanjem, prosimo, preberite celoten povzetek glavnih značilnosti zdravila!

Prosimo, da o domnevnih neželenih učinkih, ki jih opazite pri zdravljenju z zdravilom Eylea poročate Nacionalnemu centru za farmakovigilanco prek spletnega obrazca ali na drug način naveden na spletni strani JAZMP (http://www.jazmp.si/humana-zdravila/farmakovigilanca/porocanje-o-nezelenih-ucinkih-zdravil/). Poročate lahko tudi podjetju Bayer d.o.o. preko e-pošte pv.slovenija@bayer.com ali telefona 01 58 14 476.
Za zagotavljanje sledljivosti zdravila je pomembno, da pri izpolnjevanju obrazca o domnevnih neželenih učinkih zdravila navedete številko serije zdravila Eylea.

KAKOVOSTNA IN KOLIČINSKA SESTAVA: Ena napolnjena injekcijska brizga vsebuje vsaj 0,09 ml izvlečnega volumna raztopine, kar ustreza vsaj 3,6 mg aflibercepta. Pomožne snovi: polisorbat 20 (E 432), natrijev dihidrogenfosfat monohidrat, dinatrijev hidrogenfosfat heptahidrat, natrijev klorid, saharoza, voda za injekcije. To zdravilo vsebuje manj kot 1 mmol (23 mg) natrija na enoto odmerka, kar v bistvu pomeni 'brez natrija'. **TERAPEVTSKE INDIKACIJE:** Zdravilo Eylea je indicirano pri odraslih za zdravljenje: 1. neovaskularne (vlažne) starostne degeneracije makule (AMD - Age-related Macular Degeneration) 2. okvare vida zaradi makularnega edema, ki nastane kot posledica zapore mrežnične vene (zapore veje mrežnične vene (BRVO - Branch Retinal Vein Occlussion) ali zapore centralne mrežnične vene (CRVO - Central Retinal Vein Occlusion)) 3. okvare vida zaradi diabetičnega makularnega edema (DME – Diabetic Macular Oedema) 4. okvare vida zaradi miopične horoidalne neovaskularizacije (miopične CNV – myopic Choroidal Neovascularisation) Zdravilo Eylea je indicirano pri nedonošenčkih za zdravljenje retinopatije nedonošenčkov (ROP - Retinopathy of Prematurity) cone I (stopnja 1+, 2+, 3 ali 3+), cone II (stopnja 2+ ali 3+) ali agresivne posteriorne retinopatije nedonošenčkov (AP-ROP - aggressive posterior ROP). **ODMERJANJE IN NAČIN UPORABE:** Zdravilo Eylea je samo za intravitrealno injiciranje. Eno napolnjeno injekcijsko brizgo se sme uporabiti za zdravljenje samo enega očesa. Če se eno injekcijsko brizgo uporabi za dajanje več odmerkov, to lahko poveča tveganje za kontaminacijo in posledično okužbo. Zdravilo Eylea sme aplicirati samo usposobljen zdravnik, ki ima izkušnje z dajanjem intravitrealnih injekcij. Priporočeni odmerek zdravila Eylea za odrasle je 2 mg aflibercepta, kar ustreza 0,05 ml raztopine. Priporočeni odmerek zdravila Eylea za nedonošenčke je 0,4 mg aflibercepta (0,01 ml). *Vlažna starostna degeneracija makule:* zdravljenje z zdravilom Eylea se začne z eno injekcijo na mesec, tri zaporedne mesece. Interval med posameznimi odmerki se nato podaljša na dva meseca. Zdravnik glede na oceno ostrine vida in/ali anatomski izgled rumene pege presodi ali lahko interval med injekcijami ostane dva meseca ali pa ga dodatno podaljša, na primer z režimom odmerjanja »zdravi in podaljšaj«, kjer se intervali med injekcijami podaljšujejo za 2- ali 4-tedne, da se ohrani stabilna ostrina vida in/ali anatomski izgled rumene pege. Če se glede na oceno ostrine vida in/ali anatomski izgled rumene pege stanje poslabša, je treba interval med injekcijami ustrezno skrajšati. Zahtev, kako pogosto spremljati bolnika med injekcijami, ni. Spremljanje bolnika poteka po presoji zdravnika; pregledi so lahko pogostejši kot je injiciranje zdravila. Intervalov med injekcijami, daljših od štirih mesecev ali krajših od štirih tednov, niso preučevali. *Makularni edem, ki nastane kot posledica zapore mrežnične vene (zapore veje mrežnične vene ali centralne mrežnične vene):* po začetni injekciji se zdravilo aplicira enkrat na mesec. Interval med dvema injekcijama ne sme biti krajši od enega meseca. Če ocena ostrine vida in anatomski izgled rumene pege kažeta, da bolnik nima koristi od nadaljevanja zdravljenja, je treba z zdravljenjem z zdravilom Eylea prenehati. Mesečno zdravljenje se nadaljuje, dokler ni dosežena največja ostrina vida in/ali ni znakov napredovanja bolezni. Morda bo tri ali več zaporednih mesecev potrebna 1 injekcija na mesec. Zdravljenje bo morda treba nadaljevati z režimom »zdravi in podaljšaj«, tj. s postopnim podaljševanjem intervala med injekcijami, da se ohrani stabilen vid in/ali anatomski izgled rumene pege, čeprav ni dovolj podatkov za odločitev glede dolžine intervalov. Če se glede na oceno ostrine vida in/ali anatomski izgled rumene pege stanje poslabša, je treba interval med injekcijami ustrezno skrajšati. Načrt spremljanja in zdravljenja bolnika mora določiti lečeči zdravnik in sicer glede na odziv posameznega bolnika na zdravljenje. Spremljanje napredovanja bolezni lahko vključuje klinični pregled, funkcijske preiskave in slikovne metode (npr. optična koherentna tomografija ali fluoresceinska angiografija). *Diabetični makularni edem:* zdravljenje z zdravilom Eylea se začne z eno injekcijo na mesec, pet zaporednih mesecev, nato pa nadaljuje z eno injekcijo vsaka dva meseca. Po presoji zdravnika glede na oceno ostrine vida in/ali anatomski izgled rumene pege, se lahko interval med injekcijami vzdržuje na 2 meseca ali se prilagodi posamezniku, na primer z režimom odmerjanja »zdravi in podaljšaj«, kjer se intervali med injekcijami običajno podaljšujejo za 2 tedna, da se ohrani stabilna ostrina vida in/ali anatomski izgled rumene pege. Podatki o intervalih med injekcijami, daljših od štirih mesecev, so omejeni. Če se glede na oceno ostrine vida in/ali anatomski izgled rumene pege stanje poslabša, je treba interval med injekcijami ustrezno skrajšati. Intervalov med injekcijami, krajših od štirih tednov, niso preučevali. Načrt spremljanja bolnika mora določiti lečeči zdravnik. Če ocena ostrine vida in anatomski izgled rumene pege kaže, da bolnik nima koristi od nadaljevanja zdravljenja, je treba zdravljenje z zdravilom Eylea prenehati. *Miopična horoidalna neovaskularizacija:* priporočeni odmerek zdravila Eylea je ena intravitrealna injekcija. Dodatni odmerki se lahko uporabijo, če ocena ostrine vida in/ali anatomski izgled rumene pege kaže, da je bolezen še prisotna. Ponovitve bolezni je treba zdraviti kot nov pojav bolezni. Načrt spremljanja bolnika mora določiti lečeči zdravnik. Interval med dvema injekcijama ne sme biti krajši od enega meseca. Retinopatija nedonošenčkov (ROP): Zdravljenje ROP se začne z eno injekcijo na oko in se lahko daje v obe očesi na isti dan. Za zdravljenje nedonošenčkov je treba uporabiti pediatrični pripomoček za odmerjanje PICLEO v kombinaciji z napolnjeno injekcijsko brizgo za aplikacijo enega odmerka 0,4 mg aflibercepta (kar ustreza 0,01 ml raztopine za injiciranje).Če obstajajo znaki aktivne bolezni, se lahko v 6 mesecih po začetku zdravljenja aplicirata skupno do 2 injekciji na oko. Interval med dvema injekcijama, injiciranima v isto oko, mora biti vsaj 4 tedne. **KONTRAINDIKACIJE:** Preobčutljivost na učinkovino aflibercept ali katero koli pomožno snov. Aktivna okužba očesa ali periokularna okužba ali sum nanjo. Aktivno hudo vnetje v očesu. **POSEBNA OPOZORILA IN PREVIDNOSTNI UKREPI:** Opozorila in previdnostni ukrepi za odrasle veljajo tudi za nedonošenčke z ROP. Dolgoročni varnostni profil pri nedonošenčkih ni bil dokazan. Intravitrealne injekcije so povezovali z endoftalmitisom, intraokularnim vnetjem, regmatogenim odstopom mrežnice, raztreganinami mrežnice in iatrogeno travmatsko katarakto. Pri uporabi zdravila Eylea je treba vedno upoštevati ustrezne aseptične tehnike injiciranja. V tednu po prejemu injekcije je treba bolnike dodatno spremljati, da se, v primeru okužbe, lahko začne zgodnje zdravljenje. Odrasle bolnike je treba poučiti, da takoj poročajo o katerem koli simptomu, ki bi lahko kazali na endoftalmitis ali katerega koli od zgoraj navedenih dogodkov. Bolnike z ROP morajo zdravstveni delavci opazovati glede katerih koli znakov, ki bi lahko kazali na endoftalmitis. Starše in negovalce je tudi treba poučiti, da opazujejo in takoj poročajo o katerem koli znaku, ki bi lahko kazal na endoftalmitis. Za odmerjanje pri ROP pri nedonošenčkih je treba uporabljati napolnjeno injekcijsko brizgo v kombinaciji s pediatričnim pripomočkom za odmerjanje PICLEO, da se prepreči uporaba večjega volumna od priporočenega, kar bi lahko povzročilo povišanje intraokularnega tlaka. Povišanje intraokularnega tlaka so opažali v 60 minutah po intravitrealni injekciji. Posebna previdnost je potrebna pri bolnikih z neustrezno zdravljenim glavkomom (zdravila Eylea ne injicirajte, če je intraokularni tlak ≥ 30 mmHg). V vseh primerih je treba zato ustrezno spremljati intraokularni tlak in perfuzijo glave vidnega živca in ustrezno ukrepati. Obstaja možnost za imunogenost zdravila Eylea. Bolnike je treba poučiti, da poročajo o vseh znakih in simptomih vnetja v očesu npr. bolečini, fotofobiji ali pordelosti, ki bi lahko bili klinični znaki preobčutljivosti. Po intravitrealnih injekcijah zaviralcev VEGF so poročali o sistemskih neželenih učinkih, tudi krvavitvah izven očesa in arterijskih trombemboličnih dogodkih. Varnosti in učinkovitosti zdravljenja z zdravilom Eylea, sočasno apliciranim v obe očesi, niso sistematično preučevali. Na voljo ni podatkov glede sočasne uporabe zdravila Eylea z drugimi zaviralci VEGF (sistemski ali okularni). Dejavniki tveganja za zatrganje pigmentnega epitelija mrežnice pri zdravljenju vlažne starostne degeneracije makule z zaviralci VEGF sta obsežen in/ali visok odstop pigmentnega epitelija mrežnice. Pri uvajanju zdravila Eylea je pri bolnikih s prisotnimaj navedenima dejavnikoma tveganja za zatrganje pigmentnega epitelija mrežnice potrebna previdnost. Pri bolnikih z regmatogenim odstopom mrežnice ali foramnom makule III. ali IV. stopnje je treba z zdravljenjem prenehati. Če pride do raztrganja mrežnice je treba z zdravljenjem prenehati. Zdravljenje se lahko ponovno začne šele, ko je raztrganje ustrezno ozdravljeno. Z zdravljenjem je treba prenehati in se ga ne sme ponovno začeti prej kot ob naslednjem načrtovanem odmerku v naslednjih primerih: zmanjšana najboljša korigirana ostrina vida (BCVA) ≥ 30 črk v primerjavi z zadnjo oceno ostrine vida; krvavitev pod mrežnico, tudi v vidni jamici (fovea centralis), ali če je velikost krvavitve ≥ 50 % celotne lezije. Z zdravljenjem je treba prenehati 28 dni pred načrtovano intraokularno operacijo in se ga lahko nadaljuje 28. dan po opravljeni intraokularni operaciji. Zdravilo Eylea se ne sme uporabljati med nosečnostjo, razen če so možne koristi večje od možnega tveganja za plod. Ženske v rodni dobi morajo med zdravljenjem in še vsaj 3 mesece po zadnji intravitrealni injekciji aflibercepta uporabljati učinkovito kontracepcijo. Uporabe zdravila Eylea se ne priporoča med dojenjem. Populacije za katere je na voljo malo podatkov: Na voljo so omejene izkušnje z zdravljenjem bolnikov z ishemično zaporo centralne mrežnične vene ali veje mrežnične vene. Pri bolnikih s kliničnimi znaki ireverzibilne izgube vidne funkcije zaradi ishemije se zdravljenja ne priporoča. Izkušnje z zdravljenjem bolnikov z diabetičnim makularnim edemom zaradi sladkorne bolezni tipa I ali bolnikov s sladkorno boleznijo, pri katerih je HbA1c več kot 12 % ali s proliferativno diabetično retinopatijo, so omejene. Zdravila Eylea niso preučevali pri bolnikih z aktivno sistemsko okužbo ali pri bolnikih s sočasnimi očesnimi boleznimi, kot sta odstop mrežnice ali makularna luknja. Izkušenj z zdravljenjem bolnikov s sladkorno boleznijo in neurejeno hipertenzijo z zdravilom Eylea ni. Zdravnik, ki zdravi take bolnike, mora upoštevati, da ni na voljo dovolj podatkov. Izkušenj z zdravljenjem miopične CNV z zdravilom Eylea pri neazijskih bolnikih, bolnikih, ki so že bili zdravljeni zaradi miopične CNV, in bolnikih z lezijami zunaj fovee (ekstrafovealne lezije) ni. Vpliv na sposobnost vožnje in upravljanja strojev: Zaradi začasnih motenj vida, povezanih z injekcijo ali preiskavo oči, imajo injekcije zdravila Eylea blag vpliv na sposobnost vožnje in upravljanja strojev. Bolniki ne smejo voziti ali upravljati strojev, dokler se jim vid dovolj ne izboljša. **NEŽELENI UČINKI: Pri indikacijah za odrasle:** *Zelo pogosti:* zmanjšana ostrina vida, krvavitev pod očesno veznico, retinalna krvavitev, bolečina v očesu; *Pogosti:* zatrganje pigmentnega epitelija mrežnice (stanja, za katera je znano, da so povezana z vlažno AMD; opazili so jih samo v študijah vlažne AMD), odstop pigmentnega epitelija mrežnice, degeneracija mrežnice, krvavitev v steklovino, katarakta, kortikalna katarakta, nuklearna katarakta, subkapsularna katarakta, erozija roženice, abrazija roženice, povišanje intraokularnega tlaka, zamegljen vid, motnjave v steklovini, odstop steklovine, bolečina na mestu injiciranja, občutek tujka v očesu, močnejše solzenje, edem veke, krvavitev na mestu injiciranja, pikčasti keratitis, hiperemija veznice, očesna hiperemija. *Občasni:* preobčutljivost (poročila o preobčutljivostnih reakcijah iz obdobja trženja vključujejo osip, pruritus, urtikarijo in posamezne primere hudih anafilaktičnih/anafilaktoidnih reakcij), endoftalmitis s pozitivno in negativno kulturo, odstop mrežnice, raztreganine mrežnice, iritis, uveitis, iridociklitis, motnjava leče, poškodba roženičnega epitelija, draženje na mestu injiciranja, nenormalen občutek v očesu, draženje veke, motnjave v sprednjem prekatu, edem rožnice. *Redki:* slepota, travmatska katarakta, vitritis, hipopion. *Opis izbranih neželenih učinkov:* v študijah III. faze pri bolnikih z vlažno AMD je bila povečana incidenca krvavitev pod očesno veznico pri bolnikih, ki so prejemali antitrombotike. Arterijski trombembolični dogodki so neželeni učinki, ki so morda povezani s sistemskim zaviranjem VEGF. Teoretično obstaja tveganje za arterijske trombembolične dogodke, tudi možgansko kap in miokardni infarkt, po intravitrealni uporabi zaviralcev VEGF. Kot pri vseh terapevtskih proteinih obstaja tudi pri zdravilu Eylea možnost za razvoj imunogenosti. **Indikacija pri nedonošenčih:** Neželeni učinki, ki so jih ugotovili pri indikacijah za odrasle, veljajo tudi za nedonošenčke z ROP, čeprav v študiji faze III niso bili vsi opaženi. Neželeni učinki, o katerih so poročali pri več kot enem bolniku, zdravljenem z 0,4 mg aflibercepta, so bili odstop mrežnice, retinalna krvavitev, krvavitev pod očesno veznico, krvavitev na mestu injiciranja, povišan očesni tlak in edem veke. Dolgoročni varnostni profil pri nedonošenčkih ni bil dokazan. **Način in režim predpisovanja in izdaje zdravila:** Predpisovanje in izdaja zdravila je le na recept s posebnim režimom - ZZ. **Imetnik dovoljenja za promet:** Bayer AG, 51368 Leverkusen, Nemčija
Za nadaljnje informacije o zdravilu Eylea, se lahko obrnete na: Bayer d.o.o., Bravničarjeva 13, 1000 Ljubljana / mi.slovenia@bayer.com
Verzija: EU 11 (12/2022)
MA-M_AFL-SI-0066-1 01.2023

Samo za strokovno javnost.

PP-EYL-SI-0416-1_03.2023

EYLEA®
(aflibercept raztopina za injiciranje)

DROP defence®

PRVI IN EDINI CERTIFICIRANI

MEDICINSKI PRIPOMOČEK & OSEBNA ZAŠČITNA OPREMA

PROTI UV IN MODRI SVETLOBI

DROP defence© vlažilne kapljice za oči z UV-zaščito brez konzervansov

INDIKACIJE
- pri intenzivni ali dolgotrajni izpostavljenosti UV-žarkom, modri svetlobi, sončni svetlobi in umetni svetlobi
- pri dolgotrajni izpostavljenosti ekranom (računalnik, televizija, telefon, video terminal)
- pri športu in aktivnostih na prostem

ŠČITIJO
- pred škodljivimi učinki UV-žarkov, modre svetlobe, sončne svetlobe in umetne svetlobe

PREPREČUJEJO
- nastanek fotokeratitisa in fotokeratokonjunktivitisa zaradi UV-žarkov
- staranje rumene pege zaradi UV-žarkov in modre svetlobe
- dejavnike, odgovorne za nastanek katarakte zaradi UV-žarkov

PATENTIRANA SESTAVA
- hialuronska kislina maže in vlaži očesno površino ter uravnava solzni film
- vitamin B2 (riboflavin) deluje zaščitno pred UV-žarki in modro svetlobo
- vitamin E TPGS povečuje vlažnost očesne površine in deluje kot antioksidant
- MSM (metilsulfonilmetan) ima različne pozitivne funkcije in preprečuje nastajanje prostih radikalov
- aminokisline (prolin, glicin, lizin, levcin) prehranjujejo roženično tkivo, uravnavajo pH in osmolarnost solz ter izboljšujejo zaščito površine roženice (epitelij)

DROP defence© vlažilne kapljice ne zmanjšujejo ostrine vida ali zaznave barv in ne spreminjajo kontrastne občutljivosti.

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IZJEMNO UDOBJE[1,2] IN IZJEMNA STABILNOST[1,3]

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MATERIAL Z VODNIM GRADIENTOM

Visoka vsebnost vode na zunanji površini leče, **tako da se oči vašega uporabnika dotakne le nežna blazinica vlage**[4-7]

PRECISION BALANCE 8|4™ DIZAJN

100% UPORABNIKOV JE IZKUSILO **≤5° OSCILACIJE PRI MEŽIKANJU**[10,11]

~60 **SEKUND ZA** NAMEŠČANJE[10,11]

≥95% **USPEŠNOST PRI PRVEM PREDPISU**[10,11,**]

Oznaka na položaju urinega kazalca, ko je ura 6

≤ **5°** Oscilacije pri mežikanju[10,11]

Stabilizacijske točke na položaju urinega kazalca, ko je ura 8 in 4, zmanjšajo interakcijo s spodnjo veko

Material	delefilcon A			lehfilcon A		
Bazna krivina (mm)	8.6			8.6		
TC (⊕-3.00D/-1.25 x 180, mm)	0.11			0.10		
Modulus sredice (MPa)	0.7			0.6		
TD (mm)	14.5			14.5		
Razpon dioptrij	**Dioptrija**	**Cilinder**	**Osi**	**Dioptrija**	**Cilinder**	**Osi**
	+4.00D do +0.25D (0.25D)	-0.75D, -1.25D, -1.75D	10°, 20°, 70°, 80°, 90°, 100°, 110°, 160°, 170°, 180°	+6.00 do -6.00 (0.25D)	-0.75D do -2.25D (po 0.50D)	10° do 180° (po 10° stopinj)
		-2.25D	10°, 20°, 160°, 170°, 180°			
	Plan do -6.00D (0.25D)	-0.75D, -1.25D, -1.75D	10° do 180° (po 10° stopinj)	+6.00 do +8.00 in -6.50 do -10.00 (0.50D)		
		-2.25D	10°, 20°, 70°, 80°, 90°, 100°, 110°, 160°, 170°, 180°			
	-6.50D do -8.00D (0.50D)	-0.75D, -1.25D, -1.75D	10°, 20°, 70°, 80°, 90°, 100°, 110°, 160°, 170°, 180°			
		-2.25D	10°, 20°, 160°, 170°, 180°			
Vsebnost vode na površini leče	Skoraj 100 %			Skoraj 100 %		
Vsebnost vode v jedru leče	33%			55%		
Dk/t	127 ⊕-3.00D/-1.25 x 180			123 ⊕-3.00D/-1.25 x 180		
Število leč v pakiranju	5 - poskusno pakiranje, 30, 90			1 - poskusno pakiranje, 3, 6		
Dodatne značilnosti	Razred I UV zaščita** in filtriranje modre svetlobe (HEVL)†			Razred I UV zaščita** in filtriranje modre svetlobe (HEVL)†		
	SMARTEARS™ TEHNOLOGIJA - SmarTears® tehnologija dopolnjuje lipidno plast solznega filma in zagotavlja dodatno udobje[17]			**CELLIGENT™** TEHNOLOGIJA - Biomimetična Celligent® tehnologija ohranja lečo čisto vseh 30 dni uporabe[13-16]		
	Izjemna prepustnost kisika[12]			Izjemna prepustnost kisika[12]		

* Morda je potreben pregled oči, za katerega bo morda potrebno plačati.
** Na osnovi premikanja leče, centriranja in rotacije pri prvem predpisu.
† HEVL: High Energy Visible Light.

Reference: 1. In a clinical trial to evaluate on-eye performance of TOTAL30® for Astigmatism lenses where n=69; Alcon data on file, 2021. 2. In a clinical trial to assess overall performance of DAILIES TOTAL1® for Astigmatism lenses where n=134 patients; Alcon data on file, 2021. 3. In a clinical trial to evaluate stability of axis orientation of DAILIES TOTAL1® for Astigmatism lenses where n=47; Alcon data on file, 2020. 4. In vitro analysis of lehfilcon A contact lenses outermost surface softness and correlation with water content; Alcon data on file, 2021. 5. In vitro analysi s of lens oxygen permeability, water content, and surface imaging; Alcon data on file 2021. 6. Angelini TE, Nixon RM, Dunn AC, et al. Viscoelasticity and mesh size at the surface of hydrogels characterized with microrheology . Invest Ophthalmol Vis Sci. 2013;54:E abstract 500. 7. Thekveli S, Qui Y, Kapoor Y, et al. Structure property relationship of delefilcon A lenses. Cont Lens Anterior Eye. 2012;35(Supp 1):e14. 8. UV absorbing contact lenses are NOT substitutes for protective UV absorbing eyewear, such as UV absorbing goggles or sunglasses because they do not completely cover the eye and surrounding area. The patient should continue to use UV absorbing eyewear as d irected. 9. There is no demonstrated clinical benefit to a 34% reduction in visible light at wavelengths below 450 nm. 10. In a clinical trial to evaluate stability of axis orientation of DAILIES TOTAL1® for Astigmatism lenses where n=47; Alcon data on vfile, 2020. 11. In a clinical trial to evaluate on eye performance of TOTAL30® for Astigmatism lenses where n=69; Alcon data on file, 2021. 12. Laboratory measurement of oxygen permeability by polarographic method; Alcon data on file, 2019. 13. In vitro evalvacija adhezije bakterij pri komercialnih kontaktnih lečah; podatki v arhivu Alcon, 2020. 14. Analiza površine leč narejenih iz lefilcona A takoj po odprtju in po 30. dneh uporabe; podatki v arhivu Alcon, 2020. 15. In vitro evalvacija lipidnih depozitov pri lečah narejenih iz lefilcona A in pri komercialnih kontaktnih lečah, z uporabo 3D konfokalnega slikanja; podatki v arhivu Alcon, 2021. 16. Ishihara K, Fukazawa K, Sharma V, Liang S, et al. Antifouling silicone hydrogel contact lenses with a bioinspired 2-methacryloyloxyethyl phosphorylcholine polymer surface. ACS Omega. 2021;6:7058-7067. 17. Pitt W, Jack D, Zhao Y, Nelson J, Pruitt J. Loading and release of a phospholipid from contact.
lenses. Optom Vis Sci. 2011; 88(4):502-506.

Za način uporabe, nego in varnostne ukrepe, prosimo, preberite navodila za uporabo.

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1. Ferreira TB. Comparison of visual outcomes of a monofocal, two enhanced monofocals and two extended depth of focus intraocular lenses. Presented at ESCRS 2022. 2. RayOne EMV: First Clinical Results, Rayner. Oct 2020. 3. Rayner RayPRO, data on file. 4. Rayner, data on file. 5. Rayner Peer2Peer webinar. May 2022. 6. Royo, M. RayOne EMV and TECNIS Eyhance: A Comparative Clinical Defocus Curve. Data on file. 2021.

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Za vaše bolnike z DME[1]

IZBOLJŠANJE VIDNE OSTRINE IN ANATOMSKIH IZIDOV Z MANJŠIM ŠTEVILOM INJEKCIJ[2]

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V študijah Kestrel in Kite je Beovu pri naivnih bolnikih:

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- dosegel manjši delež bolnikov s prisotno IRF in/ali SRF in večji delež bolnikov brez DME[1,2]

DME = diabetični makularni edem (*diabetic macular edema*), IRF = intraretinalna tekočina (*intraretinal fluid*); SRF = subretinalna tekočina (*sub-retinal fluid*)

SKRAJŠAN POVZETEK GLAVNIH ZNAČILNOSTI ZDRAVILA

Beovu 120 mg/ml raztopina za injiciranje v napolnjeni injekcijski brizgi

▼ Za to zdravilo se izvaja dodatno spremljanje varnosti. Tako bodo hitreje na voljo nove informacije o njegovi varnosti. Zdravstvene delavce naprošamo, da poročajo o katerem koli domnevnem neželenem učinku zdravila.

Kakovostna in količinska sestava: En ml raztopine za injiciranje vsebuje 120 mg brolucizumaba. Ena napolnjena injekcijska brizga vsebuje 19,8 mg brolucizumaba v 0,165 ml raztopine. Ta količina zadošča za injiciranje enkratnega odmerka 0,05 ml raztopine, ki vsebuje 6 mg brolucizumaba. **Terapevtske indikacije:** Zdravilo Beovu je indicirano pri odraslih za zdravljenje neovaskularne (vlažne) oblike starostne degeneracije makule (SDM) in okvare vida zaradi diabetičnega makularnega edema (DME). **Odmerjanje in način uporabe:** ◊ *Vlažna oblika SDM:* Priporočeni odmerek je 6 mg brolucizumaba (0,05 ml raztopine), ki ga bolnik prejme z intravitrealno injekcijo, in sicer prve 3 odmerke enkrat na 4 tedne, nato zdravnik intervale zdravljenja prilagodi posameznemu bolniku glede na aktivnost bolezni. Aktivnost bolezni je priporočeno oceniti 16 tednov po začetku zdravljenja. Pri bolnikih brez aktivne bolezni je odmerjanje lahko enkrat na 12 tednov, z aktivno boleznijo pa enkrat na 8 tednov. ◊ *DME:* Priporočeni odmerek je 6 mg brolucizumaba (0,05 ml raztopine), ki ga bolnik prejme z intravitrealno injekcijo, in sicer prvih 5 odmerkov enkrat na 6 tednov, nato zdravnik intervale zdravljenja prilagodi posameznemu bolniku glede na aktivnost bolezni. Pri bolnikih brez aktivne bolezni je odmerjanje enkrat na 12 tednov, z aktivno boleznijo pa enkrat na 8 tednov. ◊ *Pediatrična populacija:* Varnost in učinkovitost brolucizumaba pri otrocih in mladostnikih, starih manj kot 18 let, nista bili dokazani. Podatkov ni na voljo. Način uporabe: Zdravilo Beovu je namenjeno samo za intravitrealno uporabo. Postopek intravitrealnega injiciranja je treba opraviti v aseptičnih pogojih. Po prejemu intravitrealne injekcije je treba bolnikom naročiti, naj brez odlašanja obvestijo zdravnika, če opazijo simptome, ki bi lahko pomenili, da gre za endoftalmitis (na primer bolečine v očesu, rdečina očesa, fotofobija ali zamegljen vid). **Kontraindikacije:** Preobčutljivost na učinkovino ali katero koli pomožno snov. Bolniki z aktivno okužbo očesa, okolice očesa ali s sumom na okužbo teh predelov. Bolniki z aktivnim intraokularnim vnetjem. P**osebna opozorila in previdnostni ukrepi:** ◊ Sledljivost: Zabeležiti je treba ime in številko serije uporabljenega zdravila. ◊ Endoftalmitis, intraokularno vnetje, travmatska katarakta, odstop mrežnice, raztrganina mrežnice, retinalni vaskulitis in/ali retinalna vaskularna okluzija: Bolnikom je treba naročiti, da v primeru simptomov, ki bi lahko pomenili, da gre za katerega od zgoraj naštetih dogodkov, to takoj sporočijo. ◊ Intraokularno vnetje, vključno z retinalnim vaskulitisom in/ali retinalno vaskularno okluzijo: Pri bolnikih s prisotnimi protitelesi, ki so se razvila zaradi zdravljenja, so opažali večje število dogodkov intraokularnega vnetja. Do njega lahko pride po prvem intravitrealnem injiciranju, pa tudi sicer kadarkoli v času zdravljenja, vendar so pojavljanje teh dogodkov opažali pogosteje v začetnem obdobju zdravljenja. Po podatkih kliničnih študij so se navedeni dogodki pri bolnicah ženskega spola pojavljali pogosteje kot pri bolnikih moškega spola in pri bolnikih japonskega porekla. Bolnikom, pri katerih se ti dogodki pojavijo, je treba zdravljenje z zdravilom Beovu ukiniti, dogodke pa takoj obravnavati. Bolnike z anamnezo intraokularnega vnetja in/ali retinalne vaskularne okluzije (v 12 mesecih pred prejemom prve injekcije zdravila Beovu) je treba skrbno spremljati. Interval med dvema odmerkoma zdravila Beovu pri vzdrževalnem zdravljenju ne sme biti krajši od 8 tednov. ◊ Zvišanje očesnega tlaka: V 30 minutah po intravitrealnem injiciranju so opažali prehodno zvišanje očesnega tlaka. Posebna previdnost je potrebna pri bolnikih s slabo urejenim glavkomom. ◊ Obojestransko zdravljenje: Varnosti in učinkovitosti hkratnega zdravljenja obeh očes z brolucizumabom niso proučevali. ◊ Imunogenost: Ker gre za terapevtski protein, obstaja možnost imunogenosti. Bolnikom je treba naročiti, naj obvestijo zdravnika, če opazijo simptome, kot so bolečine v očesu ali povečano nelagodje v očesu, čedalje izrazitejša rdečina očesa, zamegljen vid ali poslabšanje vida, povečano število drobnih delcev v vidnem polju ali povečana občutljivost na svetlobo. ◊ Sočasna uporaba drugih zdravil, ki delujejo proti VEGF: Podatkov o sočasni uporabi zdravila Beovu z drugimi zdravili, ki delujejo proti VEGF, na istem očesu ni na voljo. Brolucizumaba se ne sme aplicirati sočasno z drugimi zdravili, ki delujejo proti VEGF (sistemskimi ali očesnimi). ◊ Odlog zdravljenja: vsaj do naslednjega dogovorjenega datuma za zdravljenje je potreben v naslednjih primerih: poslabšanje najboljše korigirane vidne ostrine za ≥ 30 črk; raztrganina mrežnice; krvavitev pod mrežnico; izvedena ali načrtovana intraokularna operacija vpredhodnih ali sledečih 28 dneh. ◊ Raztrganina pigmentnega epitelija mrežnice: Pri uvajanju brolucizumaba bolnikom z dejavniki tveganja je potrebna previdnost. ◊ Regmatogeni odstop mrežnice ali foramen makule: Zdravljenje je treba prekiniti pri osebah z regmatogenim odstopom mrežnice ali foramnom makule 3. ali 4. stopnje. ◊ Sistemski učinki po intravitrealni uporabi: Poročali so o sistemskih neželenih dogodkih, med drugim o ne-očesnih krvavitvah in arterijskih trombemboličnih dogodkih, do katerih je prišlo po intravitrealnem injiciranju zaviralcev VEGF. O varnosti zdravljenja bolnikov, ki imajo SDM ali DME in anamnezo možganske kapi, prehodnega ishemičnega napada ali miokardnega infarkta v zadnjih 3 mesecih, je na voljo le malo podatkov. Pri zdravljenju takih bolnikov je potrebna previdnost. Skupine bolnikov z omejeno količino podatkov: Pri bolnikih s sladkorno boleznijo z vrednostjo HbA1c, višjo od 10 %, ali s proliferativno diabetično retinopatijo je izkušenj z uporabo zdravila Beovu malo. Prav tako ni izkušenj z uporabo zdravila Beovu pri bolnikih s sladkorno boleznijo, ki imajo neurejeno hipertenzijo. **Medsebojno delovanje z drugimi zdravili in druge oblike interakcij:** Študij medsebojnega delovanja niso izvedli. **Ženske v rodni dobi** morajo uporabljati učinkovito kontracepcijo v času zdravljenja z brolucizumabom. **Nosečnost:** Brolucizumaba se ne sme uporabljati med nosečnostjo. **Dojenje:** Uporaba brolucizumaba ni priporočena v času dojenja. **Plodnost:** Obstaja možnost škodljivega vpliva na sposobnost razmnoževanja pri ženskah. **Vpliv na sposobnost vožnje in upravljanja strojev:** Zdravilo Beovu ima blag vpliv na sposobnost vožnje in upravljanja strojev zaradi možnih začasnih motenj vida. **Neželeni učinki:** ◊ *Vlažna oblika SDM:* Najpogosteje so poročali o zmanjšani vidni ostrini (7,3 %), katarakti (7,0 %), vezničnih krvavitvi (6,3 %) in motnjavah v steklovini (5,1 %). Najresnejši neželeni učinki so bili slepota (0,8 %), endoftalmitis (0,7 %), zapora mrežnične arterije (0,8 %) in odstop mrežnice (0,7 %). ◊ *DME:* Neželeni učinek, o katerem so najpogosteje poročali, je bila vezнична krvavitev (5,7 %). Najresnejša neželena učinka sta bila zapora mrežnične arterije (0,5 %) in endoftalmitis (0,3 %). Neželeni učinki, o katerih so poročali v kliničnih študijah: Pogosti: preobčutljivost (vključno z urtikarijo, izpuščajem, srbenjem in eritemom), zmanjšana vidna ostrina, mrežnična krvavitev, uveitis, iritis, odstop steklovine, raztrganina mrežnice, katarakta, vezнична krvavitev, motnjave v steklovini, bolečine v očesu, zvišan očesni tlak, konjunktivitis, raztrganina pigmentnega epitelija mrežnice, zamegljen vid, abrazija roženice, točkasti keratitis. Občasni: slepota, endoftalmitis, odstop mrežnice, vezнична hiperemija, močnejše solzenje, neprijeten občutek v očesu, odstop pigmentnega epitelija mrežnice, vitritis, vnetje sprednjega prekata, iridociklitis, zamotnitev vsebine sprednjega prekata, edem roženice, krvavitev v steklovino, retinalna vaskularna okluzija, retinalni vaskulitis. **Preveliko odmerjanje** lahko zviša očesni tlak. Zato je v tem primeru treba spremljati očesni tlak in začeti z ustreznim zdravljenjem. **Imetnik dovoljenja za promet z zdravilom:** Novartis Europharm Limited, Vista Building, Elm Park, Merrion Road, Dublin 4, Irska **Način in režim predpisovanja in izdaje zdravila:** ZZ **Datum priprave informacije:** maj 2022

Referenci: 1. Povzetek glavnih značilnosti zdravila Beovu, marec 2022. **2.** Brown DM, et al. KESTREL and KITE: 52-Week Results From Two Phase III Pivotal Trials of Brolucizumab for Diabetic Macular Edema. Am J Ophthalmol. 2022 Jun;238:157-172.

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1. Raxone SmPC, julij 2022.

BISTVENI PODATKI IZ POVZETKA GLAVNIH ZNAČILNOSTI ZDRAVILA

▼Za to zdravilo se izvaja dodatno spremljanje varnosti. Tako bodo hitreje na voljo nove informacije o njegovi varnosti. Zdravstvene delavce naprošamo, da poročajo o katerem koli domnevnem neželenem učinku zdravila.

Raxone 150 mg filmsko obložene tablete

Kakovostna in količinska sestava: Ena filmsko obložena tableta vsebuje 150 mg idebenona. Pomožne snovi z znanim učinkom: Ena filmsko obložena tableta vsebuje 46 mg laktoze (v obliki monohidrata) in 0,23 mg sončno rumenega barvila FCF (E110). **Indikacije:** Zdravilo je indicirano za zdravljenje vidne okvare pri mladostnikih in odraslih z Leberjevo dedno optično nevropatijo (LHON-Leber's Hereditary Optic Neuropathy). **Odmerjanje:** Zdravljenje mora začeti in nadzorovati zdravnik z izkušnjami z LHON. Priporočeni odmerek je 900 mg idebenona na dan (300 mg trikrat na dan). Podatki o neprekinjenem zdravljenju z idebenonom do 24 mesecev so na voljo kot del odprtega kliničnega preskušanja, kontroliranega s skupino z naravnim potekom bolezni. Pri starejših bolnikih za zdravljenje LHON posebno prilagajanje odmerka ni potrebno. Pri zdravljenju bolnikov z jetrno ali ledvično okvaro je treba biti previden, saj so neželeni dogodki povzročili začasno prekinitev ali prenehanje zdravljenja. Pri bolnikih z ledvično okvaro je zaradi pomanjkanja zadostnih kliničnih podatkov potrebna previdnost. Varnost in učinkovitost zdravila pri bolnikih, mlajših od 12 let, še nista bili dokazani. **Način uporabe:** Filmsko obložene tablete je treba pogoltniti cele in z vodo. Tablete se ne smejo prelomiti ali žvečiti. Zdravilo je treba jemati skupaj s hrano, saj ta poveča biološko uporabnost idebenona. **Kontraindikacije:** Preobčutljivost na učinkovino ali katero koli pomožno snov. **Posebna opozorila in previdnostni ukrepi:** Bolnike je treba redno spremljati skladno z lokalno klinično prakso. Kadar se zdravilo predpiše bolnikom z jetrno ali ledvično okvaro, je potrebna previdnost. Presnovki idebenona so obarvani, zato lahko povzročijo kromaturijo, tj. rdečerjavo obarvan urin. Ta učinek je neškodljiv, ni povezan s hematurijo in ne zahteva nobenega prilagajanja odmerka ali prekinitve zdravljenja. Potrebno je pozorno spremljanje za zagotovitev, da kromaturija ne prikrije sprememb barve zaradi drugih vzrokov (npr. ledvičnih ali krvnih bolezni). Zdravilo vsebuje laktozo. Bolniki z redko dedno intoleranco za galaktozo, odsotnostjo encima laktaze ali malabsorpcijo glukoze/galaktoze ne smejo jemati tega zdravila. Zdravilo vsebuje sončno rumeno barvilo (E110), ki lahko povzroči alergijske reakcije. **Interakcije:** Idebenon je blag zaviralec CYP3A4 *in vivo*. Substrate encima CYP3A4, za katere je znano, da imajo ozek terapevtski indeks, kot so alfentanil, astemizol, terfenadin, cisaprid, ciklosporin, fentanil, pimozid, kinidin, sirolimus, takrolimus ali alkaloidi rženega rožička (ergotamin, dihidroergotamin) je treba pri bolnikih, ki prejemajo idebenon, uporabljati previdno. Idebenon lahko zavira P-glikoprotein z morebitnim povečanjem izpostavljenosti npr. dabigatraneteksilatu, digoksinu ali aliskirenu. Ta zdravila je treba pri bolnikih, ki prejemajo idebenon, uporabljati previdno. **Neželeni učinki:** Najpogosteje poročani neželeni učinki so blaga do zmerna driska (ki navadno ne zahteva prekinitve zdravljenja), nazofaringitis, kašelj in bolečina v hrbtu. **Način in režim izdaje:** Predpisovanje in izdaja zdravila je le na recept zdravnika specialista ustreznega področja medicine ali od njega pooblaščenega zdravnika. **Imetnik dovoljenja za promet:** Santhera Pharmaceuticals (Deutschland) GmbH, Marie-Curie Strasse 8, 79539 Lörrach, Nemčija. **Datum zadnje revizije besedila: 21.07.2022. Pred predpisovanjem se seznanite s celotnim povzetkom glavnih značilnosti zdravila.**

Prosimo vas, da poročate o katerem koli domnevnem neželenem učinku zdravila na: santhera@EU.propharmagroup.com

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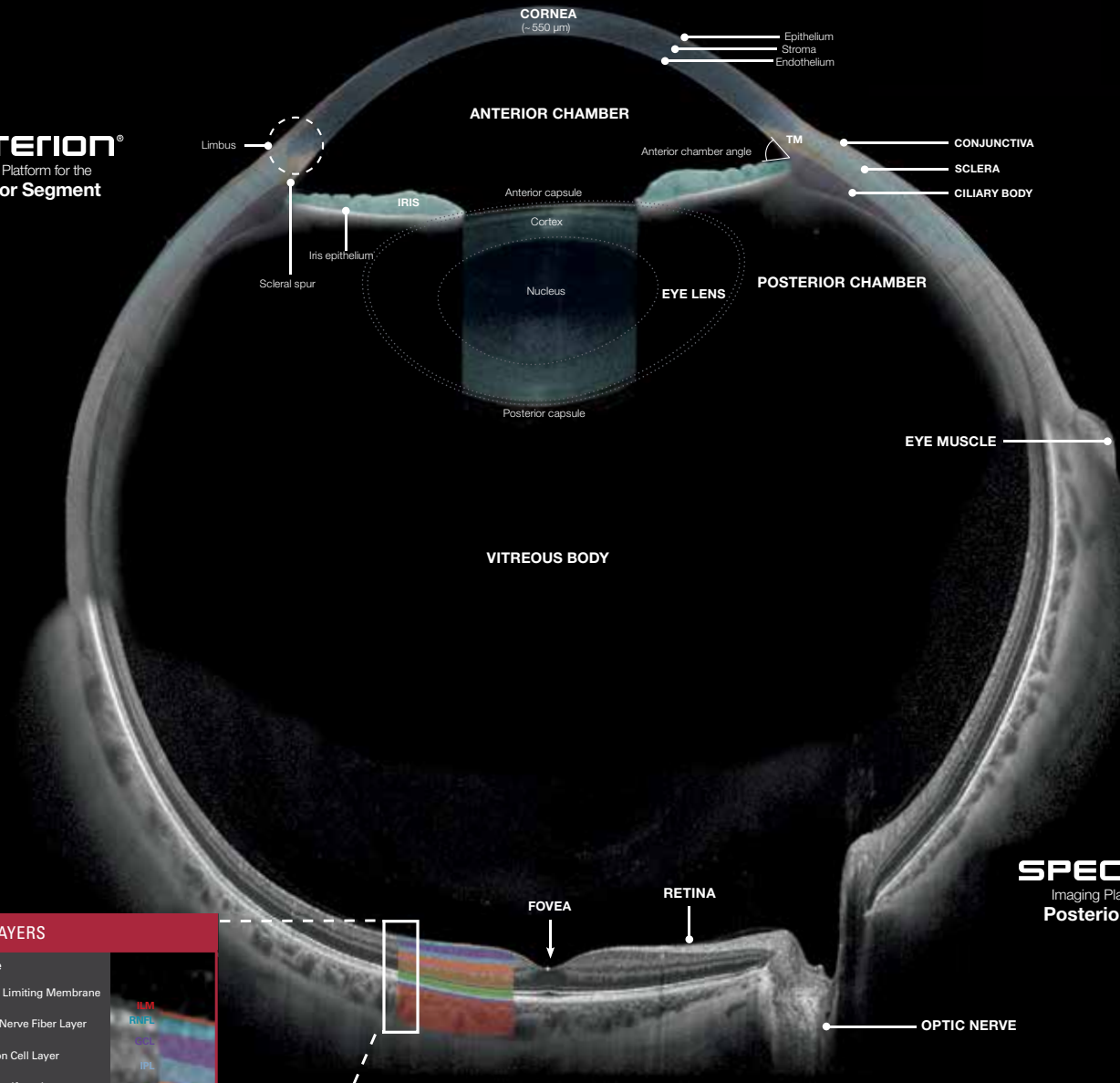

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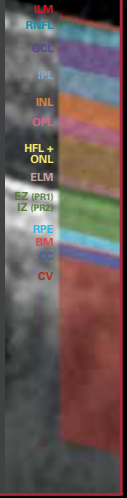
Abbr.	Name
ILM	Internal Limiting Membrane
RNFL	Retinal Nerve Fiber Layer
GCL	Ganglion Cell Layer
IPL	Inner Plexiform Layer
INL	Inner Nuclear Layer
OPL	Outer Plexiform Layer
HFL + ONL	Henle's Fiber Layer + Outer Nuclear Layer
ELM	External Limiting Membrane
EZ (PR1) IZ (PR2)	Layer of Inner and Outer Segments Ellipsoid zone and Interdigitation zone
RPE	Retinal Pigment Epithelium
BM	Bruch's Membrane
CC	Choriocapillaris
CV	Medium and Large Choridal Vessels



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