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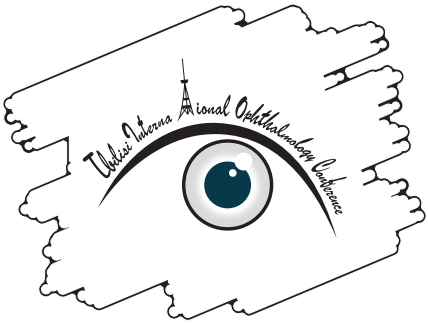

ABSTRACT BOOK

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OUR EXPERIENCE OF HOME IOP MONITORING, ITS ANALYSIS AND INTERPRETATION

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Glaucoma keeps the lead in the list of the diseases leading to irreversible ocular changes, visual acuity decreases up to its complete loss. In spite of abundance of instruments for early glaucoma diagnosis, in a majority of patients, the diagnosis is established at moderate or advanced stages of the disease. Open-angle glaucoma is accompanied by a triad of signs, of which the IOP level demands a particular and more frequent control, as it physiologically and pathologically changes within 24 hours and has so-called circadian rhythms. This is why a single IOP measurement during the ophthalmologist's office hours does not provide a comprehensive diagnostic insight. 24-hour IOP monitoring in the setting of an ophthalmology department also has a number of shortcomings: it demands an involvement of a lot of staff members, changes of patient's usual lifestyle, increasing number of social interactions, which in turn increases the risks of contacts with asymptomatic carriers of respiratory infections. These and other unmentioned limitations are excluded in 24 hours home IOP monitoring.

In our study and clinical practice, we used a hand-held device – a rebound tonometer for self-tonometry - iCare HOME («iCare Finland», Helsinki, Finland), as it is the most close as respect to IOP measurements accuracy in comparison with the "gold standard" – the Goldman tonometry. The device is simple and pretty handy in use, but demands a certain patient's dexterity and examining doctor's experience in teaching the tonometry and in interpretation of findings.

In patients with concomitant systemic conditions which could influence the IOP measurement process, such as tremor or restricted hand joints mobility and flexibility, impaired coordination of movements (e. g. after a stroke), hearing loss, as well as nystagmus, this method of IOP monitoring is inappropriate. In such cases, the accompanying person or a relative residing with the patient were taught to carry out the measurement procedure. The influence of the hand piece angular orientation towards the top of the cornea, coaxial aligning of the optical axis of the eye and any gravitational force due to the tilt of the measurement axis up or down, position of eyelids, orbicular muscle innervation on the IOP measurement accuracy is reduced to a minimum due to the presence of systems of eye recognition "EyeSmart" of

the green indicator of the aspect sensor “EyePoss”. A frequent blinking due to the dry eye syndrome could also influence the process and consequently the result of the IOP measurement, but we alleviated this factor in consequence with preliminary dry eye syndrome treatment.

By the interpretation of findings, one has not to forget about factors influencing the IOP measurement result. They are: central corneal thickness, corneal astigmatism, decent hand of the patient, hand-piece position towards the central corneal area at the measurement, position of the patient during the measurement (only vertical and in sitting position), direction of the gaze, reflex narrowing of the palpebral fissure (when bringing the device to the eye). For 24 hours home IOP monitoring, we used the biorythmologic scheme of IOP testing, proposed by Professor Yu.S. Astakhov in 2008, which allows to refine the IOP status, to reveal its occult peaks, and to implement the IOP measurement procedure into the patient’s usual rhythm and way of life.

Within the framework of our study, we examined 218 patients (429 eyes) (7 patients had sight in one eye only). Teaching patients to perform self-tonometry with iCare HOME took in average 12±4,0 minutes. The range was from 8 to 20 minutes. Most patients noted that the measurement was relatively simple, fast and comfortable, and would use the tonometer at home. Taking into consideration among others, our constructive feedback and recommendations concerning the device’s design, in November 2021, its revised version came out.

In the case of a single IOP measurement, the need in changing or enhancing therapy arose only in 25 % of cases, at the same time, after analyzing the circadian monitoring, the therapy was changed or enhanced in 61% of cases.

After having investigated the long-term glaucoma progression dynamics, we formulated the following recommendations on the interpretation of the findings of the 24-hour home IOP monitoring: in patients with glaucoma stage 1-2, at IOP lower than 21 mm Hg and peak-to-peak fluctuations of more than 8-10 mm Hg – the therapy is not to be changed; in patients with glaucoma stage 1-2, at IOP higher than 21 mm Hg and peak-to-peak fluctuations of more than 8-10 mm Hg – the therapy has to be en-

hanced, changed; in patients with glaucoma stage 3, at IOP lower than 21 mm Hg and peak-to-peak fluctuations of less than 6-7 mm Hg – the therapy is not to be changed; in patients with glaucoma stage 3, at IOP higher than 21 mm Hg and any peak-to-peak fluctuations – the therapy has to be enhanced, changed.

Conclusion.

1. The 24-hour home intraocular pressure monitoring is very important for obtaining a full diagnostic image and timely correction of treatment.
2. This monitoring method is essential for glaucoma suspects and for those with suspected loss of glaucomatous process stabilization at confirmed glaucoma diagnosis.
3. In circadian monitoring, a correction of the regimen of medical therapy is possible as indicated by individual IOP rise peaks. This, in many instances, allows reaching the "target" IOP level without replacing/adding other medications.
4. The proposed intraocular pressure monitoring type allows to arrange, to retain and to possess a database for each patient. This makes significantly easier the out-patient monitoring of patients with ophthalmic hypertension or open-angle glaucoma.

RETINAL MICROCIRCULATION CHANGES IN COVID-19 PATIENTS DURING 6 MONTHS FOLLOW-UP

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Introduction. COVID-19 is considered as a viral respiratory disease accompanied by involvement of the vascular wall endothelium and associated with hypercoagulable syndrome. The main pathogenetic link of coronavirus infection is systemic endotheliitis and endothelial dysfunction. The observed ocular manifestation of COVID-19 is COVID-associated retinopathy (CAR), which manifested itself by retinal microangiopathy and relevant fundus findings. For now, it is not clear whether CAR may progress over time and whether its signs persist in the delayed period of COVID-19.

Aim. To study the state of the retinal vasculature (capillary plexuses) and its changes over time in the acute and delayed period of COVID-19.

Methods. The study included 11 people (22 eyes) with history of moderate or severe COVID-19 within 60 days before the study. The control group included 10 people who did not have COVID-19 earlier or were vaccinated at least 6 months before the study. All patients underwent standard ophthalmological examination and optical coherence tomography-angiography of the retina. Vessel density was assessed in the superficial (SVP), deep (DVP) and radial peripapillary (RPC) retinal plexuses, retinal thickness (RT) and retinal nerve fiber layer (RNFL) were also examined the first day of the study and after 5 months (4 to 6 months). The groups were homogeneous in terms of gender and age.

Results. According to optical coherence tomography-angiography data, the vessel density was significantly lower in the main group of patients than in the control group. Vessel density in SVP was 41.3 vs. 46.8 ($P<0.001$), in DVP 45.5 vs. 49.1 ($P<0.001$), in RPC 49.9 vs. 50.6 ($P=0.075$). In the main group, within 4-6 months, a SVP vessels density decreased from 41.3 to 38.4 ($P<0.001$), DVP vessels density decreased from 45.5 to 43.6 ($P=0.018$), and RPC vessels density decreased from 49.9 to 47.5 ($P<0.001$). In the control group, no significant changes in vessel density were detected during the observation period: dynamic values for SVP were 46.8 and 47.8 ($P=0.674$), for DVP 49.1 and 50.3 ($P=0.774$), for RPC 50.6 and 50.2

(P=0.520), respectively. The group of patients with COVID-19 also showed a decrease of RNFL thickness (96 and 91 μm, P=0.031) and RT (286 and 283 μm, P=0.149), which correlated to SVP density parameters (r=0.341, P<0.001) and those of RPC (r=0.212, P>0.001), respectively.

Conclusion. Patients who have had COVID-19 have a significant decrease in the density of retinal capillary perfusion. These changes persist for at least 6 months and tend to progress.

WOLFRAM SYNDROME: ATYPICAL CASE OF PAINLESS VISION LOSS

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Introduction: Wolfram Syndrome, once considered a 1/500,000 disease, is now proven to occur with far greater frequency in certain populations. This results in increased incidence and prevalence of Wolfram-like syndrome, presenting as Type 1 diabetes or optic nerve atrophy. The study of Wolfram syndrome may lead to a breakthrough for treatments of not only Wolfram syndrome, but also more common diseases such as type 1 diabetes, type 2 diabetes, and neurodegenerative diseases. With this new data in mind, it is of crucial importance to raise awareness among eye-care professionals about recognizing and managing patients with this condition. Diagnosis is suspected in cases of childhood-onset diabetes mellitus and optic atrophy, and this visual impairment is not due to the diabetes.

Case Report: A 29-year-old woman presents to the ophthalmologist complaining of progressive painless vision loss, which is chronic and bilateral in nature. She attributed it to the amount of time spent in front of the screen. She had been previously diagnosed with major depressive disorder, diabetes mellitus and diabetes insipidus. VA and BCVA did not correlate adequately with her refraction. During fundus examination bilateral generalized pallor of the optic discs with CD/R of 0.6 and 0.7 respectively, was documented. IOP was WNL. Visual field examination yielded a bilateral generalized VF constriction, while OCT revealed bilateral severe GCC and

RNFL loss. The patient was referred to radiology for contrast MRI of head and orbit and to ENT for audiometry.

MRI demonstrated a mild atrophy of brainstem and cerebellum, coronal T2 weighed orbital images demonstrated bilateral optic nerve atrophy. On audiometry the patient had bilateral sensorineural hearing loss.

Conclusion: By gathering all the information stated above, most importantly the combination of DM, DI, optic atrophy, bilateral sensorineural hearing loss and radiology findings – the patient was diagnosed with Wolfram Syndrome. This case clearly illustrates the significant clinical value of the detailed patient history and importance of multidisciplinary approach in carrying out the correct diagnosis.

Discussion: Wolfram syndrome (known by the acronym DIDMOAD) is an inherited condition characterized by diabetes insipidus, childhood-onset diabetes mellitus, a gradual loss of vision caused by optic atrophy, and deafness. Other symptoms may include bladder and bowel dysfunction, vestibular deficits, ataxia, anxiety and depression and olfactory deficits. Wolfram syndrome is inherited in autosomal recessive fashion and differ by their molecular causes. Type 1 is caused by mutation in the WFS1 gene, while type 2 is caused by mutation in the CISD2 gene. Some cases of Wolfram syndrome type 1 have an autosomal dominant inheritance and are more severe. The patient in the presented case could not provide any details about one of the parents and the other parent had no relevant symptoms or complains.

The study of pathogenesis of Wolfram Syndrome could aid in understanding the underlying mechanism of cell death in endoplasmic reticulum stress-mediated diseases (like Alzheimer's, Parkinson's, ALS) and potentially developing of treatment for multiple other common condition (e.g., Type 2 diabetes). The endoplasmic reticulum is a well-known site of protein folding, cellular calcium homeostasis and cell death. Protein misfolding and aggregation at this locus is one of the major causes of its dysfunction and stress, which leads to development of numerous neurodegenerative conditions. Recognition of Wolfram syndrome has significant clinical and scientific value for both health care professionals and patients.

SHORT-TERM CLINICAL RESULTS OF THE PRESERFLO MICROSHUNT IMPLANTATION IN GLAUCOMA PATIENTS

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Background/Aims: To evaluate the short-term clinical outcomes of Preserfo Microshunt (Santen) implantation surgery, which is proposed as a safer and less invasive approach to treat patients with medically uncontrolled primary open-angle glaucoma.

Methods: 6 pseudophakic eyes of 6 patients with primary open-angle, pseudoexfoliative and pigmentary glaucoma received Preserflo microshunt with mitomycin-C for the first time in Georgia. Intraocular pressure, medications, complications were assessed and analyzed in the short term.

Results: 6 eyes show reduction in IOP after surgery from preoperatively. IOP was lowered with – 14 ±4 mmHg from baseline. Transient ocular Hypotony - IOP 5 mmHg was observed in 1 eye. No choroidal effusion, keratitis, iris-tube contact, exposed Tenon's capsule, bleb leaks, infections and other serious early post- operative complications were seen. Ocular hypotensive medication was reduced in all patients.

Conclusion: In the short term, the Preserflo MicroShunt shows high safety profile and is effective for lowering IOP.

გლაუკომის მქონე პაციენტებში "PRESERFLO" მიკროშუნტის გამოყენების მოკლევადიანი კლინიკური გამოცდილება

მ.ომიაძე, ნ.თხელიძე, რ.ომიაძე, თ.მელაძე

მიზანი: გლაუკომის მქონე პაციენტებში "Preserfo" მიკროშუნტის (Santen) იმპლანტაციის მოკლევადიანი კლინიკური შედეგების შეფასება.

„Preserfo" შემოთავაზებულია პირველადი ღიაკუთხოვანი გლაუკომის მქონე პაციენტების ქირურგიული მკურნალობისთვის. არსებული კვლევების მიხედვით გლაუკომის ტრადიციულ ქირურგიასთან შედარებით

„Preserfo“ - ს იმპლანტაცია წარმოადგენს ნაკლებად ინვაზიურ მეთოდს და გააჩნია ნაკლები პოსტოპერაციული გართულებები.

მეთოდები: პირველად საქართველოში ფსევდოექსფოლიაციური, პიგმენტური და პირველადი ღიაკუთხოვანი გლაუკომის მქონე 6 პაციენტის 6 არტიფაკიულ თვალზე ჩატარდა “Preserflo” მიკროშუნტის იმპლატაცია მიტომიცინ-C- გამოყენებით. მოკლევადიან პერიოდში შეფასდადაგაანალიზდათვალშიდაწნევისმაჩვენებელი,ჰიპოტენზიური მედიკამენტების საჭიროება და რაოდენობა, ოპერაციის შემდგომი გართულებები.

შედეგები: “Preserflo” მიკროშუნტის იმპლატაციის შემდგომ ექვსივე თვალში შემცირდა თვალშიგა წნევა - მაჩვენებელი საწყისთან შედარებით დაქვეითდა - 14 ± 4 მმ.Hg - ით. გარდამავალი ჰიპოტონია - IOP 5 mmHg დაფიქსირდა 1 თვალში. არ გამოვლენილა ცილიოქოროიდული ჩამოცლა, კერატიტი, ფერადი გარსისა და მიკროშუნტის კონტაქტი, სისხლჩაქცევები, ინფექციები და სხვა სერიოზული ადრეული პოსტოპერაციული გართულებები. პოსტოპერაციულად ჰიპოტენზიური მედიკამენტების რაოდენობა შემცირდა ყველა პაციენტში.

დასკვნა: მოკლევადიან პერიოდში “Preserflo” მიკროშუნტი ეფექტურად ამცირებს თვალშიგა წნევას და ახასიათებს მაღალი უსაფრთხოების ხარისხი.

MINI-MONOKA STENT AND NASOLACRIMAL DUCT OBSTRUCTION IN CHILDREN: INITIAL RESULTS

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Key words: lacrimal duct obstruction, chronic dacryocystitis, Mini-monoka stent, Congenital nasolacrimal duct obstruction

Frequent causes of persistent lacrimation in children are stenoses and obstructions of the lacrimal passages of both congenital and traumatic genesis. The treatment of diseases of the lacrimal passages is a rather complicated problem, which is most often solved by surgical intervention. The basic principles of lacrimal duct obstruction treatment include recanalization, maintenance of the point of contact with the lacrimal lake, and preservation of the lacrimal pump. Numerous procedures have been tried and described with varying degrees of success. However, recanalization with Mini-Monoka stents remains the most popular and widely practiced by surgeons, with a reported anatomic success rate of 94.1% and a functional success rate of 62.5% [1,2,3].

The purpose is to analyze the performance of a Mini-Monoka stent in the management of congenital and traumatic nasolacrimal duct obstruction in pediatric patients, conducted on the basis of the Kazakh Research Institute of Eye Diseases for 2021-2022 years.

Materials and methods. A study was made of 10 patients (12 eyes) with congenital and traumatic nasolacrimal duct obstruction aged 5 to 16 years. All patients underwent a standard ophthalmological examination, which included: visometry, biomicroscopy. Functional success was defined as the disappearance of all symptoms of epiphora.

Results. A total of 12 Mini-Monoka stents (FCI Ophthalmics) were placed in 10 children. Surgery in cases of congenital NLDO was successful in 92.2% of cases, with a mean follow-up time of 3.2 months (range: 1 to 12 months). 2 patients underwent combined operation including reconstructive plastic surgery of the lower eyelid. In the postoperative period, all patients underwent lacrimal flushing 1 and 3 months after surgery. The overall success with disappearance of all symptoms of epiphora was 98.8%.

Conclusions. The analysis of nasolacrimal duct obstruction surgery in pediatric patients showed:

The use of Mini-Monoka stents in the surgical treatment of pediatric patients with nasolacrimal obstruction of various genesis is the preferred choice of treatment with favorable anatomical, functional, and physiological results.

Surgical treatment in the volume of one-stage reconstructive operations on the eyelids and tear ducts requires qualified specialists and availability of the whole range of equipment and consumable materials, but restoration of all anatomical structures of the eye results in higher functional in pediatric patients.

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CATARACT SURGERY IN PATIENTS WITH KERATOKONUS

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The article presents an analysis of data from patients with keratoconus after cataract surgery. The main approaches in the choice of tactics and stages of surgical treatment, as well as the features of the choice of IOL are highlighted.

Key words: keratoconus, cataract, phacoemulsification cataract surgery, IOL, astigmatism, crosslinking, SCL, scleral lenses.

The problem of cataract surgery in patients with keratoconus is associated with the lack of standard approaches to the feasibility and stages of crosslinking, the timing of refraction stabilization after crosslinking, and the difficulty in calculating and choosing an IOL model.

The purpose is to analyze the data of patients with keratoconus in combination with cataract surgery, conducted on the basis of the Kazakh Research Institute of Eye Diseases for 2021-2022 years.

Materials and methods. A study was made of 11 patients (14 eyes) with keratoconus after cataract surgery aged 52 to 59 years, including 2 men, 8 women and two children aged 3 and 7 years. All patients underwent a standard ophthalmological examination, which included: visometry, measurement of intraocular pressure (IOP), biomicroscopy, keratorefractometry, and an additional study - Pentakam keratotopography. The postoperative follow-up period ranged from 1 to 12 months.

Results. In total, 10 thousand cataract phacoemulsifications were performed at the Kazakh Research Institute of eye diseases in 2021-2022, of which 11 were performed in patients with keratoconus, which corresponded to 0.11%. All adult patients underwent cataract phacoemulsification with IOL implantation, 9 patients with age-related cataract. The children underwent cataract phaco-aspiration with IOL implantation.

The level of intraocular pressure in all patients was within the normal range before and after surgery. The biomicroscopic picture is without features, in 4 patients with advanced stages of keratoconus there was a Fleischer ring in both eyes, in 3 patients with Vogt's striae in 1 eye, in one patient there was central corneal opacity, possibly as a result of acute keratoconus transferred more than 20 years ago, the patient does not know.The keratotopogram in 6 patients showed characteristic "asymmetric hourglass" patterns, in 4 patients the same asymmetric "bow tie" pattern, this study was not possible for children.

5 years before cataract surgery, 1 patient underwent crosslinking in 1 eye, and another 1 patient was observed for keratoconus since 2001, in all other cases, keratoconus was an "incidental finding".Toric IOL was implanted in 2 patients with astigmatism more than 4 diopters, which made it possible to obtain high visual acuity - up to 0.7-0.8.Toric IOL was implanted in 2 patients with astigmatism more than 4 diopters, which made it possible to obtain high visual acuity - up to 0.7-0.8.In other cases, 10 patients were

implanted with standard monofocal IOL models with recommendations for resolving the issue of further contact correction with toric or scleral lenses.

Conclusions. The analysis of cataract surgery in patients with keratoconus showed:

1. Lack of unified approaches to the sequence of surgical interventions: crosslinking, cataract phacoemulsification with IOL implantation, corneal transplantation. Each case must be dealt with on an individual basis.
2. It is necessary to follow up a patient with keratoconus for at least 2 years prior to the planned cataract surgery in order to decide on the advisability of crosslinking in the preoperative period and to decide on the implantation of a toric IOL.
3. Cataract surgery in children with keratoconus is one of the stages in an integrated approach to their rehabilitation, requiring further dynamic monitoring with the correction of existing refractive disorders and the fight against amblyopia.

NEW APPROACH IN MANAGING PATIENTS AFTER CATARACT SURGERY WITH DEXAMETHASONE+LEVOFLOXACIN AND DICLOFENAC SODIUM EYE DROPS, 1.5 YEAR FOLLOW UP

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Aim: Cataract surgery is the most common operation performed worldwide in ophthalmology. A fixed topical corticosteroid-antibiotic combination with NSAIDs eye drops were prescribed for 4 weeks to treat inflammation and prevent possible infection of the eye after cataract surgery in adults.

Methods: 180 eyes of 160 patients undergoing cataract phacoemulsification were treated with Dexamethasone+Levofloxacin 1 mg+5 mg/5ml 6 times/d - 1 week, 4 times/d - 1 week, 3 times/d - 1 week, 2 times/d - 1 week combined with Diclofenac sodium 0.1% 5ml 3 times/d - 1 week, 2 times/d - 1 week, 1 times/d - 1 week.

Results: No case of after cataract surgery complications such as bruising and swelling of the eyelid, increased intraocular pressure, and allergic reaction to the above-mentioned eye drops, any discharge from the eye, endophthalmitis, cystoid macular edema and etc. were reported.

Conclusion: Dexamethasone+Levofloxacin combined with Diclofenac sodium treatment shows efficacy and is well-tolerated, reduces quantity and frequency of instillation thus it might be a better and convenient, time saving regimen for postoperative use.

INTRA OCULAR LENS OPACIFICATION – MANAGEMENT

Giorgi Petriashvili, Mzia Goisashvili, Salome Khukhia (versi Clinic)

> **Objective:** The effect of the type of intraocular lens material on its effectiveness. It is important to integrate the artificial intraocular lens with the intraocular tissues and maintain its rigidity for a long time.
>
> In the recent years, the most common complication of cataract extraction is posterior capsule rupture. All this is influenced by its material and design. Hydrophobic and hydrophilic crystals are used widely today.

Method: Surgery is the only way to get rid of a cataract. Despite the existing studies, the effectiveness of medicinal products is not confirmed.Surgery is recommended when cataracts prevent you from going about your daili activities such as reading or driving. It's also perfomed when cataract interfere with the treatment of other problems. During the surgical intervention, the existing cloudy Lens is replaced. The quality and composition of the lens determine the results of implantation, phacoemulsification both in the early and later postoperative period. We would like to offer you a technique that has become necessary during the total disruption of the hydrophilic intraocular lens.

Conclusion: after cataract extraction, a contact with the type of intraocular lens material was statistically established, not only the disruption of the

posterior capsule, but also its total disruption. This pathology was revealed during the use of hydrophilic acrylic IOL.

Results: the use of similar lens allows us to avoid both total disruption of the artificial lens and fibrosis of the posterior capsule.

ხელოვნური ბროლის შემღვრევა - გამოსავალი

გიორგი პეტრიაშვილი, მზია გოისაშვილი, სალომე ხუხია (კლინიკა ავერსი)

მიზანი: თვალშიდა ხელოვნური ბროლის მასალის ტიპის გავლენა მის ეფექტურობაზე. დიდი მნიშვნელობა ენიჭება თვალშიდა ხელოვნური ლინზის შეთავსებას თვალშიდა ქსოვილებთან და მისი გამჭირვალობის შენარჩუნებას დიდი ხნის მანძილზე.

ბოლო წლების განმავლობაში კატარაქტის ექსტრაქციის ყველაზე ფართოდ გავრცელებული გართულებად ითვლება უკანა კაფსულის შემღვრევა. ამ ყველაფერზე კი გავლენას ახდენს მისი მასალა და დიზაინი. სადღეისოდ ფართოდ გამოიყენება ჰიდროფობული და ჰიდროფილური ბროლები.

მეთოდი: კატარაქტა, ეს არის დაავადება რომლის მკურნალობის მეთოდად ქირურგია გამოიყენება. თემის აქტუალურობას განაპირობებს დაავადების გავრცელების სიხშირე და შეუქცევადი სიბრმავე რომელის მიზეზიც კატარაქტა ხდება. ქირურგიული ჩარევის დროს ხდება არსებული შემღვრეული ბროლის შეცვლა. ბროლის ხარისხი და შემადგენლობა კი განაპირობებს იმპლანტაციის შედეგებს, ფაკოემულსიფიკაციის როგორც ადრეულ პოსტოპერაციულ პერიოდში ასევე მოგვიანებით. გვინდა შემოგთავაზოთ ტექნიკა, რომლის გამოყენებაც გახდა საჭირო ჰიდროფილური თვალშიდა ლინზის ტოტალური შემღვრევის დროს.

დასკვნა: კატარაქტის ექსტრაქციის შემდგომ სტატისტიკურად დადგინდა კავშირი თვალშიდა ხელოვნური ბროლის მასალის ტიპთან არა მხოლოდ უკანა კაფსულის შემღვრევა არამედ მისი ტოტალური შემღვრევა. ეს პათოლოგია კი გამოვლინდა ჰიდროფილური აკრილის ბროლების გამოყენების დროს.

შედეგები: მსგავსი ბროლების გამოყენება გვაძლევს საშუალებას თავიდან ავიცილოთ ხელოვნური ბროლის როგორც ტოტალური შემღვრევა ასევე უკანაკაფსულის ფიბროზი.

SELECTIVE LASER TRABECULOPLASTY (SLT) - ITS IMPORTANCE IN THE MANAGEMENT OF PIGMENTARY GLAUCOMA AND IN GENERAL OPHTHALMOLOGY.

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Objective: To inform the public about the advantages and disadvantages of (SLT) in the management of glaucoma patients, to review its availability and outcomes. I would like to drow your attention on the type of glaucoma caused by pigment deposition in the trabecular area of the eye.

Purpose: Condition and Mechanism of Pigmented Dispersive Glaucoma (PDG) is often elevated to 30-80 mmHg. The anterior chamber is open. By gonioscopy: pigment is deposited in the corner of the anterior chamber, which prevents the evacuation of aqueous humor in the trabecular zone, the mechanism of the mentioned condition and its overview.

Methods: Selective laser trabeculoplasty (SLT) - its purpose, availability and advantages, pros and cons of this treatment method.

Conclusion: The role of laser surgery in modern medicine occupies a large place. A frequent complication of pigmentary glaucoma is an increase in intraocular pressure and a decrease in vision, this pathology could be manifested in the case of a number of diseases such as: Glaucoma, Iridocyclitis, Endophthalmitis, Exfoliation syndrome and others.

შერჩევითი ლაზერული ტრაბეკულოპლასტიკა (SLT) - მისი მნიშვნელობა პიგმენტური გლაუკომის მართვაში და ზოგად ოფთალმოლოგიაში.

(ავერსის კლინიკა) გიორგი პეტრიაშვილი, ბაჩანა ომიაძე.

მიზანია: საზოგადოებას გავაცნოთ (SLT) - ის უპირატესობები და უარყოფითი მხარეები გლაუკომიანი პაციენტების მართვაში, მიმოვიხილოთ მისი ხელმისაწვდომობა და შედეგები. ყურადღებას გავმახვილებ გლაუკომის იმ ტიპზე რომელიც გამოწვეულია პიგმენტის დეპონირებით თვალის ტრაბეკულარულ არეში.

მიზანი: პიგმენტირებული დისპერსიული გლაუკომის მდგომარეობა და მექანიზმი (თშწ) ხშირად მომატებულია 30-80 მმ.ვწყ.სვ.-მდე.წინა საკანი არის ღია. გონიოსკოპიით: წინა საკნის კუთხეში პიგმენტი არის დეპონირებული რაც ხელს უშლის წყალწყალა ნამის ევაკუაციას ტრაბეკულარულ ზონაში , აღნიშნული მდგომარეობის მექანიზმი და მისი მიმოხილვა.

მეთოდები: შერჩევითი ლაზერული ტრაბეკულოპლასტიკა (SLT) - მისი მიზანი, ხელმისაწვდომობა და უპირატესობები, აღნიშნული სამკურნალო მეთოდის დადებიტი და უარყოფითი მხარეები.

დასკვნა: თანამედროვე მედიცინაში ლაზერული ქირურგიის როლი დიდ ადგილს იკავებს. პიგმენტური გლაუკომის ხშირი გართულება არის თვალშიდა წნევის მომატება და მხედველობის დაქვეითება, აღნიშნული პატოლოგია შესაძლოა გამოვლინდეს რიგი დაავადებების შემთხვევაში როგორებიცაა: გლაუკომა, ირიდოციკლიტი, ენდოფთალმიტი , ექსფოლიაციური სინდრომი და სხვა.

SHORT TERM SURGICAL OUTCOMES OF THE ARTIFICIAL ENDOTHELIAL LAYER "ENDOART ®" IMPLANTATION, IN PATIENTS WITH CHRONIC CORNEAL EDEMA.

R.Omiadze, M.Dvali, N.Labauri, M.Omiadze, I. Shalev, D.Ofer, S.Tsiklauri, M.Zalinian, G.Mekvabishvili, A.Vachiberidze, T.Mamageishvili, T.Sulkhanishvili, L.Sabanadze, O.Huseynov

Abstract: Background/Aims: To evaluate short term clinical safety and efficacy study of the EndoArt® implantation in patients with chronic corneal edema, which is a synthetic biocompatible artificial endothelial layer.

Methods: 15 eyes of 15 patients with chronic corneal edema , 14 pseudophakic bullous keratopathy and 1 Fuchs disease, received EndoArt® implantation in three different clinics , first time in Georgia. Central corneal thickness, change in best corrected distance visual acuity (BCDVA) from baseline, and complications were assessed and analyzed in 2-6 months postoperatively.

Results: 15 eyes showed marked reduction in CCT measured by anterior segment OCT (mean 246 μm) improvement of BCVA (mean 0.11). Complications include implant graft decentration, detachment, pain due to transient IOP elevation, conjunctival hyperemia.

Conclusion: In short term Endoart ® showed safe and effective profile in patients with chronic corneal edema.

რქოვანას ეპითელიალურ ენდოთელიალური დისროფიით დაავადებულ პაციენტებში, ხელოვნური ენდოთელიუმის "ენდოარტ®"- ის გადანერგვის კლინიკური დაკვირვების მოკლევადიანი შედეგები

რ.ომიაძე, მ.დვალი, ნ.ლაბაური, მ.ომიაძე, ი.შალევ, დ.ოფერ, ს.წიკლაური, მ.ზალინიან, გ. მექვაბიშვილი, ა.ვაჩიბერიძე, თ.მამაგეიშვილი, თ.სულხანიშვილი, ლ.საბანაძე, ო.ჰუსეინოვ

თეზისები: საფუძველი/მიზანი: სინთეტური, ბიოშეთავსებადი ხელოვნური ენთოთელური შრის, ენდოარტ®-ის იმპლანტაციის მოკლევადიანი კლინიკური შედეგების შეფასება, რქოვანას ქრონიკული შეშუპებით დაავადებულ პაციენტებში.

მეთოდი: 15 პაციენტის 15 რქოვანას ქრონიკული შეშუპებით დაავადებულ თვალში, საიდანაც 14 თვალი იყო ფსევდოფაკიური ბულოზური კერატოპათიით და 1 ფუქსის სინდრომით დაავადებული, პირველად საქართველოში, სამ სხვადასხვა კლინიკაში გადაინერგა ენდოარტი®. 2-6 თვიანი პოსტოპერაციული დაკვირვების შედეგად შეფასდა და გაანალიზდა რქოვანას ცენტრალური სისქის, თვალშიდა წნევის, მხედველობის სიმახვილის ცვლილებები და გართულებების ალბათობა.

შედეგები: 15 თვალზე ოპტიკურ კოჰერენტული ტომოგრაფიის (246μm) მონაცემებით, აღინიშნა რქოვანას ცენტრალური სისქის შემცირება. მხედველობის სიმახვილე გაუმჯობესდა (საშუალოდ 0.1 მდე).

2 პაციენტს აღენიშნებოდა ენდოარტ®-ის დეცენტრაცია, თვალის ტკივილი თვალშიდა წნევის მომატების გამო, კონიუნქტივის ჰიპერემია.

დასკვნა: მოკლევადიანმა დაკვირვებამ აჩვენა ენდოარტ®-ის გადანერგვის უსაფრთხოება და ეფექტურობა რქოვანას ქრონიკული შეშუპებით დაავადებულ პაციენტებში.

"FS200" - LASER ASSISTED, MUSHROOM SHAPED PK SURGERY: SURGICAL OUTCOMES AND BENEFITS (4 YEAR CLINICAL RESULTS).

Prof. M.Omiadze, R.Omiadze, N.Antelava

Abstract: Beckground/Aims: Femtosecond laser technology has evolved as an alternative method to make surgical incisions in penetrating keratoplasty. The use of this approach has a number of purported advantages that lead to superior clinical outcomes compared with manual trephination in intraoperative and postoperative outcomes. To evaluate clinical outcomes and benefits of femtosecond laser FS-200 assisted PK surgery intra and posoperative period in patients with end stage keratoconus.

Methods: 42 eyes of 38 patients ,with end stage keratoconus underwent mushroom shaped femtosecond laser FS200 assisted PK surgery. BCVA, post surgical astigmatism, healing period, rehabilitation period, graft rejection rate and other complications where assessed and analyzed 4 years postoperatively.

Results: 40 eyes showed marked improvements of BCVA (mean 0.40) less post surgical astigmatism, (mean 2.9 diopters) increased wound healing activity, faster healing period and evidence for earlier suture removal (6 months)

Conclusion: The use of the FS 200 laser improve clinical outcomes in PK, and is superior to manual trephination in intraoperative and postoperative outcomes.

“სოკოს ფორმის“ განაკვეთის გამოყენება ფემტო ლაზერ FS-200 - ის საშუალებით, რქოვანას გამჭოლი კერატოპლასტიკის დროს: ქირურგიული შედეგები და უპირატესობები (4 წლიანი დაკვირვების შედეგები)

პროფ. მ.ომიაძე, რ.ომიაძე, ნ.ანთელავა

საფუძველი/მიზანი: ფემტო ლაზერული ტექნოლოგიის განვითარებამ მოგვცა საშუალება, გამოგვეყენებინა სხვადასხვა პროფილის ქირურგიული განაკვეთები, გამჭოლი კერატოპლასტიკის დროს.

კვლევის მიზანია, გამოვიკვლიოთ ფემტო ლაზერ FS-200-ის საშუალებით, სოკოს ფორმის განაკვეთის ფორმირების უპირატესობა ინტრა და პოსტოპერაციულ პერიოდში, IV სტადიის კერატოკონუსის ქირურგიული მკურნალობის დროს.

კვლევის მეთოდი: 38 პაციენტის 42 თვალზე IV სტადიის კერატოკონუსის დიაგნოზით ჩატარდა გამჭოლი კერატოპლასტიკა ფემტო ლაზერ FS-200ის «სოკოს ფორმის» განაკვეთის გამოყენებით. პოსტოპერაციულად, 4 წლიანი დაკვირვების ვადაში შეფასდა მხედველობის სიმახვილე, პოსტოპერაციული ასტიგმატიზმი, შეხორცების პროცესი, რეაბილიტაციის პერიოდი, ტრანსპლანტანტის შემღვრევის ალბათობა და სხვა გართულებები.

შედეგები: პოსტოპერაციულმა დაკვირვებამ გამოავლინა მხედველობის სიმახვილის მკვეთრი გაუმჯობესება (საშუალო 0.4), ნაკლები პოსოპერაციული ასტიგმატიზმი (2.9 D), ჭრილობის შეხორცების პროცესის დაჩქარება, ნაკლები რეაბილიტაციის პერიოდი და ნაკერების მოხსნის ადრეული შესაძლებლობა (6 თვე).

დასკვნა: ფემტო ლაზერ FS-200ის გამოყენებამ აჩვენა გამჭოლი კერატოპლასტიკის უპირატესი შედეგები მანუალურ ტრეპანაციასთან შედარებით ინტრა და პოსტოპერაციულ პერიოდში.

VISUAL OUTCOMES AND SAFETY OF EXTENDED DEPTH OF FOCUS INTRAOCULAR LENS LUXSMART IN CATARACT SURGERY

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Current clinical options for patients with cataracts wishing to improve vision across a range of distances include a choice of monovision or multifocal intraocular lens (IOL). Patients implanted with standard monofocal IOLs often need spectacles for reading or performing other near tasks, even if a monovision option is selected. More recently, a new-concept IOL was introduced based on extended depth of focus (EDoF) technology.

The LuxSmart (Bausch+Lomb) extended depth-of-focus IOL - single piece, 4 fixation points and 360° posterior square-edges, preloaded acrylic hydrophobic IOL, asphericity modulation design with the combination of 4th and 6th orders of spherical aberration of opposite signs.

Purpose: to evaluate effectiveness and safety LuxSmart IOL (Bausch+Lomb) compared with a monofocal 1-piece hydrophilic acrylic IOL Akreos Adapt AO (Bausch+Lomb).

Material and methods: Prospective, randomized study with inclusion and exclusion criteria was conducted in 2021-2022. All patients provided written informed consent. Patients were assigned 1:1 to receive either the model YSMART or the model ADAPT-AO IOL; each patient was to receive the same IOL model in both eyes. Study investigators were not masked, but all participants and study evaluators responsible for conducting vision testing remained masked to the type of IOL implanted in each eye during the 6-month study period.

Emmetropia (within ±0.5 D) was targeted for all eyes in the study, with the targeted residual refractive error documented.

All patients were intended to have bilateral small-incision phacoemulsification cataract surgery with inserted into the capsular bag IOL and were to be examined through 6 months postoperatively according to the visit schedule. Uncorrected distance visual acuities (UDVA), uncorrected intermediate visual acuities (UIVA) and uncorrected near visual acuities (UNVA)

were tested. Monocular corrected distance contrast sensitivity testing was performed using the contrast sensitivity charts under 3 lighting conditions.

Results: Of the 99 patients enrolled, 48 patients (48.5%) were implanted with the LuxSmart IOL (96 bilaterally implanted) and 51 patients (51.5%) with the Akreos Adapt IOL (102 bilaterally implanted). Patient demographics were similar between the YSMART and ADAPT-AO IOL control groups.

At the 6-month follow-up, the YSMART and ADAPT-AO IOL groups demonstrated similar mean monocular UDVA (Snellen equivalent 20/25 vs 20/25) and CDVA (20/20 vs 20/20). Differences UNVA between IOL groups were statistically and clinically significant, with a larger proportion (>50%) of the patients implanted with YSMART IOL vs ADAPT-AO IOL.

At the 6-month follow-up, the YSMART and ADAPT-AO IOL groups had similar mean binocular UDVA (Snellen equivalent 20/21 vs 20/20; $p=0.36$) and CDVA (20/20 vs 20/16) which was within the noninferiority margin of 1 line. The postoperative mean binocular UNVA and UIVA were significantly better for YSMART IOL compared with ADAPT-AO IOL ($p<0.01$).

No statistically significant difference was found between IOL groups for mean target spherical equivalent, mean spherical equivalent at 6 months, and mean refractive cylinder at 6 months ($p>0.05$).

The optical power of intraocular lenses was calculated using the formula SRK/T and Barrett Universal II. The 6-month postoperative absolute manifest SE relative to the intended emmetropic target was within ±0.50 D of emmetropia in 86 (89.6%) of the 96 YSMART IOL–implanted eyes and 91 (89.2%) of the 102 ADAPT-AO IOL–implanted eyes.

The median values for monocular best-corrected contrast sensitivity for YSMART and ADAPT-AO IOLs were not statistically different at 1.5 and 3.0 cycles per degree under either mesopic or mesopic with glare lighting conditions ($p>0.05$).

Eyeglasses wear was significantly lower for patients receiving the YSMART IOL compared with those receiving the ADAPT-AO IOL. At the 6-month postoperative visit, 43 (89.6%) of 48 patients with bilateral YSMART IOL vs 27 (52.9%) of 51 patients with ADAPT-AO IOL reported wearing specta-

cles or contact lenses none of the time or a little of the time for overall vision within the last 10 days ($p < 0.01$).

Conclusion: Clinical results at 6 months postoperatively demonstrated that EDoF IOL LuxSmart (Bausch+Lomb) provided patients with improved uncorrected intermediate and near visual acuity, comparable distance visual acuity, an increased depth of focus, and decreased use of eyeglasses when compared with the monofocal control IOL. Scrutiny of safety outcomes with the new IOL design revealed no significant safety concerns, acceptable contrast sensitivity, optical and visual symptoms, and low rates of adverse events.

Conflict of interest: none.

EFFICACY OF IMMEDIATE SEQUENTIAL BILATERAL PHACOEMULSIFICATION

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> **Actuality:** According to European Society of Cataract and Refractive Surgeons survey (2019), 67.2% of respondents made immediate sequential bilateral cataract surgery. There is evidence that the positive aspects of binocular phacoemulsification (BPE) of cataracts associated with faster rehabilitation, better functional results.

Purpose: to compare the results of monocular phacoemulsification (MPE) and binocular phacoemulsification.

Material and methods: The retrospective analysis included BPE data in 74 eyes (37 patients, group I) and MPE data in 76 eyes (51 patients, group II). Age range from 19 to 85 (61.6 ± 11.15) years. The gender distribution was characterized by the advantage of women ($n=52$; 59.1%) compared to men ($n=36$; 40.9%). All patients underwent a comprehensive standard

ophthalmological examination. The best corrected visual acuity (BCVA) was determined 6.4±0.33 (6-7) months after surgery.

Phacoemulsification (of a cataract or removal of atransparent lens) was performed according to the standard method using Centurion, Constellation, Infiniti (Alcon Laboratories, USA). The corneal incision was 2.2 mm (76%), 1.8 (12%) and 2.4 mm (12%).

Results: There were no intraoperative complications. In the early postoperative period, significant corneal edema was in 8 (10.8%) eyes after BPE and in 10 (13.2%) eyes after MPE. Hypertension was noted in 6 (8.1%) eyes after BPE and in 10 (13.2%) eyes after MPE. The lower incidence of complications after BPE is due to more careful selection of patients.

Significant increase of visual acuity was noted in preoperative period ($p<0.05$). Increase BCVA after BPE from 0.28±0.09 to 0.83±0.11 units was established; after MPE - BCVA from 0.24±0.07 to 0.81±0.13. There was a decrease in spherical refractive equivalent from -2.56±1.81 D in the preoperative period to -0.17±0.06 D in group I and from -1.96±0.08 D to -0.23 ±0.09 D postoperative in group II. Postoperative refraction in both groups did not differ significantly from the target. In group II, due to anisometropia, additional spectacle were required between operations in 22 (43.1%) patients.

Conclusion: Comparative study found no significant differences between two types of operations in the main criteria for clinical effectiveness: the frequency of intraoperative and postoperative surgical complications and best corrected visual acuity. The effectiveness of immediate sequential bilateral phacoemulsification is determined by quick rehabilitation, the need for only one pair of glasses, a decrease in visits to the clinic, the absence of anisometropia between operations.

Conflict of interest: none.

ПРОЛОНГАЦИЯ ГИПОТЕНЗИВНОГО ЭФФЕКТА ПОСЛЕ АНТИГЛАУКОМНЫХ ОПЕРАЦИЙ

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Введение: Глаукома, являясь ведущей причиной необратимой слепоты в мире, представляет значительную проблему общественного здравоохранения. Глаукомой страдают более 80 млн. человек во всем мире. Распространенность заболевания среди населения в возрасте 40-80 лет составляет 3,5%.

Пациенты, с момента установлении диагноза глаукомы, вынуждены получать назначенные гипотензивные капли пожизненно. Поскольку множество антиглаукомных капель, находящихся на сегодняшний день на рынке разных стран, содержат консерванты, мы должны стремится к уменьшению их отрицательного влияния на глазную поверхность.

Множество исследований показали, что под влиянием консервантов происходит увеличение количества и активности фибробластов, лимфоцитарной инфильтрации эпителия и основного вещества коньюнктивы, происходит выброс целого ряда биологически активных веществ: фактор некроза опухоли (ФНО), интерлейкины, С- реактивный белок. А так же происходит уменьшение числа бокаловидных клеток, вырабатывающих муцин и разрушение липидного слоя слезной пленки, что объясняет усиление симптомов ССГ. На фоне местной гипотензивной терапии развивается раздражение глазной поверхности. Пациенты начинают нарушать режим закапывания или полностью отменяют лечение самостоятельно. Нарушение комплаентности приводит к прогрессированию глаукомного процесса и, соответственно к возникновению необратимой слепоты.

По мере прогрессирования глаукомы, медикаментозная терапия имеет преимущественно вспомогательный характер. Основная роль

отводится хирургическим методом лечения, цель которых является более эффективное и стойкое снижение ВГД. Гипотензивный эффект вмешательств ограничивается степенью избыточного рубцевания созданных путей оттока внутриглазной жидкости.

Несмотря на значительные успехи в развитии микрохирургической техники глаукомы, нередко у некоторых больных в различные сроки после операции наступает рецидив стойкого повышения ВГД.

Последнее время отмечается тенденция к уменьшению сроков эффективности фистулизирующих операций по поводу глаукомы. Происходит более раннее фиброзирование фильтрационной подушки. Имеются данные о снижении эффективности хирургического лечения глаукомы в целом после продолжительного использования консервант-содержащих местных гипотензивных капель.

Цель нашей работы: Пролонгация гипотензивного эффекта антиглаукомных операции и уменьшиение отрицательных факторов, влияющих на процесс рубцевания фильтрационных подушек.

Клинические рекомендации: Анализируя результаты многочисленных исследований по поводу отрицательного влияния консервантов на глазную поверхность, несложно понять, что предпочтительнее назначать пациентам с глаукомой безконсервантные гипотензивные капли или же фиксированные комбинации с более низким их содержанием. Предпочтение следует отдавать препаратам пролонгированного действия, с меньшей кратностью закапывания. Важно уменьшить консервантную нагрузку на глазную поверхность.

Для пролонгации гипотензивного эффекта антиглаукомных операций необходима как адекватная местная противовоспалительная терапия в послеоперационном периоде, так и активная работа с фильтрационной подушкой. Процесс выраженного аутоиммунного воспаления заканчивается к концу первой недели после операции. В этом периоде важно увеличить кратность инстилляции стероидов до 6 раз в день и добавить местно НПВП к стандартной схеме.На сегоднящный день существуют разные методы, с помощью которых получаем гипотензивный эффект у пациентов после антиглаукомных

операции. Способом восстановления оттека водянистой жидкости после выполненной ранее антиглаукомной операции является наиболее простой - пальцевой массаж глазного яблока, также массаж с помощью специального массажера через верхнее веко. Ф. Врабец установил, что в трабекулярной строме имеются специальные нервные окончания (тельца Хербста), которые рассматриваются автором, как специфические барорецепторы, служащие для восприятия изменений внутриглазного давления, но вышеуказанные методы используется только в ранные сроки после операции.

Существует ряд методов восстановления функционирования фильтрационных подушек, например использование аргонового лазера для трансконьюнктивального рассечения швов склерального лоскута, применение фокусированного высокочастотного ультразвука для восстановления путей оттока после фистулизирующих операций.

По данным зарубежной литературы, в последних нескольких лет, в раннем послеоперационном периоде, параллельно стандартной противовоспалительной терапии применяют инъекции стероидов, цитостатиков и ингибиторов VEGF в зону фильтрационных подушек.

Работу с фильтрационной подушкой при неудовлетворительном результате после гипотензивных операции возможно с помощью нидлинга. Характерная тенденция: механическое разъединение рубцов под склеральным лоскутом с помощью инсулиновой иглы. Нидлинг (анг. «needle»-игла) – представляет собой ревизию фильтрационной подушки инъекционной иглой 27-30 G на шприце. По срокам проведения данной процедуры относительно гипотензивной операции разделяют ранний и поздний нидлинг. Задача раннего нидлинга с введением вышеперечисленных препаратов - профилактика избыточного рубцевания в 1-2 неделю после операции. Поздний нидлинг подразумевает механическое разрушение фиброзной капсулы подушки. По локализации ранний нидлинг чаще выполняют субконъюнктивально, а поздний – в основном субсклерально с ревизией склерального лоскута.

Таким образом, на сегодняшний день существует целый ряд методик и препаратов, своевременное применение которых может значительно увеличить эффективность фистулизирующих антиглаукомных операции и тем самым сохранить зрение нашим пациентам на долгие годы.

ЭФФЕКТИВНОСТЬ ОДНОМОМЕНТНОЙ ДВУСТОРОННЕЙ ФАКОЭМУЛЬСИФИКАЦИИ

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По опросу Европейского общества катарактальных и рефракционных хирургов (2019), 67,2% респондентов сообщили о выполнении ими немедленной последовательной двусторонней хирургии катаракты. Имеется достаточный объем данных, указывающих на положительные моменты проведения бинокулярной факоэмульсификации (БФЭ) катаракты, связанные с более быстрой реабилитацией, лучшими функциональными результатами.

Цель: сравнение результатов монокулярной факоэмульсификации (МФЭ) и бинокулярной факоэмульсификации.

Материал и методы. В ретроспективный анализ включены данные БФЭ 74 глаз (37 пациентов, I группа) и МФЭ 76 глаз (51 пациент, II группа). Возрастной диапазон от 19 до 85 (61,6±11,15) лет. Гендерное распределение: женщин (n=52; 59,1%), мужчин (n=36; 40,9%). Всем пациентам проведено комплексное стандартное офтальмологическое обследование. Оценка максимально корригированной остроты зрения (МКОЗ) вдаль проведена со средним сроком наблюдения 6,4±0,33 (6-7) месяца после операции.

Оперативное вмешательство (факоэмульсификация катаракты или удаление прозрачного хрусталика) проводили по стандартной методике с помощью приборов Centurion, Constellation, Infiniti (Alcon

Laboratories, США). Использовали роговичный разрез 2,2 мм (76%), 1,8 (12%) и 2,4 мм (12%).

Результаты. Интраоперационных осложнений не было. В раннем послеоперационном периоде значимый отек роговицы зафиксирован в 8 (10,8%) глазах после БФЭ и в 10 (13,2%) глазах после МФЭ. Транзиторная офтальмогипертензия отмечена в 6 (8,1%) глазах после БФЭ и в 10 (13,2%) глазах после МФЭ. Более низкая встречаемость осложнений после БФЭ обусловлена более тщательным отбором пациентов.

При оценке остроты зрения отмечено значимое увеличение по сравнению с дооперационным периодом ($p<0,05$). Установлено увеличение МКОЗ после БФЭ с $0,28\pm0,09$ до $0,83\pm0,11$ единиц, после МФЭ – МКОЗ с $0,24\pm0,07$ до $0,81\pm0,13$. Отмечено снижение сферического эквивалента рефракции с $-2,56\pm1,81$ D в дооперационном периоде до $-0,17\pm0,06$ D в I группе и с $-1,96\pm0,08$ D до $-0,23\pm0,09$ D во II группе. Во II группе из-за анизометропии между операциями потребовались дополнительные очки у 22 (43,1%) пациентов.

Заключение. Полученные данные свидетельствуют об отсутствии значимых различий между двумя видами операций по основным критериям клинической эффективности: частоте интраоперационных и послеоперационных осложнений и МКОЗ. БФЭ приводит к повышению качества зрения пациента и имеет дополнительные преимущества, включающие в себя быструю реабилитацию, необходимость только одной пары очков, меньшее количество визитов в клинику, отсутствие анизометропии между операциями.

ABSTRACT OBJECTIVE: TO DESCRIBE THE CLINICAL FINDINGS IN PATIENT WITH ACUTE IDIOPATHIC BLIND SPOT ENLARGEMENT (AIBSE) SYNDROME.

MD Zurab Glonti MD Shalva Skhirtladze MD Giorgi Mekvabishvili

Observations: A previously healthy 30 years old white male presented to the clinic with 1 week history of loss of peripheral vision on his left eye. Medical and Ocular history was unremarkable other than Lasik surgery on his right eye 2 years prior to the last visit. On examination BCVA was 20/20 on both eyes. Anterior segment was normal on both eyes. Fundus examination on the left eye revealed RPE changes, circumpapillary "subretinal grayish discoloration." Map of the central 30 degree of the visual field in the left eye showed an enormous blind spot. SS-OCT showed damage to the EZ from nasal retina to optic nerve head disc on the left eye. Early phase of FA demonstrated a ring of circumpapillary hypofluorescence. The patient was monitored without intervention for a period of 3 month.

Conclusion and importance: AIBSE syndrome is rare outer retinopathy. It presents as an isolated finding or as an entity of primary inflammatory choriocapillaropathies with circumscribed loss of outer retinal function. Currently treatment remains unlcear. No preventive measures to avoid the development of AIBSE Syndrome

SHORT-TERM CLINICAL RESULTS OF THE PRESERFLO MICROSHUNT IMPLANTATION IN GLAUCOMA PATIENTS

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Abstract

Background/Aims: To evaluate the short-term clinical outcomes of Preserfo Microshunt implantation surgery, which is proposed as a safer and less invasive approach to treat patients with medically uncontrolled primary open-angle glaucoma.

Methods: 6 eyes of 6 patients with primary open-angle, pseudoexfoliative and pigmentary glaucoma received Preserflo microshunt with mitomycin-C for the first time in Georgia. Intraocular pressure, medications, complications were assessed and analyzed in the short term.

Results: 6 eyes show reduction in IOP after surgery from preoperatively. IOP was lowered with – 14 ±4 mmHg from baseline. Transient ocular Hypotony - IOP 5 mmHg was observed in 1 eye. No choroidal effusion, keratitis, iris-tube contact, exposed Tenon's capsule, bleb leaks, infections and other serious early post- operative complications were seen. Ocular hypotensive medication was reduced in all patients.

Conclusion: In the short term, the Preserflo MicroShunt shows high safety profile and is effective for lowering IOP.

SULFONAMIDE DERIVATIVES OF NEW HETEROCYCLIC COMPOUNDS AS POTENTIAL ANTIGLAUCOMA AGENTS.

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Glaucoma is one of the most important causes of visual impairment and irreversible blindness. The global prevalence of glaucoma among the population aged 40–80 years is 3.54%. The leading trend in the treatment of glaucoma is the use of drugs that can be classified as first and second line drugs. Treatment begins with first-line drugs (prostaglandin analogues and beta-blockers). Second-line agents may also be of value in their own right, but are most often used as adjunctive therapy. One of the most active and safe group of second-line drugs are carbonic anhydrase inhibitors, which reduce intraocular pressure (IOP) by reducing the secretion of intraocular fluid in the processes of the ciliary body. There are systemic (acetazolamide and methazolamide) and non-systemic (dorzolamide and brinzolamide) drugs. The first of them are more effective, but have pronounced side effects, the second ones have a lesser therapeutic effect, but both of them do not have selectivity with respect to carbonic anhydrase isoforms responsible for the formation of intraocular fluid.

The aim of this work is to study the effect on IOP in rabbits of newly synthesized sulfonamide derivatives with oxadiazole (B1 and B2), oxazole (B3 and B4), and pyridazine (B5, B6 and B7) structural fragments with selectivity towards carbonic anhydrase II.

The experiments were carried out on 32 intact chinchilla rabbits weighing 3-3.5 kg. Each experimental group included at least 6 animals. Dorzolamide 2% was used as the reference drug; the test substances were administered as a 1% suspension. All drugs were administered in a volume of 0.05 ml. IOP of rabbits was determined using a TonoVet Icare veterinary blood pressure monitor. Rabbits were reused after a free two week period.

Experiments have shown that dorzolamide caused a significant decrease in IOP not earlier than 60 minutes after instillation, lasting up to 8 hours and with an effect strength of 6-24%. The maximum decrease in IOP was observed after 4 hours.

Of the seven studied drugs, two (B1 and B7) did not affect the level of IOP in rabbits, the remaining five sulfonamides significantly reduce the level of IOP.

So, B2 caused a short-term decrease in IOP no more than two hours with the onset of the effect within 30 minutes and with its maximum also after 30 minutes (by 9% of the original).

B3 began to act within the third hour after administration with a duration of effect of about 4 hours and a 9% reduction in IOP.

When using B4, the onset of the effect was observed within 30 minutes after administration, its duration was at least 24 hours, the strength of the IOP reduction was 11-31%, the maximum IOP reduction in relation to the initial value fell on the fourth hour.

Substance B5 also begins to act within 30 minutes after administration with a duration of therapeutic effect of at least 8 hours; the power of reducing IOP is 7-20%. The maximum decrease in IOP is 4 hours after administration. Starting from the 2nd hour of its use in the control eye, there was a significant decrease in IOP by 5-12% relative to the initial one, which may

be associated with the resorption of the drug from the mucous membrane of the eye and subsequent systemic action.

The onset of the IOP-lowering effect with Compound B6 was observed between the 30th and 60th minutes of the experience, with a duration of at least 24 hours. The strength of IOP reduction was 13-22%, and even 24 hours after administration, IOP reduction was 19% of the original. The maximum decrease in IOP was observed at the fourth hour after administration. In the control eye, there was a decrease in pressure by 8-16% relative to the initial state, starting from the 3rd hour to the 6th hour inclusive, which may be associated with the resorption of the drug from the mucous membrane of the eye and subsequent systemic action.

In the conclusion of our research, we can also note the following:

- when using substances B2, B4 and B5, a significant decrease in IOP in healthy rabbits began within 30 minutes (in dorzolamide - only after 60 minutes), and the duration of the effect on reducing IOP with the introduction of B4 and B5 was more than a day (dorzolamide - 8 hours);
- substances B5 and B6 may exhibit a systemic effect (there was a significant decrease in IOP in the control eye);
- substance B4 showed the greatest effect on lowering IOP (the maximum effect of lowering IOP with its use exceeded the effect of dorzolamide by 35%);
- sulfonamide derivatives containing oxazole and pyridazine structural fragments are more promising for the search for antiglaucoma drugs than sulfonamides with oxadiazole fragment.

The work was carried out within the framework of the state task of the Ministry of Education of the Russian Federation for research work “Development of an innovative drug for the treatment of open-angle glaucoma by selective inhibition of carbonic anhydrase II” (073-00109-22-02).

RETROSPECTIVE ANALYSIS OF ENUCLEATIONS BY NOSOLOGICAL FORMS AND GENDER CHARACTERISTICS.

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A retrospective analysis of 144 enucleations performed within 2009-2019 at the S. Fyodorov Eye Microsurgery Federal State Institution, Tambov branch was carried out. All cases were divided into 7 groups according to the current clinical and pathological indications. Clinical indications for enucleation were as follows: large malignant tumors, terminal aching glaucoma, infection or inflammation, acute trauma, post-traumatic uveitis, condition after repeated surgical interventions, cosmetic and combined causes. The most common causes for enucleation were post-traumatic uveitis - 37 eyes (25.7% of the total number of enucleations) and malignant neoplasms-36 eyes (25% of the total number of enucleations). The study of gender characteristics of patients undergone enucleation revealed a predominance of men. Male - 92 (63.9 %), female - 52 (36.1%) (differences were statistically significant, $x2 = 22.22$ $p<0.001$). At the same time, there were significant ($Z=2.92$ $p=0.004$) age differences between the gender groups. The minimum mean age values were 40.61 ± 25.7 in the posttraumatic uveitis group in men, and the maximum mean age values were 73 ± 25.7 years in women in the terminal aching glaucoma group. Enucleations associated with terminal aching glaucoma have decreased over the past few years compared to previous years. However, no changes were observed in cases where enucleation was associated with repeated surgical interventions, infectious and inflammatory processes.

Key words: enucleation, neoplasm, terminal glaucoma, anophthalmia

The purpose of the study: to analyze modern clinical and pathological indications for enucleation, gender characteristics of patients who underwent enucleation at the S. Fyodorov Eye Microsurgery Federal State Institution, Tambov branch for 10 years from 2009 to 2019.

Material and methods: a retrospective analysis of 144 cases of enucleation of the eyeball of 144 patients was carried out. Clinical indications for enucleation were taken as follows: large malignant tumors; painful terminal glaucoma, not previously operated on; infection or inflammation, for example, corneal ulcer with perforation, not treatable; acute trauma (at least 1 month has passed since the injury); post-traumatic uveitis; condition after repeated surgical interventions (endovitreal interventions, implantation

of the Ahmed valve, drains, CFC); cosmetic purpose (ophthalmia, subatrophy); other surgical interventions or combined causes.

Statistical processing. Statistical processing of the obtained data was carried out using the program "Statistica 10.0" (Dell Inc., USA). The statistical significance of the differences was assessed using the x2 criterion for qualitative features and the Mann-Whitney criterion for independent groups. The differences were considered statistically significant at $p<0.05$.

The first stage of the work consisted in a retrospective analysis of enucleations according to modern clinical and pathological indications for enucleation, gender characteristics of patients who underwent enucleation from 2009 to 2019.

Results: after analyzing the patients of 8 clinical groups, only 7 groups remained, since there were no patients with acute trauma during the examination period. The study of the gender characteristics of patients who underwent enucleation revealed the predominance of men. There were 92 men, which was 63.9%, 52 or 36.1% of women (the differences are statistically significant, x2 = 22.22 p0,001). At the same time, there were significant ($Z=2.92$ $p=0.004$) age differences between the gender groups: the age in the group of men was 58.5 (41; 73), in the group of women 71 (59;79). One of the most frequent causes of enucleation for 10 years has been malignant tumors. The number of enucleated eyes for large malignant neoplasms (according to J. Shields) was 36 eyes or 36 patients, or 25% of the total number of enucleations, the average age of men with a tumor was 59.6 ± 25.7 years (range 33-73 years), the average age of women was 62.6± 15.7 (range 24-83 years). Men 26 (72.97%), women 10 (27.03%). The second group with enucleation included patients with aching terminal glaucoma who had not previously been operated on for glaucoma - 19 eyes (13.2%). Men – 11, average age - 72.36 ± 25.7 years, (range 56-84), women - 8, average age - 73±25.7 years (range 72-87). This included patients with primary terminal aching glaucoma - 7 eyes, secondary aching glaucoma (neovascular, uveal, dystrophic, traumatic) - 12 eyes. Most of the enucleations occurred in the period from 2010 to 2012. The next indication for the removal of the eyeball was severe purulent-inflammatory processes that was not amenable to organ-preserving treatment. The number

of enucleations with this nosology is 21 eyes or 14.6% of the total number of enucleations. Men - 9 (42.9%), women - 12 (57.1%). The average age of men is 70.77±5.7, (range 55-87); the average age of women is 67.17 (range 54-84). The group with posttraumatic uveitis included patients with uveitis, including those with the threat of sympathetic inflammation on the background of trauma, mainly patients with a history of penetrating injury. A total of 37 eyes (which was 25.7% of the total). Men - 34, average age - 40.61±25.7 years (range 8-86), women - 3, average age - 46.3±25.7 years (range 30-80). 19 patients had a history of penetrating eye injury, including 12 – subsequent surgical interventions (with a multiplicity of 2-4). In 6 patients, inflammation developed after surgical interventions (with a multiplicity of 2-3). In 21 out of 37 patients, the eye injury was complicated by the development of subatrophy, in 2 – secondary glaucoma. Uveitis was accompanied by pain syndrome in 22 patients. The time from injury to enucleation ranged from 2 months to 12 years. The group of enucleations in the eyes after various surgical interventions included 27 (18.8%) cases. The average age of men is 67.8 (range 41-84), the average age of women is 70.9 (range 60-83). In 2 cases, enucleation was performed for cosmetic purposes: to a patient with ophthalmia without pain syndrome and to a patient with subatrophy of the eyeball with corneal cataract and retinal detachment. In 2 cases, enucleation was performed in patients with combined pathology. One patient had a combination of signs of uveitis with high IOP figures. The second patient had a history of buphthalmos, a condition after keratoplasty, signs of sluggish uveitis.

Conclusions: the most common causes of enucleation during 2009-2019 in the Tambov branch were post-traumatic uveitis - 37 eyes (25.7% of the total) and malignant neoplasms - 36 eyes (25% of the total number of enucleations). The study of the gender characteristics of patients who underwent enucleation surgery revealed the predominance of men. There were 92 men, which was 63.9%, 52 or 36.1% of women (the differences are statistically significant, x2 = 22.22 p0,001). At the same time, there were significant (Z=2.92 p=0.004) age differences between the gender groups: the age in the group of men was 58.5 (41; 73), in the group of women 71 (59;79). The minimum values of the average age are 40.61±25.7 in the group of men with post-traumatic uveitis, the maximum values of the av-

erage age are 73±25.7 years in the group of women with painful terminal glaucoma. The number of enucleations associated with terminal painful glaucoma has decreased over the past few years compared to previous years. However, no changes were observed in cases where enucleation was caused by repeated surgical interventions, infectious and inflammatory processes.

HIGH INTRAOCULAR PRESSURE MANAGEMENT WITH DIODE LASER TRANSSCLERAL COAGULATION IN PATIENT WITH SEVERE UVEITIS. A CASE REPORT

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Rationale: To report a case of diode laser transscleral cyclophotocoagulation (DLTSC) for severe uveitis-glaucoma in patient with intraocular artificial lens in both eyes.

Patient concerns:

The patient developed unknowns etiology uveitis on the both eyes (Ou) after intraocular lens (IOL) implantation.

Materials and methods:

BCVOD – 0.1 , BCVOS -Pr. Incerta, intraocular pressure (IOP) - TODt -35mm/hg , TOSt - 36mm/h. with ou -Taflotan 1x, dorzamed 2x, timolol 2x. OU corneal precipitates 10-12 in field ..

Interventions: DLTSC approach was performed in both eyes.
Outcomes:
BCVOD - 0.15
BCVOS – 0.08
Tod0= 10mhg -
Tos0 =19 mhg
lack of precipitate1/4.

Conclusion: High intraocular pressure management in severe uveitis using transscleral diode laser coagulation is effective for patients with artificial lens according one case (two eyes).

Keywords: case report, diode laser transscleral cyclophotocoagulation, severe uveitis glaucoma syndrome.

ADENO-ASSOCIATED VIRUS VECTOR RETINAL GENE THERAPY FOR PATIENTS WITH CHOROIDEREMIA: EFFICACY AND SAFETY

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Abstract

General Information: Choroideremia is a genetic, degenerative retinal disorder progressive degeneration of the retinal pigment epithelium (RPE), photoreceptors and choriocapillaris resulting from mutation of the CHM gene, with absence REP1 (functional ras-associated binding escort protein). An approved treatment for choroiderma is currently not available.

Aim of Research: To find safety and efficacy of retinal gene therapy with an adeno- associated virus vector (AAV2) which is designed to deliver the CHM gene (AAV2-REP1) (functional version) for treatment of patients with choroideremia.

Process Involved: Open-label Tübingen Choroideremia Gene Therapy (THOR) clinical trial was conducted in a single center. From January 11, 2016, through February 26, 2018, data were gathered. For six individuals with a molecularly verified diagnosis of CHM, 24-month data are given. It was done with intention-to-treat analysis.

Interventions Taken: AAV2-REP1 was administered to patients with a single subretinal injection of 1011 genome particles in the amount of 0.1 mL during vitrectomy into the one randomly chosen eye.

Principal Results and Actions: The best-corrected visual acuity (BCVA) difference between the treatment eye and the control eye from baseline to

month 24 was the study's primary end point. Secondary endpoints included spectral-domain optical coherence tomography evaluations from baseline to month 24 in the treated eye vs. the control eye, changes in fundus autofluorescence, and microperimetry parameters.

Results: Those 6 men who participated in the study had an average (SD) age of 54.9 (4.1) years at the time of recruitment. The mean (SD) BCVA score for the study eyes was 60.3 (13.4), or roughly 20/63 Snellen comparable, but for the control eyes it was 69.3 (20.6), or roughly 20/40 Snellen equivalent. At 24 months, the treated eyes' BCVA change was 3.7 (7.5) while the control eyes' change was 0.0 (5.1) (difference, 3.7; 95% CI, 7.2 to 14.5; P =.43). In the treated eyes, the mean change in retinal sensitivity was 10.3 (5.5 dB), while in the control eyes, it was 9.7 (4.9 dB) (difference, 0.6; 95% CI, 10.2 to 11.4; P =.74). There were 28 recorded adverse effects in total, all of which were consistent with the operation like conjunctival hyperemia and foreign body sensation.

Verdicts,Conclusion and Relevance: Although there was no discernible difference from control eyes, gene treatment with AAV2-REP1 was linked to the maintenance or improvement of visual acuity among 6 subjects. All of the surgical procedure's safety concerns were present, although none were deemed to be serious. The effectiveness and safety of AAV2-REP1-based gene therapy in choroideremia may be further defined by additional research.

Clinical Trial Registration information: Clinical Trials gov identifier: NCT02671539

Introduction: Very few people have choroideremia , an X-linked disease of the retina and choroid. Nyctalopia, a symptom of choroideremia, first appears in children. This is followed by a progressive narrowing of the visual fields, which causes vision loss in adolescence and eventually complete blindness. The illness is brought on by deletion or mutation of the CHM gene, which produces the ras-associated binding (Rab) escort protein 1 (REP1), which causes photoreceptor degradation and progressive loss of visual acuity in the retinal epithelial cells. Photoreceptor malfunction, depig-

mentation of the retinal pigment epithelium, neuronal cell death, and retinal remodeling are characteristics of choroideremia.

For choroideremia, there are no approved therapy options at the moment. However, the goal of gene therapy is to block or reduce this degeneration in order to retain VA.

Due to the small size of the CHM gene, packaging within an adeno-associated virus capsid(AAV2), easy access, and immune-privileged status of the eye, choroideremia is a good candidate for gene therapy. In six patients with choroideremia, an AAV2 vector expressing REP1 was administered in the first human clinical trial, which was reported in 2014. The progression of 21 and 11 letters in the treated eyes of two patients with advanced choroideremia and low baseline best-corrected visual acuity on the Early Treatment Diabetic Retinopathy Study chart was maintained at 3.5 years of follow-up. The other 4 patients had good baseline visual acuity, which was maintained at 6 months. 1 in 3 of the patients, and at 3.5 years in the fourth patient. The fourth patient had gotten a lesser dose of the vector than anticipated, and the drop in visual acuity in both of their eyes was thought to be the product of foveal degeneration.

The goal of the current study was to evaluate AAV2-REP1's safety and effectiveness in 6 CHM patients. Phase 2 trials are currently being done in the United States (NCT02553135), Canada (NCT02077361),9, and the United Kingdom as part of a wider, investigator-initiated initiative (NCT02407678). The final 24-month statistics from all 6 patients who received treatment in Tübingen, Germany, are presented here.

Methods: Plan and implementation of the study

Open-label, single-center, randomized clinical trial called THOR (Tübingen Choroideremia Gene Therapy) lasted 24 months.

10 Patients with CHM underwent a vitrectomy and received a single, 0.1-mL injection of 1011 genome particles of the gene therapy drug AAV2-REP1 (Nightstar Therapeutics) subretinally into the study eye. This dose was demonstrated to be efficient and well tolerated in an earlier trial. 8 Patients were monitored for 24 months following surgery and the injection was given on day 0. To lessen the possibility of an immunological reaction to the

vector, patients received oral prednisone, 1.0 mg/kg, starting on day 1 and continuing through day 19. Eyedrops containing moxifloxacin, 0.5%, and dexamethasone, 0.5%, were used starting on day 1 and lasting for 21 days. The study's control was the untreated fellow eye. Good Clinical Practice and all other pertinent regulatory standards were followed in the planning and execution of the study. The Paul-Ehrlich-Regulatory Institute's Authority in Germany, as well as the ethics committee of the University of Tübingen Faculty of Medicine in Germany, gave its clearance. Prior to taking part in the study, all patients provided written informed consent, and those who traveled were compensated.

Study Objectives: The change in best corrected visual acuity between the treatment eye and the control eye from baseline to month 24 served as the major end point.

Microperimetry parameters, changes in the area of fundus autofluorescence and spectral-domain optical coherence tomography analyses (ellipsoid zone and subfoveal choroidal thickness from baseline to month 24 in the treated eye vs. the control eye were included as secondary end points. Safety evaluations were done all through the trial.

Patients involved in trial: The trial was open to men who were 18 years of age or older and had a clinical and genetic diagnosis of choroideremia. Patients who met the criteria for inclusion had a logMAR of 0.14 to 1.02 in the study eye and a best corrected visual acuity letter score of 78 to 34 (Snellen equivalent: 20/32 to 20/300). Exclusion criteria included a history of amblyopia in the treated eye, any other genetic mutation resulting in a pathologic retinal condition, intraocular surgery within 6 months, use of oral corticosteroids within 14 days before study entry, any ocular morbidity that interfered with using the other eye as a long-term control, refusal to use barrier contraceptives, high fever or a high-fever disease, a history of autoimmune diseases and/or other systemic diseases. Patients who had undergone retinal surgery, any other ocular or non-ocular diseases or disorders, or conditions that would have affected research outcomes or the patient's capacity to participate and put them at risk as a result of study involvement were also excluded.

Randomization: Patients had one eye randomly assigned to receive therapy, and the other eye served as the research control in order to reduce selection bias.After informed consent was obtained, the lead investigator conducted the randomization, which was based on blocks that were randomly permuted using a random allocation sequence generator. An properly trained masked examiner performed fundus autofluorescence, microperimetry, and SD-OCT to reduce bias in the assessment of treated and control eyes. Additionally, a masked assessor who was not a member of the core study team and had no other involvement in the experiment evaluated best corrected visual acuity.

Evaluations: Clinical evaluations were done following surgery on days 7, 1, 3, 6, 9, 12, 18, and 24. Best corrected visual acuity was calculated using Early Treatment Diabetic Retinopathy Study vision charts, and a basic ocular examination was completed.

After 30 minutes of dark adaptation, as previously mentioned, visual fields were assessed using a 10-2 (68 stimuli) grid by fundus-controlled microperimetry. Fundus autofluorescence evaluations and SD-OCT were carried out as previously described using the Spectralis HRA + OCT system from Heidelberg Engineering. The amount of FAF that was still present at each visit was quantified, and the area's change over time was calculated. Investigators working behind masks at the Doheny Image Reading

Center in Los Angeles, California calculated the length of the unbroken EZ line in 97 consecutive B-scans of a 20° 20° volume scan to determine the area of the preserved EZ.

Statistical Analysis: All individuals who received at least 1 dose of AAV2-REP1 or corticosteroids and for whom at least 1 posttherapy safety evaluation was available were included in the safety population. All patients who were randomized, received AAV2-REP1, had at least one postbaseline assessment, and were included in the intention-to-treat population. There was no official calculation of sample size. Our research was intended to support several investigator-initiated trials. For categorical data, the number and proportion of patients in each category were estimated with 95%

CIs. The mean, 95% CI, and SD were computed for continuous data. Microperimetry data were analyzed between groups using a repeated-measures analysis of variance with Bonferroni correction. Results with 1-sided testing were deemed significant at P =.05.

Results

Characteristics: Six guys were enrolled who have choroideremia that was genetically proven. All patients were white and had mean (SD) ages of 54.9 (4.1) years. Patients' baseline best corrected visual acuity and choroideremia genotypes varied.

There were 28 adverse events recorded overall over the trial period, none of which were considered severe. Following vitreoretinal surgery with sutured sclerotomies, there were 15 ocular adverse events, the majority of which were common symptoms like conjunctival hyperemia and foreign body sensation. In addition, a preexisting cataract in patient worsened after vitrectomy in the treated eye, and three patients developed localized idiopathic thickening of the inner retina. These five adverse events remained unresolved at the time of the last visit. Patient with reexisting cataract reported worsening diplopia over the course of two years. None of the non-ocular adverse events had a documented, conceivable connection to the study method or study substance.

Visual Acuity analysis: The final best corrected visual acuity ETDRS mean (SD) score for the treated eyes was 64.0 (0.4) (20/50 Snellen equivalent), while the score for the control eyes was 69.3 (0.5) (20/40 Snellen equivalent). At three months, the treated eyes obtained a mean of 4.7 (10.9) letters, and they continued to gain a mean of 3.7 (7.5) letters at month 24. The control eyes at month 24 revealed no mean change from baseline (mean [SD], 0.0 [5.1] letters). The difference in best corrected visual acuity change across the groups was 3.7 letters (95% confidence interval [CI], 7.2 to 14.5 letters; P =.43]). At month 24, two patients (33%) and one patient (17%) in the treated eyes each gained 10 or more letters, while there was no change in the control eyes (difference, 33%; 95% CI, 21% to 71%; P =.50). In comparison to patients who had a better baseline visual acuity letter score (>73 [approximate Snellen equivalent 20/32]; loss of 2 and 3

letters), patients with moderate visual acuity loss (letter score of 73-34 [approximate Snellen equivalent 20/32 to 20/200]; n = 4) in the treated eye appeared to have experienced larger gains in visual acuity (mean, 5.5 letters; range, 1 to 15). No patient in any group lost 10 or more letters when baseline values were compared with month 24 values.

Microperimetry: In the treated eyes, retinal sensitivity increased by 10.3 (5.5) dB, while in the control eyes, it increased by 9.7 (4.9) dB (difference, 0.6; 95% CI, 10.2 to 11.4; P =.74). Despite improvements in all or part of the parameters (mean retinal sensitivity, peak retinal sensitivity, and/or gaze fixation area) in 5 of the 6 treated eyes, patient showed no improvement. Due to the procedure, he had a macular hole, which naturally closed by the end of the research. After omitting patient, quantitative analysis was done on the entire cohort to emphasize the potential efficacy in the absence of surgical problems.Two out of three patients with good, central fixation at start had the preferred retinal locus preserved in the area treated, according to analysis of the qualitative changes in fixation between baseline and month 24. In two of three patients with less-defined and/or eccentric fixation at baseline, the preferred retinal locus changed toward the treated area.

Anatomical Terminations: At month 24, treated eyes displayed mean decreases in preserved fundus autofluorescence area, preserved EZ, and preserved SFCT of 21%, 23%, and 5%, respectively, from baseline. Similar mean losses in intact FAF area (17%) and EZ (23%) as well as a higher mean decline in SFCT (24%), from baseline over 24 months, were seen in the control eyes.

Discussion: No differences in mean change in best corrected visual acuity or retinal sensitivity were seen between treatment and control eyes in this randomized clinical trial involving 6 individuals. While the control eyes exhibited no change from baseline to 24 months after vector injection, the treated eyes increased by a mean of 3.7 letters on the BCVA ETDRS score (P =.43. No patient had lost more than 3 letters at 24 months in the treated eye, despite the fact that 2 patients gained 10 or more letters in their treated eyes. The patient who performed the best (a 15-letter gain) had a substantial cataract when he or she was admitted; following surgery, his lens

status did not significantly improve, and no cataract extraction was done throughout the 24-month follow-up period. Contrarily, patient (an 11-letter gain) had the cohort's highest Lens Opacities Classification System score, and his cataract significantly worsened in both of his eyes after surgery. Both eyes had cataract extractions, however only the treated eye gained 11 letters compared to baseline; the untreated eye lost 8 letters. For patients with choroideremia , a progressive, degenerative disease with modest loss of visual acuity until later stages, sustained maintenance of visual acuity can be regarded as a clinically significant long-term therapy aim. When compared to patients with higher baseline visual acuity letter ratings, we saw that individuals with moderate visual acuity loss appeared to have larger visual acuity gains. This observation supports the theory that gene therapy is most likely to be effective in improving visual acuity in patients with choroideremia after the point at which foveal function begins to decline but before photoreceptors are irreversibly lost, even though the small sample size does not allow for any firm conclusions. The evidence supports the hypothesis that gene therapy is most likely to be effective in treating choroideremia patients' visual acuity after the point at which foveal function starts to decline but before photoreceptors are irreversibly lost, despite the small sample size making it impossible to draw any firm conclusions. It was reasonable to assume that, in line with earlier results, patients with highly functional fovea and excellent visual acuity would not likely suffer a further increase in best corrected visual acuity.

Because microperimetry relies on stimulus recognition, it is typically vulnerable to concentration and learning effects. When tests are given at 6-month intervals, it may also be subject to seasonal effects. These potentially conflicting effects were taken into account by using the same patient's contralateral eye as a control, which also offered a gauge of each patient's individual natural course of degeneration.Anatomic end points can also be used to evaluate therapeutic efficacy and are valuable objective variables and surrogate markers of treatment response. Natural disease progression in chorideremia is characterized by progressive, irregular loss of metabolically active retinal pigment epithelium, which can be recorded as the area of preserved autofluoresence. The EZ signal in SD-OCT has been established as a surrogate marker for vision in several studies because it is linked

to photoreceptor function. Across 24 months, no difference was detected in the rate of decline of preserved FAF area in treated and control eyes. This lack of response may be due to loss of fluorescence in choroideremia at the edge of retinal degeneration, whereas the gene therapy was targeted to the center of the fovea. To test this hypothesis, further follow-up of FAF area decline in treated eyes compared with untreated control eyes is warranted. Because the FAF area is directly correlated with overlying photoreceptors, the similar decline observed in EZ is not surprising. Greater SFCT has been associated with better visual acuity , possibly owing to improvements in photoreceptor metabolism and enhanced oxygenation of the outer retina, with subsequent improvements in function. Although the interim 12-month analysis suggested that the progressive loss of tissue was not slowed or halted within the first year following gene therapy, this longer-term follow-up at 24 months shows a slowdown in mean tissue loss in treated vs control eyes from baseline, as assessed by SFCT (−5% vs −24%, respectively). This observed delay in response could be because the surgical trauma offset any short-term therapeutic effect and is in line with reports from an independent study.

Throughout the course of the study, there were no significant adverse events or adverse responses due to vectors (January 11, 2016, to February 26, 2018). However, a cautious evaluation of the safety profile using the rule of three would indicate that any adverse event that wasn't noticed during the trial might still have an actual rate of 50%. 26 Independent investigations revealed comparable safety outcomes and thus support the idea that gene therapy using AAV2-REP1 has an acceptable safety profile, even though bigger cohorts are required to more fully explain the safety profile.

The same vector construct has already been used in three more clinical gene therapy experiments. The Canadian research (NCT02077361) (n = 6) indicated the same rate of retinal pigment epithelium loss in the treated and untreated eye over a 2-year period, with somewhat varied findings regarding visual acuity (one patient gaining 15 letters, one patient losing 8 letters). Xue et al.11, on the other hand, recently observed improved visual acuity in 14 of 14 treated eyes, with 6 treated eyes acquiring more than 1 line of vision (>5 letters) (NCT01461213). One treated eye had a 10-let-

ter gain, one treated eye had a 5-letter gain, and one untreated eye had a 4-letter gain, according to a different study (NCT02553135) on six patients. However, the BCVA letter score was constant (by 2 letters) in all other eyes.

Limitations and challenges: The results of this study should be viewed in light of its limitations, which include the study's limited patient sample size and brief follow-up duration. In addition, it is challenging to rule out placebo effects because the unmasked study design uses a subjective outcome metric like best correc ted visual acuity. Greater test-retest variability can be seen in patients with retinal impairment, and some asymmetry (9-letter score difference) can be seen in the baseline features across the groups. All participants performed the visual acuity and microperimetry tests more than three times during routine clinical care prior to enrollment in the study, so learning effects can be effectively ruled out even though multiple baseline visual acuity and microperimetry tests were not performed to establish test-retest variability.

Conclusions: This study's findings and data demonstrate the possibility of AAV-mediated gene therapy for choroideremia. Our work provides more proof that AAV2-REP1 gene therapy may be well tolerated, despite the fact that there were no variations in the visual acuity of the 6 patients' treated eyes compared to their control eyes. The phase 3 STAR trial (NCT03496012) may make it easier to examine the efficacy and safety of AAV2-REP1 therapy in choroideremia patients.

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PITUITARY ADENOMA MISDIAGNOSED AS GLAUCOMA: CASE REPORT SERIES

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Abstract:

Purpose: Pituitary adenomas may cause variable visual field defects, optic disc atrophy and cupping by optic chiasm compression resembling spuriously chronic glaucoma. The purpose of this paper is to summarize the main differential characteristics between glaucoma and Pituitary adenoma.

Methods: *The paper includes 4 case report of a patients , suspected with primary open angle glaucoma. All the patients were presented with advanced cupped optic discs and vision field loss that were subsequently found to be due to a pituitary adenoma.*

Conclusion: *Pituitary tumors stand for approximately 15% of all brain tumors. Pituitary adenoma and meningioma are the most common causes of compressive optic neuropathy, whose cases often show visual symptoms. About 1 in 600 persons have a macroadenoma (10 mm, defined as giant if 40 mm) that can cause a wide spectrum of visual problems. Patients 'classically' present with bitemporal quadrantanopia or hemianopia due to compression of the optic chiasm.*

Primary open-angle glaucoma is a chronic ocular disease process that is progressive, generally bilateral, but often asymmetric. Similar to Pituitary adenoma Glaucoma is also characterized with optic nerve atrophy and visual field changes.

The objetive of the present study was to report a cases of pituitary adenoma with compression of optical chiasma and visual field de-fect, initially treated as glaucoma, leading to a late diagnosis and treatment

OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY OF SUPERFICIAL RETINAL VESSEL DENSITY AND CHORIOCAPILLARIS IN MYOPIC CHILDREN

Sofia Mesklhi, prof. Davit Shengelia, Bacho Sengelia.

Abstract

Myopia is one of the urgent problems of modern ophthalmology. Its progression and a number of related complications are one of the main causes of irreversible vision loss and blindness worldwide. Dependence on smartphones, computers and other electronic devices makes myopia a major vision problem in children. The increase of the axial lengh associated with myopia causes stretching and thinning of the retinal tissue. High myopia increases the risk of developing pathological myopia, which is one of the main causes of vision impairment and blindness. However, the mechanisms of myopia progression are still unclear. The development of optical coherence tomography-angiography (OCTA) has provided a non-invasive method for the examination of morphological changes in large and small blood vessels which allows the examination of retinal and choriocapillary density in myopic children in correlation with the axial axis, in order to determine the pathological changes expected in myopia.

Purpose of the study: The purpose of the study is to evaluate the density of retinal layers and choriocapillaries, as well as the thickness of these tissues through optical-coherence tomography-angiography and to determine its relationship with the axial lengh in myopic children.

Methods: 96 eyes of 48 myopic subjects and 40 eyes of 20 emmetropic volunteers were examined. The spherical equivalent of myopes is more than -1.0 D. and emmetropes from +0.5 to -0.5. Axial axis length 24.58 mm(SD-1.22) and 22.88(SD-0.65). Patients aged 7-16 years were involved in the study and underwent a complete ophthalmological examination, including determination of the axial axis through ultrasound biometry, determination of cycloplegic refraction, and measurement of intraocular pressure; Retinal and choriocapillary density were examined using SS-OCTA DRI Triton

Results: According to the results of our study, the density of superficial retinal vessels is less in myopic eyes in voided emmetropes and correlates with the axial lengh. In patients with moderate and high myopia, the choroid is

significantly thinner than in patients with low myopia. There is also a decrease in choriocapillary density in patients with moderate and high myopia in the upper and lower segments, but not in the nasal and temporal regions. Obviously, it is very important to carry out long-term observations on such patients in order to determine the detection of microvascular changes in the future.

ოპტიკურ-კოჰერენტული ტომოგრაფია-ანგიოგრაფიის მეშვეობით ბადურისა და ქორიოკაპილარების სიმკვრივის განსაზღვრა ახლომხედველ ბავშვებში

სოფიო მესხი; პროფესორი დავით შენგელია, ბაჩო შენგელია

აბსტრაქტი

ახლომხედველობა თანამედროვე ოფთალმოლოგიის ერთ-ერთი აქტუალური პრობლემაა. მისი პროგრესირება და მასთან დაკავშირებული რიგი გართულებები მხედველობის შეუქცევადი დაქვეითებისა და სიბრმავის ერთ-ერთი ძირითადი მიზეზია მსოფლიოს მასშტაბით. სმარტფონებზე, კომპიუტერებსა და სხვა ელექტრულ მოწყობილობებზე დამოკიდებულება მიოპიას ხდის მხედველობის დავეითების უმთავრეს პრიბლემად ბავშვებში. მიოპიასთან დაკავშირებული თვალის კაკლის წინა-უკანა ღერძის ზრდა იწვევს ბადურის ქსოვილის გაჭიმვას და გათხელებას. მაღალი ხარისხის ახლომხედველობა კი ზრდის პთოლოგიური მიოპიის განვითარების რისკს, რომელიც მხედველობის დავეითებისა და სიბრმავის ერთ-ერთ მთავარ მიზეზს წარმოადგენს. თუმცა მიოპიის პროგრესირების ,მექანიზმები ჯერ კიდევ ბუნდოვანია. ოპტიკურკოჰერენტული ტომოგრაფია-ანგიოგრაფიის (OCTA) განვითარებამ უზრუნველყო არაინვაზიური მეთოდით მსხვილი და წვრილი სისხლძარძვების მორფოლოგიური ცვლილებების გამოკვლევა, რაც იძლევა ახლომხედველი ბავშვების ბადურისა და ქორიოიკაპილაების სიმკვრივის გამოკვლევის საშუალებას აქსიალურ ღერძთან კორელაციაში, რათა დადგინდეს მიოპიის დროს განვითარებული მოსალოდნელი პათოლოგიური

გამოკვლევის მიზანი: კვლევის მიზანია ბადურის შრეებისა და ქორიოკაპილარების სიმკვრივის, ასევე ამ ქსოვილების სისქის შეფასება ოპტიკურ-კოჰერენტული ტომოგრაფია-ანგიოგრაფიის მეშვეობით და

მისი კავშირის დადგენა სხვადასხვა ზომის თვალის წინა-უკანა ღერძთან ახლომხედველ ბავშვებში.

კვლევის მეთოდები: 48 მიოპი სუბიექტის 96 თვალი და 20 ემეტროპი მოხალისეს 40 თვალი იქნა გამოკვლეული. მიოპების სფერული ექვივალენტი გახლდატ >-1,0 D ზე მეტი. ემეტროპებისა კი +0,5 დან -0,5 მდე. აქსიალური ღერძის სიგრძე 24,58 მმ(SD-1,22) და 22,88(SD-0,65). 7 -16 წლის პაციენტებმა როლებიც ცართულები იყვნენ კვლევაში გაიარეს სრული ოფთალმოლოგიური გამოკვლევა მათ შორის აქსიალური ღერძის განსაზღვრა ულტრაბგერითი ბიომეტრიის მეშვეობით ციკლოპლეგიური რეფრქციის განსაზღვვრა, და ინტრაოკულარული წნევის გაზომვა,; ბადურის და ქორიოკაპილარების სიმკვრივე გამოკვლეულ იქნ ა SS-OCTA DRI Triton ის მეშვეობით.

შედეგები: ჩვენს მიერ მიღებული კვლევის შედეგების მიხედვით ბადურის ზედაპირული სისხლძარღვების სიმკვრივე ნაკლებია მიოპიურ თვალებში ვოიდრე ემეტროპებში და კორელირებს აქსიალურ ღერძთან. საშუალო და მაღალი მიოპიის მქონე პაციენტებში ქორიოიდეა მნიშვნელოვნადაა გათხელებული ვიდრე დაბალი ხარისხის მიოპიის მქონე პაციენტებში, ასევე შეინიშნება ქორიოკაპილარების სიმკვრივის შემცირება საშუალო და მაღალი მიოპიის მქონე პაციენტებში ზედა და ქვედა სეგმენტებში და არა ნახალურ და ტემპორალურ რეგიონებში. ცხადია მეტად მნიშვნელოვანია ასეთ პაციენტებზე ხანგრძლივი დაკვირვებების განხორციელება რათა მომავალში განისაზღვროს მიკროვასულარული ცვლილებების აღმოჩენა.

INTRAOCULAR PRESSURE CHANGES IN PATIENTS WITH CHRONIC RENAL FAILURE UNDERGOING HEMODIALYSIS

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Purpose: To determine the effects of hemodialysis on Intraocular pressure (IOP) and to evaluate the

correlation of IOP changes with anterior chamber angle anatomy.

Patients and Methods: The study included 80 eyes of 40 patients with Chronic renal failure (CRF)

undergoing hemodialysis at High Technology Medical Center between October 2018 to October

2021.HD was performed 3 times a week and the duration of the procedure was 3-5 hours.

The enrolled patients were grouped according to the width of the anterior chamber angle. IOP was evaluated at three different times during HD. Intraocular pressure was measured in both eyes in an upright sitting position with I care tonometer.

Results: According to study results, there was no statistically significant difference in the axial length between the three measurements (P = 0.232).

In patients with normal anterior chamber depth, IOP decreased significantly (68.75 %), or did not show any changes in their IOP during or after the session.

In patients with Moderate narrow- angle (22.5 %), IOP revealed no statistically significant differences.

In patients with narrow -angle (8.75%), there were a markedly increased in IOP

Changes in intraocular pressure were correlated with the anatomy of the anterior chamber angle.

Loss in body weight as a result of hemodialysis was statistically important ($P<0.01$)

Conclusion: A significant increase in mean was revealed during and after hemodialysis in patients with extremely narrow- angle ,compared to eyes with wide or moderately Anterior chamber angle.

Eyes with shallow anterior chambers are at risk of having impaired aqueous humor outflow facilities and as a result significantly increase IOP during HD. Because of the high prevalence of narrow angles in The Caucasian population, it is of clinical importance to investigate the IOP changes in patients on HD.

The results of our study support the idea that iridocorneal angle anatomy is affecting IOP fluctuation occurring in patients with ESRD undergoing HD.

Key words: Hemodialysis; Gonioscopy, Intra ocular pressure, Anterior chamber angle

PRELIMINARY CLINICAL OUTCOMES OF AN ENHANCED DEPTH OF FOCUS INTRAOCULAR LENS

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Abstract:

Aim: To evaluate preliminary clinical outcomes and patients satisfaction of the new enhanced depth of focus (EDOF) Lux SmartTM intraocular lens(IOL) in patients who had undergone bilateral cataract surgery.

Materials and methods: We conducted randomized study from May 2022 to September 2022. Inclusion criterion was early and immature cataract. Exclusion criterion was other concomitant ocular diseases. 20 patients underwent bilateral LuxSmart IOL implantation.

Uncorrected distance visual acuity (UDVA), uncorrected intermediate visual acuity(UIVA) at 66cm, uncorrected near visual acuity(UNVA) at 40cm were assessed. The presence of photic phenomena was evaluated.

Results: The mean IOL power was +22.0D. After 3 month follow-up the average monocular UDVA was 20/25 (SD=0.73).

The average UIVA and UNVA were 0.6(Jeager 2) and 0.5(Jeager3) respectively. No patients reported disabling photic phenomena.

Conclusion: This study shows that new LuxSmart EDOF IOL achieved higher performance for intermediate and near vision, without increasing risk of dysphotopsias. The study limitation are small sample size and short follow-up time. Therefore, the further research is recommended.

Key words: Enhanced depth of focus (EDOF), LuxSmart, cataract, IOL.

КСЕНОПОКРЫТИЕ ТЯЖЕЛЫХ ФОРМ ГНОЙНЫХ ЯЗВ РОГОВИЦЫ И ЕЁ ОЦЕНКА МЕТОДОМ КРИСТАЛЛОГРАФИИ СЛЕЗЫ

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Актуальность: Язвы роговицы в развитой стадии и абсцессы характеризуется скоротечностью, развитием эндофтальмита часто приводящее глаз к гибели. Причиною язв роговицы могут быть, бактериальные язвы , из-за вторичной инфекции , вследствие травмы роговицы или после тяжелого герпетического кератита{1.3}. Если лечение было не своевременным, могут возникнуть перфорация роговицы с выпадением радужки, накопление гноя в передней камере (гипопион), панофтальмит и разрушение глаза. Тяжесть симптомов и осложнений напрямую зависит от глубины язвы{2}.

В запущенных случаях язв роговицы с прободением консервативные способы лечения является бессильными. В нашей клиники в качестве лечебного покрытия поражённой роговицы широко применяется

ксенотрансплантат разработанный Р.О.Мухамадиевым (авторское свидетельство 002/03-145 2003г РУз.). Ксенотрансплантат обладая свойствами ускорять регенераторные процессы в тканях оказывает лечебное воздействие на поражённую ткань повышая местный иммунитет {2.}.

В целях обьективной оценки состояния тяжести гнойных язв роговицы в период консервативного лечения и после проведения ксенопокрытия дефектов роговицы мы применяли кристаллография слезы{3.}.

Цель: Изучить эффективности биопокрытия роговицы ксенотрансплантатом у больных с тяжелыми гнойными язвами роговицы путем определения кристаллографической картины слезы..

Материал и методы: Всего под нашим наблюдением в период 2008 по 2020 годы находились 12 больных. Пациенты условно разделены на 3 группы. 1 -группах 7 пациентов с гнойной язвой роговицы без прободения , П- группа -3 больных с прободающей гнойной язвой роговицы и Ш – группа 2 больных с проникающим ранением роговицы с инородным телом и эндоофтальмитом. Острота зрения до операции было от нуля до 0,06. Возраст пациентов было от 7 до 45 лет. Мужчин было 9 , женщин – 3. Перед биопокрытием передняя поверхность поражённой роговицы скарифицировалась. После этого покрывалась дисковидным ксенотрансплантатом, который фиксировался узловыми швами к конъюнктиве лимба. Пациентам после скарификации и освежение краев язв роговицы ксенотрансплантат укладывалось на пораженную поверхность роговицу , затем пришивался к коньюнктиву эписклере создавая туннелы узловыми швами по всему периметру роговицы.Для определения эффективности ксенопокрытия мы исследовали содержание иммуноглобулина А. и тканевого фермента интерлейкина Ил- 4. в слезе. Для получения кристаллограмм слезы нами разработан простой способ забора капли слезы и высушивания на предметном стекле. Применена цифровая фотостудия, состоящая из цифровой фотокамеры, совмещенной с бинокулярным микроскопом и персонального компьютера, позволяющая одно

моментно фотографировать, архивировать и систематизировать полученных результатов

Результаты и обсуждения: При тяжелых гнойных язвах роговицы встречаются в основном элементы папортниковых кристаллизаций. В кристаллограммах слезы видны грубые оборванные стебли папортника, от него отходит разновеликие вторичные разветвления ветки второго порядка. В центральных участках местами видны кристаллы без никаких главных стеблей папортника. Кристаллы разбросаны по всему периметру нет порядка. Видны оборванные участки кристаллы не связанные друг с другом. В то же время по периферияm видны систематизированные папортниковые кристаллы с вторичными разветвлениями. Это свидетельствует о грубом нарушении баланса органических и неорганических соединений при на роговицы с огромным дефектом язвы изъеденными краями.

После ксенопластики, когда дефект на роговицы полностью эпителизировалась восстановилась зрительные функции. Появилась хорошо систематизированная папортниковая кристаллограмма со вторичными и третьичными разветвлениями. Исчезли пустые участки в центре видимой зоны

При проникающих ранениях роговицы с осложненным эндофтальмитом нет никакой системности кристаллизации. Нет папортника нет сосновых кристаллов. На кристаллограммах виднен огромный гриб гнойных образований и разбросанные точечные гнойные образования.При дистрофических перфоративных язвах роговицы характерны кристаллизация сосновой ветки. Видны грубые оборванные стебли, от него отходит разновеликие вторичные разветвления ветки второго порядка. Это свидетельствует о грубом нарушении баланса органических и неорганических соединений.Кристаллы разбросаны по всему периметру нет порядка. Видны отдельно сформированные разно калибрные кристаллы не связанные друг с другом. Между кристаллами видны четко разграниченные пустые участки.После ксенопокрытия дистрофическая прободающая язва роговица заживалась эпителизация полностью закончилась. При этом кристаллограмма приобрела почти нормальную картину. Появился нормальные главные стебли кристаллов

с отходяшим от него систематизированные вторичные и третьичные ветки кристаллов. Это наглядно свидетельствует о нормализации обменных процессов в глазном яблоке.

При прободающих язвах кристаллограмма напоминает ромашкаобразные формы которая местами разбухаться, местами сохраняется вторичные разветвлении без равномерных интервалов. Начинает отчетливо появляться оторванные ветки и пустых участков между калониями кристаллов. Видны грубые оборванные стебли, от него отходит разновеликие вторичные разветвления ветки второго порядка. Это свидетельствует о грубом нарушении баланса органических и неорганических соединений.Кристаллы разбросаны по всему периметру нет порядка. Видны отдельно сформированные разно калибрные кристаллы не связанные друг с другом. Между кристаллами видны четко разграниченные пустые участки

При гнойных эндофтальмитах отсутствует кристаллограммы. В поле зрения видны только грибы и точечки гноя Нет ни ромашки, ни снежинки , ни папортника. Видны отдельно оторванные разбухшие скопления гноя. Характерной особенностью послеоперационного периода у этих больных была слабая воспалительная реакция прооперированного глаза и ускоренный процесс заживления дефекта роговицы с эпителизацией его передней поверхности (10-14 дней). У всех пациентов после ксенопокрытие произошёл лизис с краев трансплантата. Однако продолжал покрывать поверхность пораженной роговицы и лечебный эффект был достигнут у всех больных, под ксенотрансплантатом. Полная эпителизация вновь сформированной передней поверхности роговицы варьировали от 10 до 14 суток. В послеоперационном периоде ксенопокрытие оставалось на роговице больного в течение 14 дней, затем удалялось. К этому времени у 10 пациентов роговица оказалась полностью покрыта эпителием, У одного больного оставался дефект размерами до 1,5 мм, который в последующие два неделя полностью закрылся.. Больные после операции отмечали уменьшения болей в глазу и светобоязни. При первой перевязке определялось положение биопокрытия, состояние ксенотрансплантата, швов, Структур

переднего отрезка лаза было значительно спокойным. Боли в глазу и слезотечение значительно уменьшились. Ксенопокрытие на глазу реципиента оставалось в течение 14 дней, затем удалялось. К этому времени у большинства пациентов произошла полная эпителизация роговицы,

Исследование секреторного иммуноглобулина sgl - A, в слезной жидкости показало, что до операции было 1,6 = 1.2 мг.мл. , а после операции этот показатель составил 2.7+ 1, 4 мг.в мл. Определение

тканевого фермента Ил – 4 до операции было 1.4 мг.в мл..а после операции на 14 день этот показатель составил 2.6 = 1.7 мг в мл.

Заключение. При тяжелых гнойных язвах роговицы встречаются в основном элементы папортниковых, сосновых и ромашкообразных кристаллизаций.

В дооперационном периоде видны грубые оборванные стебли, от него отходит разновеликие вторичные разветвления ветки второго порядка. Это свидетельствует о грубом нарушении баланса органических и неорганических соединений. В центральных участках местами видны кристаллы без никаких главных стеблей папортника. Кристаллы разбросаны по всему периметру нет порядка. Видны оборванные участки кристаллы не связанные друг с другом. При дистрофических прободающих язв роговицы кристаллограмма напоминает ромашкаобразные формы которая местами разбухаться, обрывается вторичные разветвлении, они расположены без равномерных интервалов. Видны оторванные ветки и много пустых участков между калониями кристаллов. От главных стеблей отходит разновеликие разветвления ветки второго порядка.

При проникающих ранениях роговицы с осложненным эндофтальмитом нет никакой системности кристаллизации. на кристаллограммах видны огромные грибы гнойных образований. Видны разбросанные точечные гнойные образования.

Во всех трех группах с эпителизаций краев ран роговицы и появлением сравнительно хороших оптических результатов (острота зрения от 0.06 до 0.4) кристаллограмма полностью восстановилась и приобрела

почти нормальную картину. Появился нормальные главные стебли папортниковой, сосновой и ромашковой кристаллов с отходяшим от него систематизированные вторичные и третьичные ветки. Это наглядно свидетельствует о нормализации обменных процессов в глазном яблоке..

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КРИСТАЛЛОГРАФИЯ СЛЕЗЫ ПРИ КСЕНОСКЛЕРОПЛАСТИКИ ПРОГРЕССИРУЮЩЕЙ МИОПИИ

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Актуальность. Проблема диагностики и лечения миопии продолжает оставаться одной из актуальных проблем современной офтальмологии. Одним из факторов в патогенезе прогрессирующей миопии является нарушение питания и гемодинамики, как следствие дефицита кровоснабжения внутренних оболочек глаза [1,2]. Метод изучения кристаллографии слезной жидкости для оценки состояния и динамики миопического процесса является достаточно объективным и информативным Наряду со всевозможными методами консервативного лечения достойное место при прогрессирующей миопии занимают ксеносклеропластические операции (авторское свидетельство 002-02/145 РУз от 28.03.2003

Цель исследования. Изучить особенности кристаллограмм нативной слезы у больных с прогрессирующей миопией для оценки эффективности ксеносклеропластики.

Материал и методы исследования. Клинические наблюдения и исследования выполнены на здоровых глазах 10 добровольцев (10 глаз) и 90 больных с различной степенью развития миопии, находившихся на стационарном и амбулаторном лечении (2008-2019 гг.), в возрасте от 12 до 45 лет. Из них в 2 случаях от 3.0 до 6.0 Д (миопия I степени), в 17 случаях была миопия от 6.0 до 9.0 Д (II степень), миопия III степени в 32 случаях от 9.0 Д до 12.0 Д, в 41 случаях от 13.0 Д до 22.0 Д, осложненная хориоретинальной дистрофией сетчатки. Техника операции. Выполняли разрез конъюнктивы и теноновой капсулы в верхне-наружном квадранте на расстоянии 8-10 мм от лимба. Затем изогнутым шпателем по направлению к заднему полюсу глаза формировался узкий тоннель. По сформированному тоннелю к заднему полюсу глаза проводили ксенотрансплантат размерами 10,0х20,0 мм. Узловой шов накладывали на конъюнктивальную рану. Для получения кристаллограмм слезы нами разработан простой способ забора капли слезы и высушивания её на предметном стекле. После изучения кристаллограмм под микроскопом при увеличении об.20,ок.10 проводили микрофотографирование с применением цифровой фотокамеры,

Результаты и обсуждение. Динамические наблюдения за оперированными пациентами в течение 2 лет показали улучшение остроты зрения от 0,02 до 0,50 в течение одного года, в последующие периоды наблюдения результаты оставались стабильными

Во всех группах после склеропластики остановилось прогрессирование миопии, в то время как в контрольной группе без операции продолжалось развитие миопии до 2,0Д в год и отмечалось ухудшение зрительных функций.

Кристаллографическая картина с миопией легкой степени не отличается от нормы.. Кристаллограммы с миопии средней степени также почти не отличались от нормы. Они представлены мелкими

ромашко образными кристаллами, расположенными с определенной закономерностью. На кристаллограммах слезы больных с миопией 7.0Д без хориоретинальной дистрофии видно множество фигур кристаллов в виде папоротника и отходящих от них вторичных ветвей разной величины без нарушения системности.

Кристаллы слезы начинают изменяться при высокой степени миопии, которая осложняется хориоретинальными дистрофиями сетчатки и грубыми изменениями в стекловидном теле. Особенно это проявляется в возрасте старше 40 лет. При начальных стадиях развития хориоретинальных дистрофий сетчатки (10,0 и 12.0 Д) на кристаллограммах еще сохраняются типичные рисунки. Однако кристаллы слезы теряют равномерность разветвления, они местами прерываются, нарушается упорядоченность вторичных разветвлений, не говоря уже о третичных разветвлениях. Однако колонии папоротников имеют четкие разграничения.

При более высокой степени миопии с хориоретинальными осложнениями кристаллы, формирующие фигуры папоротника, становятся утолщенными.Между беспорядочно расположенными разнокалиберными кристаллами видны участки, содержащие бесструктурное, аморфное, вещество, а так же хаотично разбросанные точечные кристаллы.Это свидетельствует о резком нарушении соотношения органических и неорганических соединений, дисбалансе минералов, белков и других химических соединений слезы. При этом наблюдается резкое снижение зрительных функций глаза.

В послеоперационном периоде на кристаллограммах слезы отмечается некоторая упорядоченность расположения кристаллов. У большинства пациентов, у которых стабилизировался процесс прогресса миопии, и у больных в основном молодого возраста отмечалась положительная динамика кристаллизации слезной жидкости. Так, при улучшении зрительных функций кристаллы формируют ровные главные стебли фигур папоротника или снежинок, появились равновеликие вторичные разветвления. У тех пациентов, у которых миопия стала 1 и

2 стадии развития кристаллизация слезы полностью нормализовалась. Появились красивые непрерывные узоры

Даже в случаях с высокой степенью миопии, если зрительные функции окончательно не потеряны, после ксенопластики видно значительное упорядочение рисунков кристаллизации в виде отдельных стеблей и мелких узоров. в этих случаях после ксенопластики отмечалось значительное улучшение остроты зрения.

Заключение. При стабилизации прогресса миопии отмечались положительная динамика кристаллизации слезной жидкости, главные стебли кристаллов стали ровными, появились равновеликие вторичные разветвления. Это проявилось появлением красивых непрерывных узоров. Даная картина кристаллизации слезы свидетельствует о нормализации зрительных функций с коррекцией. А в случаях с высокой миопией (выше 12.0Д), осложненной хориоретинальной дистрофией сетчатки, до операции на фоне папоротниковых кристаллов часто видны большие пустые участки. При этом имеющиеся кристаллы оборваны, нет упорядоченности их расположения. Это свидетельствует о сильных нарушениях баланса между минералами и не минералами и ферментами, при которых резко снижены зрительные функции. В послеоперационном периоде при стабилизации процесса миопии появилось некоторое усиление рисунков кристаллизации в виде отдельных стеблей и мелких узоров.

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ORTHOKERATOLOGY- ALL QUESTIONS ALL ANSWERS

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> In 1962, George Jessen described a technique called "orthofocus" by which he could manipulate the refractive change of the cornea down to -1.00. This was the first step towards the science of orthokeratology.
>
> In 1994, the FDA in USA granted approval for daytime daily wear of orthokeratology lenses. By June 2002, the FDA in the USA approved overnight wear of corneal reshaping lenses, and was named "Corneal Refractive Therapy."

Now Ortho-K lens material allows excellent transmission of oxygen to the cornea, greatly improving the safety of Ortho-K treatment. Ortho-k uses reverse geometry lenses that are specially designed. These designs are comprised of different zones. They create fluid forces beneath the lens to move corneal tissue. Centrally, a positive pressure force is created from the low clearance, which pushes tissue out away from the apex. Conversely, the fluid reservoir under the RC generates a negative fluid force that pulls corneal tissue into it. The combined efforts of these two forces result in central flattening, which we use to correct myopia.

A number of factors determine if a patient is suitable for Ortho-K. This includes health of the eyes, cornea shapes, degree of myopia and astigmatism. Ortho-k is mainly used to correct ametropia. Mainly for Patients with progressive myopia and Patients who do not want to wear glasses.

Not for every patient who wants or needs Ortho-k , we can use it. There are a number of restrictions (keratitis any etiology, dry eye syndrome, Diabetes…)

The lenses are very comfortable because the patient only uses them while sleeping.

We use the following examination methods to prescribe lenses: Refkeratometry, Visometry, Refkeratometry with cycloplegia, Corneotopography, Optical Biometrics.

Of those who were treated with orthokeratology, only 20 percent were found to develop worsened myopia faster than their peers.