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ESCRS
ACADEMY

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19-21 April 2019

Bahcesehir University Besiktas Campus / Istanbul, Turkey

ABSTRACT BOOK

SCIENTIFIC SECRETERIAT

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Assoc. Prof. Okan Toygar

April 19, 2019 - Friday

08:00-10:00	Registration
10:00-11:30	**ORAL PRESENTATIONS - I** Moderators: **Liya Ramazanova, Daniela Selaru**
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10:10-10:15	S-03 - Servet Çetinkaya
10:15-10:20	S-04 - Atılım Armağan Demirtaş
10:20-10:25	S-05 - Selahattin Semih Aydoğan
10:25-10:30	S-06 - Özge Yabaş Kızıloğlu
10:30-10:35	S-07 - Selahattin Semih Aydoğan
10:35-10:40	S-08 - Giorgi Mekvabishvili
10:40-10:45	S-09 - Selahattin Balsak
10:45-10:50	S-10 - Kürşat Atalay
10:50-10:55	S-11 - Özkan Kocamış
10:55-11:00	S-12 - Hüseyin Kaya
11:00-11:05	S-13 - Bella Sirbiladze
11:05-11:10	S-14 - Hayati Yılmaz
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11:25-11:30	S-19 - Özge Yabaş Kızıloğlu
11:30-11:35	S-44 - Umay Güvenç İbaş
11:35-11:40	S-48 - Ertuğrul Tan Yasa
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12:00-13:00	**LUNCH**
13:00-14:30	**SESSION I - CATARACT** Moderators: **Mahmut Kaşkaloğlu & Baha Toygar & Merab Dvali**
13:00-13:15	Decision making in refractive cataract surgery **Mahmut Kaşkaloğlu**
13:15-13:30	Multifocality - Beyond surgery **Fernando Araujo-Gomes**
13:30-13:45	Clinical outcome and quality of vision after Toric Trifocal IOL **Alaa el Danasoury**
13:45-14:00	How I can minimise residual refractive errors after cataract surgery? **Bekir Sıtkı Aslan**
14:00-14:15	World initiative vision 2020: Right to sight **Petja Vassileva**
14:15-14:30	Question & Answer
14:30-15:00	**COFFEE BREAK**

15:00-16:30	**ESCRS ACADEMY (organized by ESCRS)** **CURRENT TRENDS in CATARACT SURGERY** Moderators: **Vladimir Pfeifer & Alexander Zalabotniy**
15:00-15:15	Iris repair and reconstruction **Sathish Srinivasan**
15:15-15:30	Management of posterior capsule rupture **Sorcha Ni Dhubhghaill**
15:30-15:45	Intrascleral haptic fixation **Vladimir Pfeifer**
15:45-16:00	Advances in multifocal lenses **Mayank Nanavaty**
16:00-16:15	Advances in biometry **Nino Hirnschall**
16:15-16:30	Toric alignment and misalignment **Nienke Visser**
16:30-17:00	**OPENING CEREMONY** **Türker Kılıç, Mahmut Kaşkaloğlu, Baha Toygar, Merab Dvali, Petja Vassileva**
17:00-18:00	**COCKTAIL PROLONGE**

April 20, 2019 - Saturday

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09:15-09:30	Bio-engineered cornea in the future of cornea transplantation **Daniela Selaru**
09:30-09:45	Perioperative management of patients with primary open - angle glaucoma surgery **Alexander Zalabotniy**
09:45-10:00	Question & Answer
10:00-10:30	**COFFEE BREAK**
10:30-10:50	**CONFERENCE I - PHACO in CORNEAL OPACITIES: DIFFERENT SCENARIOS** Moderator: **Eugeniu Bendelic** Speaker: **Yehia Salaheldin**

10:50-12:20	**SESSION III - RETINA** Moderators: **Thanasis Nikolakopoulos & Mahmoud Soliman**
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11:05-11:20	Phakic IOLs and the Vitreo-retinal surgeon **Mahmoud Soliman**
11:20-11:35	Tips and pitfalls of cataract surgery in vitrectomized eyes **Süleyman Kaynak**
11:35-11:50	Management of pseudophakic cystoid macular edema **Okan Toygar**
11:50-12:05	3D digital Ngenuity wide angle eibos eye surgery and knowledge transfer in the new era **Thanasis Nikolakopoulos**
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12:20-13:30	**LUNCH and BIOTECH SATELLITE SYMPOSIUM** biotech Premium IOLs: Satisfactory and Predictable Results Moderator: **Baha Toygar** Trifocal IOL: Cutting Edge technology to achieve spectacle Independence **Krishna Prasad** Achieving best refractive outcomes with EYECRYL TORIC IOLs **Baha Toygar** Stretching the limits. Spectacle Independence with Phakic IOLs **Tejas Shah** Questions and Answers
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13:30-13:45	New generation monofocal IOL **Baha Toygar**
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14:00-14:15	Challenges of IOL implantation in myopic patients **Mircea Flip**
14:15-14:30	Laser-assisted refractive cataract surgery **Bilgehan Sezgin Asena**
14:30-14:45	Question & Answer
14:45-15:15	**COFFEE BREAK**
15:15-15:35	**CONFERENCE II - LASIK - the UNCROWNED KING -** Moderator: **Mahmut Kaşkaloğlu** Speaker: **Merab Dvali**
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15:35-15:50	Diagnosis in keratoconus **Barış Sönmez**

15:50-16:05	Crosslinking tVherapy in progressive keratoconus **Cristina Nicula**
16:05-16:10	Intracorneal ring segments in keratoconus **Orkun Müftüoğlu**
16:10-16:25	Management of high volume surgical clinic **Cahid Shahbazov**
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April 21, 2019 - Sunday

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09:10-09:15	S-23 - Serkan Özen
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11:50-11:55	S-39 - Sinan Bekmez
11:55-12:00	S-40 - Mehmet Serhat Mangan
12:00-12:05	S-41 - Kemal Özülken
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12:20-12:45	Question & Answer
12:45	**CLOSING SEREMONI**

April 20, 2019 - Saturday
Workshop & Course

08:30-17:30	**DERMAL WORKSHOP** **READY TO GLOW?** **PERIORBITAL REJUVENATION WORKSHOP**
08:30-09:00	Welcome: Coffee & Tea
09:00-10:00	Periorbital Rejuvenation Presentation
10:00-12:00	Injection Patients (30 min x 4 patients)
13:30-17:30	Mannequin Injection (Hands on Training) (Slot reservation is required)
14:00-18:00	**UNLEASHING THE INDEPENDENCE:** **EYECRYL PHAKIC CERTIFICATION COURSE**
14:00-14:30	Instructional Presentation for Eyecryl Phakic and Eyecryl Phakic Toric IOL implantation
14:30-18:00	Hands on Training (Slot reservation is required)

Speaker Abstracts

DECISION MAKING IN REFRACTIVE CATARACT SURGERY

Prof. Mahmut Kaşkaloğlu
Kaşkaloğlu Eye Hospital, İzmir, Turkey

Cataract surgery has evolved from merely restoring sight to restoring sight with better visual acuity than before the cataract and justly called refractive cataract surgery. Because with proper surgical technique and intraocular lens selection preexisting refractive errors can be corrected. For this purpose, multifocal intraocular lenses have found wide use. Optimal results for satisfied patients with multifocal lenses depend on patient selection, preoperative examination, postoperative follow-up and care. Patient dependent selection criteria are patients age, occupation, preexisting systemic disease and motivation. Preoperative examination requires careful evaluation of the ocular surface, corneal astigmatism, aberrations, pupil diameter, lens and the retina. Detailed information on the expected result should also be given in a manner without causing doubt and anxiety to the patients. Postoperatively patients should be closely counseled, assured and treated for ocular surface disorders and residual refractive errors. While many patients experience early postoperative haloes and loss of contrast sensitivity, by time most of these symptoms fade. In this presentation I will elaborate the steps crucial for optimal results after cataract surgery.

MULTIFOCALITY - BEYOND SURGERY

Dr. Fernando Araujo-Gomes
Clínica de Santo António, Amadora, Portugal

Multifocality aims quality of life. So, for that, the the obvious is needed: a Good technique, a Good Iol, a very Good calculation. This is necessary, all right. But will it be enough?

I think it is not that simple. Indeed, surgeons must understand the way the patient uses the power of multifocality,

In other words, surgeons must explain to the patient how to use the powerful tool that is Multifocality.

Let´s see:

- Why this Premium Iol, carefully chosen, uneventfuly introduced, simply doesn´t work?
- How come that this residual astigmatism, that should not be there, is, anyway, being "used"?

Because... something beyond surgery is out there.

HOW I CAN MINIMIZE RESIDUAL REFRACTIVE ERRORS AFTER CATARACT SURGERY?

Dr. Bekir Sıtkı Aslan
Memorial Ankara Hospital, Ankara, Turkey

Cataract surgery may be the most frequently performed surgery in the world, but like any surgery, it can always be done better. Surgeon can do to come as close as possible to the desired visual target, while avoiding and if necessary managing the most common complications.

Look for ocular surface disease and treat it before finalizing your measurements.

Selecting the optimum type and power of IOL is essential to a great outcome.

If multiple technologies are used to measure astigmatism, make sure they agree. Determine the axis of astigmatism as accurately as possible. Make sure your technicians have the patient's head aligned correctly when they record the topography or keratometry.

Use aspheric lenses to improve vision by about one line and improve contrast sensitivity by about 30 percent.

Equi-convex lenses does a better job of maintaining image quality in the face of lens tilt and decentration, and the principal planes don't shift as a function of power.

Don't rely on a two-variable formula when calculating lens power. Personalize your lens constant for the formulas.

When calculating the astigmatism correction, use an advanced vector calculator that takes IOL power and effective lens position into account. Use the most comprehensive topographic algorithm.

Be aware that the lens may shift differently following manual capsulorhexis than following femtosecond capsulotomy.

Make sure you don't induce a refractive change with your planned incision.

Intraoperative aberrometry is ideal, since it narrows the alignment error far more than manually marking the eye can. If possible, use intraoperative aberrometry.

Take posterior capsular astigmatism into account.

Before surgery, verify that the patient data is correct multiple times.

Make sure your anterior capsulorhexis is the size you intend.

Making a sutureless incision that's as square as possible, rather than logitudinal, can help prevent leakage and ensures stable astigmatic outcomes.

Don't just look at where your implanted IOL has ended up, measure it.

Take steps to prevent incision leakage.

Reposition the IOL if it ends up misplaced.

Look out for elevated intraocular pressure following surgery. Be sure to remove all of the viscoelastic from behind the lens.

Make sure all of your patients end up with less than 0.5 D of residual astigmatism and your patients' expectations are reasonable.

Use diagnostics to evaluate outcomes.

If something does go wrong, admit it and be straightforward about it.

WORLD INITIATIVE VISION 2020: RIGHT TO SIGHT

Prof. Petja Vassileva
University Eye Hospital "Acad. Pashed", Sofia, Bulgaria

This global initiative for elimination of avoidable blindness was launched in 1999 and is one of the most important incentives of WHO and IAPB.

Our region consists of mix of countries with a variety of different issues. After the program began a lot of extremely successful activities have been conducted with special emphasis on education and preventive strategies in ophthalmology. Increasing needs for eye care because of ageing population and, at the same time, restricted health budget are important issues in the Black Sea region. Epidemiological studies, childhood programs, wet-labs, sub-specialty courses have been conducted in many countries. Prevention of blindness sessions have been organized at annual national and regional congresses.

Globally a meaningful decrease of blindness was achieved: from 45 million (1999) to 36 million (2018). In some countries significant improvement of cataract surgical activity was reached. In Bulgaria cataract surgical rate increased from 1300 (1993) to 6500 (2018).

Recent initiatives and activities addressed during last WOC (2018) at the joint SOE and IAPB Europe meeting include: call for data collection for evidence based advocacy, integration of preventable approach in clinical ophthalmology, harmonizing of residents training, and advancing eye health care to distant and poorer regions in low income countries.

Still today the world is populated by hundreds of millions of people who are unnecessarily blind or visually impaired from causes that are treatable or preventable. Proven and highly cost-effective solutions exist but are not included in national health policies. The contribution of IAPB with the Vision Atlas brings together the latest data and evidence related to avoidable blindness and sight loss globally. It can be a powerful tool for provoking awareness of vision related problems, and achieving universal eye health in the future.

MANAGEMENT IN PEDIATRIC PSEUDOPHAKIC AFTER-CATARACTS

Prof. Nadiya F. Boborova
The Filatov Institute of Eye Diseases and Tissue Therapy of NAMS of Ukraine, Odessa, Ukraine

After-cataracts - common late complication of cataract surgery. In pediatric pseudophakic eyes, despite the modern surgical techniques, after cataract develops with a frequency from 23,3 to 95,0 %, reaching 97% during the first 2 years after initial operation [Arestova N., 2009; Bobrova N., 2005-2010; Kugelberg M. et al., 2005; Vasavada A. et al., 2011; Zetterstrom C et al., 2005-2007]. The main reason of after-cataract formation in childhood – high proliferative activity of the equatorial lens epithelial cells (E-LEC). Subsequent E-LEC migrations from the equatorial in to the central optical zone – forms central opacity, reducing the visual acuity. There for after-cataract in childhood is differ than in adults because a large number of Adamyuk-Elshnig pearls and treatment in children will be differ from that in adults, because need the peripheral lens material (Zoemmering ring) surgical removal.

Dry membrane vitrectomy - usage of viscoelastic instead of irrigation solution. Membrane with LEC under the IOL optics removal by pars plana approach.

Pseudophakic bag cleaning - Zoemmering ring as a rule is interrupted into 2 half-rings because of haptic "sandwich" compound. The space in which Zoemmering ring is located is limited by the lens equator and the edge of the IOL optics, which partially blocks the spread of LEC to the central regions. To remove such large clusters in pseudophakic bag need several manipulations into the bag and anterior chamber.

Anterior capsule phimosis removal. Fibrous ring formation develops at the zone of contact between edge of anterior capsulorhexis and IOL optics, usually accompanied by capsule phimosis formation. Structure dissection is possible using vitreoretinal scissors or making several incisions around the entire circumference. In severe cases after the anterior capsule separation from the IOL, due to delicate manipulation, it is possible to isolate and detach fibrosis ring from the anterior capsule while preserving its integrity. After fibrous ring removal the anterior capsulorhexis diameter is restored and phimosis eliminated.

BIO-ENGINEERED CORNEA IN THE FUTURE OF CORNEA TRANSPLANTATION

Prof. Daniela Felicia Selaru
Laser Optics Clinic, Bucharest Romania

Background: Acornea is originated from heterologous organism's cornea, being acellular while retaining its corneal matrix by tissue engineered technique. Acornea has excellent biocompatibility and is able to gradually integrate into patient's own corneal tissue and preserve the natural cornea's complex structure and function. Acornea is the first of its kind that has completed all the necessary clinical trials as required by cFDA.

Methods: We used Acornea for the Lamellar Keratoplasty in some ocular surface diseases: Infectious Keratitis, Granular Corneal Dystrophy, Keratoconus, Traumatic Corneal Scars.

Results and Conclusions: Because we started with this method in end of January this year, we have not enough time to conclude, but the first results are encouraging regarding the transparency of the cornea, absence of serious adverse reactions, forming a structure similar to normal cornea. We intend to extend the indications, because Acornea can be easily adapted by human body with minimal immune rejection.

PHACO AND CORNEAL OPACITIES. DIFFERENT SCENARIOS

Prof. Yehia Salaheldin
Eye Care Center, Cairo, Egypt

This is a video based presentation elaborating in different scenarios and challenges of phacoemulsification cases associated with different grades of corneal opacities. All different tricks and techniques will be shown, from tilting eyes, using fiber optic and combined DALK AND PHACO..

UNUSUAL POSTERIOR DISLOCATIONS

Prof. Tansu Erakgun
Kaskaloglu Eye Hospital, İzmir, Turkey

In this video presentation, capsular tension ring dislocations (with or without intraocular lens), accidental retaining of intraocular microscissor tips and transconjunctival cannula (trocar) during vitreoretinal surgery and their managements are reported.

PHAKIC IOLS AND THE VITREORETINAL SURGEON

Prof. Mahmoud Soliman
Cairo University, Cairo, Egypt

Purpose: to report on different situations in which retinal problems may arise in the presence of phakic IOL.

Patients: video clips of different procedures in which the vitreoretinal surgeon reqiures managinging different phakic IOLs are presented including ICLs and Artizan iris fixated IOLs.

Conclusion: Retinal complications are not uncommon in myopic eyes receiving phakic IOLs. The vitreoretinal surgeon should be well aquatinted with managing and manipulating these types of IOLs.

MANAGEMENT OF PSEUDOPHAKIC CYSTOID MACULAR EDEMA

Assoc. Prof. Okan Toygar
Bahcesehir University, Istanbul, Turkey

Pseudophakic cystoid macular edema (PCME) is a common complication following cataract surgery. Although the incidence of PCME has declined with the advent of modern surgical techniques, it is still a vexing problem for cataract surgeons.

The majority of patients are asymptomatic. Acute PCME may resolve spontaneously, but some patients will develop chronic macular edema that affects vision and is difficult to treat. There are multiple options for prophylaxis and clinical management of PCME. These options as well as the mechanisms, clinical efficacy, and adverse effects of the treatment modalities will be discussed in this talk.

3D DIGITAL NGENUITY WIDE ANGLE EIBOS EYE SURGERY AND KNOWLEDGE TRANSFER IN THE NEW ERA

Dr. Thanasis Nikolakopoulos
Papanikolaou Hospital, Thessaloniki, Greece

The evolution of 3d digital ocular surgery has started a few years ago. The ngenuity system using the wide angle eibos 2 lens is the latest.

Update and more commonly used using a 4k television screen at 50cm,present a very comfortable position for the surgeon free of accommodation problems having an increased depth of vision.

It is the only way to have a wide screen magnification and not losing the resolution, very important for detailed microsurgery.

The idea of touching the retina looking at a screen if frightening and the hole surgical procedure has a lot of digital technology involved.

But getting in to the digital era has a lot of new tips. That is why we created in thessaloniki vitreoretinal summer school.

A training centre for digital 3d surgery using a true to life set up and only in artificial bioniko eyes specially made. This way the knowlege transfer is done by experts and the learning curvature is easier and complete.

NEW GENERATION MONOFOCAL IOL

Dr. Baha Toygar
Dünya Eye Hospital Ataköy, Bahçeşehir University School of Medicine, Cataract and Refractive Surgery, Istanbul, Turkey

In the whole world, cataract surgery has made a great progress over the past 20 years. Nowadays, people are not only looking for treatment of their vision loss, but also looking to have a high-quality vision. For many years, TECNIS® lens family provides products to deliver high quality vision with minimum complications. Now, TECNIS® Eyhance, a new addition to this family, has been observed to improve the vision at medium distance compared to TECNIS® one-piece monofocal IOL by taking the monofocal IOL technology one step further.

The purpose of the clinical studies is to compare the new TECNIS® Eyhance IOL with TECNIS® one-piece IOL to determine the differences that the new product presents.

In clinical investigation of TECNIS® Eyhance IOL studies with 6 months of observation, two products were used (TECNIS® Eyhance IOL Model ICB00 and TECNIS® 1-Piece Monofocal Model ZCB00) and the first stage of these two studies were performed on 61 patients. (29 ICB00, 32 ZCB00). The second stage of clinical trials was performed on 79 patients (39 ICB00, 40 ZCB00). In the 6-month observation, 67 ICB00 patients and 72 ZCB00 patients were observed. As a result of clinical investigation; TECNIS® Eyhance IOL provides statistically significant improvement in monocular intermediate vision at 66 cm, also provides statistically significant improvement in binocular intermediate vision and it's monocular distance vision with TECNIS® 1-piece IOL is comparable (non-inferior within 1 line). In addition to this, binocular distance vision with TECNIS® Eyhance IOL is also comparable (non-inferior within 1 line) to that of TECNIS® 1-piece IOL and there were no statistical difference in the rates of halo, glare, or starbursts observed with TECNIS® Eyhance IOL compared with TECNIS® 1-piece IOL. Therewithal, significantly more patients implanted with TECNIS Eyhance IOL had no difficulty with seeing to walk on uneven surfaces compared to patients implanted with TECNIS® 1-piece IOL.

CORRECTION OF APHAKIA WITH MULTIFOCAL IOL WITH A LOW DEGREE OF ADDIDATION

Prof. Liya Ramazanova, Dr. Olga Napylova, Dr. Rahim Shamratov
Astrakhan State Medical University, "Astrakhan Clinical Hospital" of the Federal Medical-Biology Agency of Russia

Purpose: To assess visual functions and ergonomics after implantation of multifocal intraocular lenses (MIOL) with extended focus depth zone (Lentis Comfort LS-313 MF15) in aphakic eyes in groups of patients with non-operated second eye and with monofocal MIOL in second eye.

Material and methods: A total of 20 patients with MIOLs with extended focus depth zone M LENTIS LS-313 MF15 were followed up. Group 1 consisted of 12 patients after implantation MIOLs M LENTIS Comfort with with non-operated second eye, group 2 - of 8 patients with monofocal MIOL in second eye. In both groups second eye had emmetropic refraction. The following parameters were examined: uncorrected binocular visual acuity at far, near, and intermediate distances under photopic and mesopic conditions, the range of pseudoaccommodation, spatial contrast sensitivity to achromatic sinusoidal gratings, lens stability with account to its optical design, and patient satisfaction with the resultant vision.

Results: In both groups, distance visual acuity was high under any lighting conditions. At near and intermediate distances as well as at 5-6 m, binocular visual acuity in group 1 was slightly higher than in group 2, regardless of the lighting conditions. The range of pseudoaccommodation was 3.5 D and 3.25 D in groups 1 and 2, respectively. Spatial contrast sensitivity function appeared typical, with maximum values at intermediate frequencies and lower values at higher frequencies. None of the patients required distance correction. Of 20 eyes, 7 exhibited MIOL rotation of 15-20 degrees at 1 month after surgery, however, none of the patients presented complaints characteristic of IOL decentration.

Conclusion: Implantation of MIOLs with extended focus depth zone LENTIS Comfort LS-313 MF15 provides a wide range of pseudoaccommodation and less dependence on lighting conditions without compromising high visual acuity at far and intermediate distances both in group of patients with a native lens in the second eye and in group of patients with monofocal MIOL in the second eye.

CHALLENGES OF IOL IMPLANTATION IN MYOPIC PATIENTS

Prof. Mircea Filip, A. Filip, Dr. Miruna Nicolae, Dr. Raluca Moisescu, Dr. R. Malciolu, Dr. Carmen Dragne, Dr. Cristina Antonescu
Ama Optimex Eye Clinic, Bucharest, Romania

Introduction: ophthalmic examination, biometry, IOL calculation and cataract surgery are all particular in myopic patients; all steps need to be done carefully and thoroughly in order to achieve the best results and a happy patient.

Material and methods: the authors review the key recommendations in each step, in order to avoid the most common complications in these cases.

Results: fundus along with retinal periphery examination is essential, in order to detect and, if necessary, treat any myopic retinal degeneration; biometry is best to be done by optical means, preferably optimized to the User group for Laser Interference Biometry, but it should also be compared to A- and B- scans, in order to detect posterior staphylomata, which could cause errors in lens calculations; the IOL choice should be made based on the preferred formulae for myopic eyes: SRK-T, Holladay II, Haigis or Barrett; MFIOLs can be used, but with caution, depending on the retinal status. It is also important to have a thorough discussion with the patient, enabling him to have realistic expectations regarding the postoperative results, and choose between possible outcomes, such as MFIOL neuroadaptation, monovision, distance or near spectacle need. Retrobulbar or peribulbar anesthesia is risky, surgery is also challenging, due to the myopic eye characteristics, with both anterior and posterior capsular tear, zonular dehiscence and anterior chamber fluctuation being more frequent. Postoperative anisometropia is also to be expected, so timely surgery of the second eye is recommended. Periodic fundus periphery exams are required postoperatively, in order to prevent or detect and treat retinal detachments.

Conclusions: myopic patients are challenging, and the whole process of evaluating, discussing, decision making and surgery outcome is to be taken seriously.

Keywords: myopia, cataract, biometry, IOL

LASER-ASSISTED REFRACTIVE CATARACT SURGERY

Dr. Bilgehan Sezgin Asena
Kaskaloglu Eye Hospital, Izmir, Turkey

Technology in cataract surgery is constantly evolving to meet the goals of both surgeons and patients. One of the recent major advances in refractive cataract surgery is femtosecond laser-assisted cataract surgery (FLACS). Since the introduction of FLACS, there have been significant advances in laser software and hardware as well as surgeon experience. Femtosecond laser cataract surgery (FLACS) integrates high-resolution anterior segment imaging with a femtosecond laser allowing key steps of cataract surgery to be performed with computer-guided laser accuracy, precision, and reproducibility. We present the current findings in laser-assisted refractive cataract surgery and how these contributions serve to improve cataract surgery outcomes in a safe, effective, and predictable manner. Further advancements in laser technology to refine its efficacy, and a reduction in cost are needed to establish a clear superiority over conventional phacoemulsification.

LASIK – THE UNCROWNED KING

Prof. Merab Dvali
Tbilisi State Medical University, Eye Clinic "Akhali Mzera"

LASIK has become the most popular and most studied elective procedure on the planet with more than 35 million procedures performed worldwide by 2010. Didactic lecture will overview the most important facts in the history of LASIK development. Three different generations of Laser Refractive Surgery - PRK, LASIK and SMILE will be covered in terms of their indications and contraindications. Patient selection and treatment criteria are crucially important for the successful surgery. The lecture will include our 20 years' experience of myopia, hyperopia and astigmatism correction with LASIK and our pioneering experience of pediatric LASIK since 2000. Considering the prevalence of presbyopia, increased life expectancy and improvement of quality of life, it is of great importance to cover the excimer laser procedures of corneal approach for presbyopia correction. The lecture will also cover the method of Bioptics which is a good solution for patients with refractive errors when target emmetropia can't be achieved with only one procedure.

DIAGNOSIS IN KERATOCONUS

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Keratoconus is a multifactorial genetic disease of the cornea presenting with progressive myopia and irregular astigmatism secondary to thinning, tissue loss hence – ectasia of the cornea. Early diagnosis of keratoconus is important to stop the progression of the disease and prevent the patient from future corneal transplant surgery. Suspicion of keratoconus in a patient with frequently changing diopters of myopia and astigmatism is the first crucial step. History of ocular allergies and eye rubbing is also important. There is a positive family history in roughly 10% of the patients and the disease presents with mutations of certain genes in some families. VSX1, SOD1, TGFBI, MIR184, COL4A3/COL4A4 and FLG are the most frequently studied candidate genes with mutations in patients with keratoconus. For the early and definitive diagnosis of the disease corneal topopgraphy and tomography measurements are important for documenting the corneal thinning, anterior and posterior elevation, progressive and asymmetric keratometric measurements and characteristic topographic changes. These data help for determination of diagnostic indices and classification of the disease. Althgouh data related to biomechanical changes of the cornea are helpful in early diagnosis of the disease, they are limited and further understanding of the pathophysiology and the genetics of keratoconus is needed.

CROSS – LINKING TECHNIQUES

Prof. Dr. Cristina Nicula
Cluj – Napoca, Romania

The purpose of the paper is to show the indications, the steps of the procedure, possible complications and results regarding keratometric value, spherical equivalent and the cylinder. Also, it will be discussed the new indications of the procedures in acute keratites (microbial, fungus).

It will be presented the types of cross – linking techniques (epi-off, epi-on, contact lens procedure, etc) and the possible association with intracorneal ring implantation and laser PRK topographical guided.

INTRACORNEAL RING SEGMENT IMPLANTATION IN KERATOKONUS

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Keratoconus is a progressive corneal ectatic disease characterized by alterations in the morphology of the tissue, which negatively impacts the patient's visual function and optical quality. This corneal degeneration usually appears during puberty and is today the first indication of corneal transplantation in young patients because of seriously deterioration of the quality of life. Fortunately, there are several therapeutic choices for the management of this condition, such as contact lens wearing, thermokeratoplasty procedures, corneal collagen cross-linking (CXL), intracorneal ring segment (ICRS) implantation, and lamellar and penetrating keratoplasty.

ICRS implantation is a safe and reversible technique, which regularizes the morphological alterations present in the cornea, thus improving the visual function and the quality of life of patients with keratoconus. ICRS are arc-like polymethyl methacrylate segments that were designed to be surgically inserted into the deep corneal stroma to flatten the central cornea. The stability of the results will depend on the progressive nature of the disease at the moment of the surgery; this way, ICRS provides long-term stability of the outcomes in those patients with no clinical signs of progression.

EARLY ANTI-VEGF TREATMENT IN CRVO ASSURES BETTER PROGNOSIS

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Introduction: Central retinal vein occlusion (CRVO) is the second most common cause of visual impairment due to retinal vascular disease in developed countries. The prevalence of CRVO is ranging from 0.1 to 0.5%. Risk factors are numerous, and fluctuations of IOP and trombophilic conditions are considered to be the most important. Recently, extremely high levels of intraocular vascular endothelial growth factor (VEGF) were demonstrated in CRVO, leading to increased vascular permeability and leakage. Our objective is to present our approach in the management of treatment-naïve patients with CRVO.

Methods: All consecutive patients with CRVO referred to our tertiary eye hospital for a period of 2 years were evaluated. Inclusion criteria: retinal and optic disk edema, dilatation and turtuosity of all retinal veins, widespread deep and superficial hemorrhages, cotton wool spots. We performed comprehensive eye exam, detailed medical history, specialized imaging methods, glaucoma evaluation, (AS-OCT, gonioscopy, IOP control), as well as hematological investigation in all patients. Treatment included intravitreal anti-VEGF application with personalized regimen. Glaucoma patients were treated with medications, laser and trabeculectomy (TE). We analyzed several variables: the period between the CRVO diagnosis and the start of anti-VEGF treatment, number of injections, changes in central macular thickness (CMT) and in visual acuity (VA).

Results: Our pool of patients consisted of 38 persons, mean age 66.4 (29 -86). In 21 (56%) the CRVO is ischemic type, in 16 (42%) patients we diagnosed initial glaucoma damage (in 15 patients exfoliation syndrome was present). An interesting observation was the high number of patients - 13 (35%) with narrow, closed or occludable anterior chamber angle, diagnosed soon after the first CRVO symptoms. This finding was associated with history of accidental transient vision blurring and pain. In patients with start of treatment at the very beginning of macular edema we achieved immediate and excellent response after the first anti-VEGF application, and fast disappearance of exudations and hemorrhages. Hematologic studies demonstrated different types of hereditary trombophilia in 7 patients.

Conclusions: Our clinical experience demonstrate that best results in CRVO treatment could be obtained at early diagnosis, close follow up and early start of anti-VEGF treatment before pronounced macular edema occurs. Detailed evaluation of anterior chamber angle configuration and glaucoma management are mandatory for successful outcome in patients with initial CRVO symptoms.

Keywords: CRVO, anti-VEGF treatment, macular edema, occludable angle

Oral Presantations

S-01 Abstract Referance: 58

IS THERE A RELATIONSHIP BETWEEN THE PRESENCE OF GLAUCOMA AND DEPRESSIVE MOOD IN GERIATRIC PATIENTS?

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Introduction: We aimed to evaluate the effect of glaucoma-related visual impaired on emotion in geriatric patients.

Material and Methods: In our study, we examined glaucoma patients and healthy controls who applied to the ophthalmology clinic of our hospital between January and June 2018. Sixty-one glaucoma patients with visual impairment (Best corrected visual acuity ≤ 20/40) due to glaucoma in at least one eye (group 1) and 54 control group without any eye and psychiatric disease (Best corrected visual acuity normal / near normal ≥ 20/32) (group 2) were included in the study. The geriatric depression scale consisting of 30 questions (GDS-30) was applied to both groups. Then, the scale results were recorded and evaluated

Results: Of the 115 patients included in the study, 61 had glaucoma and 54 had the control group. The mean age was 67.44 ± 6.1 years. in group 1(with glaucoma), according to the Geriatric Depression Scale, 42.7% of the patients were depressive, 26.2% were depressive and 31.1% were normal. In the group 2 (without glaucoma), these rates were 7.4%, 18.5% and 74.1%, respectively. 45.16% of women with impaired visual acuity due to glaucoma were depressive while this rate was 40% in men.

Conclusions: Glaucoma, a progressive disease that can result in blindness, can cause depressive mood in patients. The possible reason for this is that the decrease in visual functions of the patients causes decrease of functionality in their social lives. this may also be due to fears that the visual acuity may be worsening. Therefore, in addition to the ophthalmological examination of glaucoma patients for complete rehabilitation, it is important that they are referred to psychiatry departments for mood assessment.

Keywords: Glaucoma, depression, visual impairment

S-02 Abstract Referance: 9

THE COMPARISON OF SIX DIFFERENT INTRAOCULAR LENS POWER CALCULATION METHODS IN A TURKISH POPULATION

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Purpose: To investigate the accurate intraocular lens power calculation method by an optical biometry in patients underwent phacoemulsification surgery

Patients and Methods: All patients were undergone uncomplicated cataract surgery. Optical low-coherence reflectometry (Lenstar, Haag-Streit) was used to assess the axial length and corneal curvatures. The calculation methods were included Hill-RBF, Hoffer Q, Barrett Universal II, Olsen, Haigis, and Holladay-2. The spherical equivalent values were obtained with automated refractometer at the first postoperative month were recorded. Mean absolute error for each formula was estimated. It was calculated as the absolute value of the the difference between the postoperative spherical equivalent and predicted value of the each formula.

Results: A total of 284 eyes of 284 patients were studied. One hundred fifty one (53,1%) patients were male and 133 patients (46,9%) were female. The average age of the patients was 67,5 years (min:55, max:81 years). The mean axial length was 20,03±2,02 (min:20,03, max:32,68). The mean absolute errors were 0,357 for Hill, 0,356 for Barrett, 0,346 for Olsen, 0,277 for Holladay-2, 0,272 for HofferQ, 0,267 for Haigis formulas. The mean absolute error values were significantly lower in Haigis, HofferQ, and Holladay-2 formulas when compared to the Barrett, Hill and Olsen formulas.

Conclusion: Haigis, HofferQ, and Holladay-2 formulas calculated the intraocular lens power more precisely. The Haigis formula predicted the lowest mean postoperative numerical error value within the all formulas.

Keywords: Cataract, Intraocular lens power, optical biometry

S-03 Abstract Referance: 11

TOXIC ANTERIOR SEGMENT SYNDROME (TASS)

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Purpose: To evaluate the clinical findings and courses of 5 patients who developed TASS after cataract surgery and investigate the cause.

Material and Methods: On the same day, 10 patients were operated by same surgeon. Five of these patients developed TASS postoperatively.

Results: Patients had blurred vision complaint on the 1st day after the operation, they had no pain. They had different degrees of diffuse corneal edema, anterior chamber reaction, fibrin, hypopyon, iris atrophies and dilated pupilla. Their vision decreased significantly and their IOPs increased. Both antiinflammatory and antiglaucomatous therapies were commenced. Corneal edema and inflammation resolved in three cases. However, penetrating keratoplasty operation was needed for two cases and additional trabeculectomy was needed for one case. Although full investigations at all steps, we couldn't find the causative agent.

Conslusion: TASS is a preventable complication of the anterior segment surgery. Recognition of TASS, differentiating it from endophthalmitis and starting treatment immediately is important. Controlling all steps in surgery, cleaning and sterilization of the instruments and training nurses and other operation team will help us for prevention of TASS.

Keywords: Cataract, Phacoemulsification, TASS, Corneal edema, Inflammation

S-04 Abstract Referance: 24

EVALUATION OF RELATIONSHIP BETWEEN THE PRESENCE OF CATARACT AND SERUM ADIPONECTIN LEVELS

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Introduction: To evaluate serum adiponectin levels in diabetes mellitus patients and its relationship with cataractogenesis. This is a case control study, performed by the departments of Endocrinology and Ophthalmology.

Material and Methods: A total of 47 patients with type 2 diabetes mellitus (DM), and 21 control subjects were included in the study. Patients with type 1 diabetes, heart failure, and hepatic failure, renal failure, younger than 18 or older than 90 years of age were excluded from the study.

Results: Although the DM group had higher rates of cataract, it was not statistically significant (p=0.067). Serum adiponectin levels were found to be lower in the DM group (p=0,018). Cataract group had lower serum adiponectin levels than the non-cataract group which is independent of the presence of DM (DM without cataract vs. control: p=0,117), (DM with cataract vs. control: p<0,001). Serum adiponectin levels between DM with cataract and DM without cataract remained statistically significant following univariate analysis of variance controlled for age (f = 3.219, P < 0,028).

Conclusions: Lower serum adiponectin levels are seen in patients with cataract, independent of the presence of diabetes. To the best of our knowledge, this is the first study demonstrating the association between lower adiponectin concentrations and the presence of cataract. We hypothesize that adiponectin may play an important role in the pathogenesis of cataract, independent of hyperglycemia.

Keywords: Adiponectin, cataract, diabetes mellitus

S-05 Abstract Referance: 50

OUTCOMES OF TRIFOCAL AND MONOFOCAL TORIC INTRAOCULAR LENS IMPLANTATION IN CATARACT PATIENTS

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Purpose: To compare and evaluate visual outcomes in patients with age-related cataract surgery implantation of trifocal and monofocal toric aspheric intraocular lens (IOL) implantation

Material and Methods: Between September 2016 and February 2019 dates 52 eyes of 31 patients with cataract and less than 1.0 diopter (D) of corneal astigmatism were included in our retrospective study. Phacoemulsification technique was standart through a 2.2 mm clear corneal incision. The mean age of patients was approximately 55.9 year, gender distribution of the patients was 21 male and 10 female. Intraocular lens power calculation was done by method Barret Universal 2 formula.Outcome measures were visual acuity, preopretative and postoperative astigmatism, iol power, axiel length, anterior camera depth.

Results: A full ophthalmic examination was performed at every follow-up visit, including manifest refraction, monocular and binocular uncorrected distance visual acuity (UDVA) and chart at different reading distances, slit-lamp examination, Scheimpflug photography (Pentacam, Oculus), and retinoscopy. The trifocal group included 24 eyes of 14 patients and the monofocal group included 28 eyes of 17 patients. Patients implanted monofocal toric IOL preoperative astigmatism was 1.9 D, postoperative astigmatism was 0.68 D. Astigmatism results trifocal toric IOL implantation was preoperative 1.45 D, postoperative 1 D. The mean axial length of the patients was average 13.2 mm. Average intraocular lens power was 15 D (minimum 6 D, maximum 23.5 D). Average preoperative anterior camera depth was 2.77 mm. After monofocal toric IOL implantation one patient underwent revision surgery due to toric İOL astigmatism axis shift.

Conclusions: Monofocal and trifocal toric diffractive IOLs are able to provide an effective visual restoration during all follow-up

Keywords: trifocal toric intraocular lens , monofocal toric intraocular lens, cataract surgery, astigmatism

S-06 Abstract Referance: 53

REFRACTIVE OUTCOMES AND VISUAL PERFORMANCE AFTER IMPLANTATION OF A TRIFOCAL TORIC INTRAOCULAR LENS

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Introduction: The aim of this study is to evaluate the visual, refractive and patient satisfaction outcomes after cataract surgery with implantation of a trifocal toric intraocular lens (IOL).

Material and Methods: This retrospective case series included patients with significant corneal astigmatism (> 0.75 D) who underwent cataract surgery with implantation of the trifocal toric FineVision POD FT IOL (PhysIOL SA, Liège, Belgium). Patients with less than 6 months of follow up were excluded. Intraocular lens toric power and axis were determined with Barrett toric calculator. Postoperative monocular uncorrected (UDVA) and corrected (CDVA) distance visual acuity, distance corrected intermediate visual acuity (DCIVA) at 100cm and distance corrected near visual acuity (DCNVA) at 40cm, refraction, and patient satisfaction (NEI VFQ-25 questionnaire) were evaluated. The need for Nd:Yag laser posterior capsulotomy was also determined.

Results: Seventeen eyes of 10 patients (mean age:66.0±8.0 years) with a mean corneal astigmatism of 1.50±0.43D were included. Postoperatively (mean follow up:16 months), mean logMAR monocular UDVA, CDVA, DCIVA and DCNVA were 0.16±0.13, 0.04±0.08, 0.10±0.13, and 0.08±0.10 respectively. Overall, 65% and 88% of the eyes achieved a decimal DCIVA and DCNVA of ≥0.8 respectively. 71% and 94% of the eyes reached a cylinder ≤0.5D and ≤1.0D, respectively, with a centroid of 0.40D@175°. The mean postoperative spherical equivalent was -0.19±0.38 D with 77% of the eyes within ±0.25D. The mean VFQ-25 score was 92.04±3.30. Five eyes underwent Nd:Yag laser capsulotomy.

Conclusions: The trifocal toric FineVision POD FT IOL provides effective restoration of visual function at distances from near to far after cataract surgery in eyes with significant corneal astigmatism. Associated with the visual outcomes are a good refractive predictability and patient satisfaction.

Keywords: Cataract surgery, intraocular lens, trifocal, toric

S-07 **Abstract Referance: 54**

OUTCOMES OF TRIFOCAL AND MONOFOCAL TORIC INTRAOCULAR LENS IMPLANTATION IN CATARACT PATIENTS

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[1]Eyeworld Hospital Ankara
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Purpose: To compare and evaluate visual outcomes in patients with age-related cataract surgery implantation of trifocal and monofocal toric aspheric intraocular lens (IOL) implantation

Material and Methods: Between September 2016 and February 2019 dates 52 eyes of 31 patients with cataract and less than 1.0 diopter (D) of corneal astigmatism were included in our retrospective study.

Phacoemulsification technique was standart through a 2.2 mm clear corneal incision. The mean age of patients was approximately 55.9 year, gender distribution of the patients was 21 male and 10 female. Intraocular lens power calculation was done by method Barret Universal 2 formula.Outcome measures were visual acuity, preopretative and postoperative astigmatism, iol power, axiel length, anterior camera depth.

Results: A full ophthalmic examination including manifest refraction, monocular and binocular uncorrected distance visual acuity (UDVA) and chart at different reading distances, slit-lamp examination, Scheimpflug photography and retinoscopy. The trifocal group included 24 eyes of 14 patients and the monofocal group included 28 eyes of 17 patients. Patients implanted monofocal toric IOL preoperative astigmatism was 1.9 D, postoperative astigmatism was 0.68 D. Astigmatism results trifocal toric IOL implantation was preoperative 1.45 D, postoperative 1 D. The mean axial length of the patients was average 13.2 mm. Average intraocular lens power was 15 D. Average preoperative anterior camera depth was 2.77 mm. After monofocal toric IOL implantation one patient underwent revision surgery due to toric İOL astigmatism axis shift. Postoperative corrected near, uncorrected intermediate and distance corrected visual acuity was significantly better in the trifocal toric group.

Conclusions: Monofocal and trifocal toric diffractive IOLs are able to provide an effective visual restoration during all follow-up

Keywords: trifocal toric intraocular lens , monofocal toric intraocular lens, cataract surgery, astigmatism

S-08 **Abstract Referance: 62**

NANO-LASER & PREMIUM IOLS FOR PRESBYOPIA

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Purpose: To evaluate the safety and efficacy of NanoLaser Phaco procedures in patients undergoing clear (or with initial opacities) lens exchange with premium IOLs for refractive purposes.

Methods: 17 consecutive patients were enrolled in this prospective, single-masked study. All patients underwent cataract surgery using an Infiniti Vision System and the photofragmentation hand-piece of the Cetus Nano-Laser system with implantation of premium IOLs. All patients had standard preoperative and postoperative examinations with the addition of OCT and specular microscopy to evaluate retinal thickness, endothelial cell density and endothelial cell size variability. All surgical procedures were performed by the same experienced surgeon. The single ophthalmologist who performed the OCT and Specular Microscopy was blinded to the type of surgical procedure.

Results: All surgical procedures were uneventful and spectacle independence was achieved in all cases. An in-house MatLab script was used to evaluate the presence of areas in the corregistered group map with a statistically significant differences between the OCTs prior to surgery and after 24 hours. Endothelial cell counts did not present statistically significant differences following surgery.

Conclusions: This study provides preliminary evidence that Nano-Laser Phaco procedure did not induce early postoperative retinal thickness and endothelial cell count modifications. The safety profile of Nano-Laser in terms of retinal thickness changes is most likely associated with the limited local extension laser-induced shockwaves that do not reach deeper structures, such as the retina. Also, no heat is generated and the overall energy utilized is significantly lower than phacoemulsification. Nano-Laser yielded good short-term endothelial cell and retinal safety.

Keywords: Nano-Laser, Photofragmentation, Premium IOLs, Presbyopia

S-09 **Abstract Referance: 44**

COMBINED PHACOTRABECULECTOMY IN THE TREATMENT OF PATİENTS WİTH CATARACT AND PRİMARY OPEN-ANGLE GLAUCOMA

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AIM: To evaluate the results of phaco-trabeculectomy in the presence of primary open-angle glaucoma and cataract

Materials and Methods: This retrospective study included patients those underwent combined phaco-trabeculectomy and those attended the follow-up. Patients' age, sex, preoperative and postoperative visual acuity, intraocular pressure, keratometry, and complications were recorded.

Results: Ten of the patients were female (30.3%), 23 (69.7%) were male and the average age was 62.07±14.1 (28-83). The visual acuity was 0.8±0.1 in the preoperative period and 0.51±0.3 in the

postoperative 6th month according to the logMar ($p<0.05$). In the preoperative period, intraocular pressure (IOP) was measured as 34.3±10.1 mmHg under maximum medical treatment and was measured as 11.4±2.7 mmHg unmedicated in the postoperative 6th month ($p<0.05$). During follow-up, none of the patients had increased IOP at the level that required medical treatment. The mean preoperative horizontal keratometry was 42.8±2.5 diopter (D) (39-47), the mean postoperative horizontal keratometry was 44.2±1.9 D (37.25-46.25) ($p<0.05$). The mean preoperative vertical keratometry was 44.4±2. D (39.25-49), the mean postoperative keratometry was 44.1±1.9 D (39.75-48) ($p>0.05$).

Conclusion: Combined phaco-trabeculectomy led to an increase in the mean visual acuity as well as effective IOP reduction.

Keywords: primary open angle glaucoma, cataract, combined phaco-trabeculectomy

S-10 **Abstract Referance: 15**

THE EFFECT OF ROYAL JELLY AND CHESTNUT HONEY ON CORNEAL HEALING AFTER AN ALKALINE BURN

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Purpose: The alkaline burn of cornea usually results in a decreased vision. Previous studies show beneficial effects of royal jelly (RJ) and manuka honey (Optimel™, Australia) on ocular surface disorders. Here, we investigated the potential role of endemic chestnut honey (CH) and royal jelly on corneal healing after an alkaline burn.

Material and Method: An alkaline burn was done on the center of the cornea of 4 groups each containing 6 Wistar rat for 30 seconds with a round filter paper soaked with NaOH. The ocular surface was then rinsed with 10 ml of sterile 0.09% NaCl. The animals were treated four times a day only with RJ (Group 1), CH (Group 2), RJ-CH combination (Group 3), and Na-Hyaluronate (Group 4) eye drops. A serial evaluation was done with anterior segment photography on first, 7th and 14th days of the experiment. Pathologic examination conducted with hematoxylin and eosin stains and immunostaining for SMA and α-integrin. A scoring system which was evaluating the degree of corneal edema, the size of the corneal ulcer, and limbal hyperemia were used for evaluation of the healing process.

Results: Two of the animals in Group 4 died during the experiment. There was no statistically significant difference between groups on the 1st, 7th, and 14th days with regard to healing scores (P=0.88, P=0.06, P=0.80; respectively). However, there were significantly better scores in repeated measures of Group 2 (P=0.012) and Group 3 (P=0.00). Group 1 and Group 4 did not show a significant difference in repeated measures (p=0.19 and P=0.10; respectively). The immunostaining for α-integrin levels shows a significant difference between groups on the 14th day (P=0.002).

Conclusion: The treatment results did not show significant differences overall but the healing process was better in CH and RJ-CH treated groups. Thus, further experiments are needed to explore the potential effects of CH and RJ-CH for the recovery of corneal alkaline burns.

Keywords: Cornea, corneal alkaline burn, royal jelly eye drop, honey eye drop

S-11 **Abstract Referance: 26**

EVALUATION OF THE CORRELATION BETWEEN INCREASED CORNEAL THICKNESS AND RETINAL NERVE FIBER LAYER THICKNESS

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İntroduction: The central corneal thickness (CCT) and retinal nerve fiber layer (RNFL) thickness are particularly important in the diagnosis and follow-up of glaucoma. In this study, we aimed to investigate the correlation between CCT and RNFL thickness in healthy eyes with a thick CCT.

Material and Metods: Sixty eyes of 60 patients with healthy eyes were evaluated. Central corneal thickness which non contact method TRK 2P (Tokyo, Japan) with RNFL measurements are optical coherence tomography (OCT, Heidelberg Engineering, Germany) were measured by. The patients were divided into two groups as thick (group 1) with a central corneal thickness greater than 550 μm and with a normal range of 520-550 μm. The relationship between the groups was evaluated according to Pearson correlation coefficient.

Results: Group 1, 18 men, 12 women, including 30 patients and group 2 consisted of 19 females and 11 males were 30 patients. The mean CCT was 581.9 ± 24.8 μm in group 1 and 538.6 ± 7.8 μm in group 2 and was statistically significant ($p <0.001$). There was no statistically significant difference between the global RNFL thicknesses of the groups ($p = 0.767$). There was no statistically significant correlation between mean CCT and global RNLT thicknesses in both groups and groups(respectively group 1; $p = 0.734$, $r = -0.065$, group 2, $p = 0.138$, $r = 0.277$, group 1 to 2; $p = 0.760$; $r = 0.04$). There was no statistically significant correlation between mean CCT and RNLT quadrant thickness(respectively; RNLT temporal ; $p = 0.732$, $r = -0.045$, temporalsuperior; $p = 0.991$, $r = 0.001$, nasal; $p = 0.579$, $r = 0.073$, nasalsuperior; $p = 0.932$, $r = -0.011$, nasalinferior; $p = 0.332$, $r = 0.126$, temporalinferior; p = 0,450, r = -0,099).

Conclusions: Increased central corneal thickness with no correlation between global and quadrant RNLT thicknesses.

Keywords: Central Corneal Thickness, Retinal Nerve Fiber Layer, Glaucoma, OCT

S-12 **Abstract Referance: 35**

THE INVESTIGATION OF CORNEAL DENSITOMETRIC CHANGES AFTER PENETRATING KERATOPLASTY

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Introduction: Cornea densitometry is routinely used for long-term monitoring of corneal transparency after corneal collagen crosslinking, refractive surgery and lamellar keratoplasty(1). Corneal densitometry provides objective measurements of corneal transparency(2). The mean optical densitometric value of normal corneas was found 12.3 ± 2.4 in adults(3), Our aim was to investigate corneal densitometry following penetrating keratoplasty and compare normal corneal densitometric values.

Material and Methods: 17 eyes underwent penetrating keratoplasty and 17 healthy controls were included in this retrospective

study. The mean age of the healthy control group was compared to the mean age of donors. The corneal densitometric measurements were performed on the central 6.0mm cornea by areal selection of the stroma by the Pentacam HR uses the scheimpflug system(figure 1.). Corneal densitometry(CD) and central corneal thickness(CCT) measured postoperative first and third month. Spss 21. was used for statistical analysis.

Results: The mean CD values were 16,16±1,80 and 13,84±2,12 at 1 month and 3 months after keratoplasty respectively. The mean CCT were 577,88±57,87 and 543,58± 57,05 at 1 month and 3 months after keratoplasty. The differences between the first month and third-month measurements were significant($p<0.001$, $p<0.001$ respectively). The mean astigmatism values were 11,55±4,41 and 10,57±4,23 at first and third months. The difference was not significant($p=0.05$). The mean CD of the control group was 12,71±0,63. There was no significant difference according to CD between control CD and 3 months after keratoplasty.

Conclusions: According to these results the CD reaches normal values, 3 months after keratoplasty.

The results of our study were in accordance with the literature(4,5) and may be important for showing the usefulness of CD on following corneal transparency after penetrating keratoplasty. Further and including a great number of patients studies are necessary.

Keywords: corneal densitometry, penetrating keratoplasty

S-13 **Abstract Referance: 63**

KERATOCONUS WITH HYPEROPIC MANIFESTATION

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Purpose: To report the cases of keratoconus with hyperopic refraction, discussing the optimal approaches of treatment.

Methods: The patients underwent full ophthalmologic examination, topography has proven itself to be extremely valuable. We always do corneal topography first, using the color scale, paying the greater attention to posterior surface, pachymetric distribution, looking for asymmetry and difference in the scans and between two eyes.

Results: We revealed keratoconus in more than 30 patients with hyperopic refraction, depending on age and clinical manifestation (especially topographic data) in some cases we referred to Corneal Cross Linking, while in the other ones were limited with observation in dynamics.

Conclusion: Although rare, keratoconus could present in hyperopia. If keratoconus is suspected, we suggest to choose the proper treatment and avoid LASIK. Every patient even with hyperopic refraction should be examined very thoroughly even with a little suspect or findings compatible with keratoconus. This will keep us on the safe side together with our patients. The most cases of keratoconus with short axial length and mixed astigmatism refraction may be hyperopic at early stages

Keywords: Keratoconus, Hyperopic, Topography, Corneal Cross-Linking

S-14 **Abstract Referance: 68**

COULD NEUTROPHIL-LYMPHOCYTE RATIO AND PLATELET-LYMPHOCYTE RATIO HELP TO PREDICT PROGRESSION ON KERATOCONUS PATIENTS?

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Aim: Keratoconus is a progressive ectatic disorder of cornea that causes irregular astigmatism and visual impairment in young adults. Neutrophil-lymphocyte ratio (NLR) and platelet-lymphocyte ratio (PLR) values had been shown as inflammation markers for several systemic diseases. The aim of this study is to investigate the relation between NLR and PLR values with keratoconus.

Material and Methods: This prospective observational study includes 46 progressive keratoconus patients and 66 age-and-sex-matched healthy control subjects. All participants underwent a detailed ophthalmological examination and corneal topography. Serum samples were obtained from all subjects. After all the data recorded, NLR and PLR values, which were calculated by the serum samples, compared between the progressive keratoconus group (Group-1) and the control group (Group-2). Also, the correlation between the NLR&PLR values and keratometry and central corneal thickness were analyzed.

Results: The mean NLR value was 2,01 ± 0,42 in group-1 and 1,60 ± 0,38 in group-2. The mean PLR was 135,26 ± 45,87 in group-1 and 95,22 ±20,96 in group-2. NLR and PLR values were found to be statistically higher in progressive keratoconus patients than in control cases ($p<0,05$, t-test). There was no correlation between NLR&PLR and keratometry values (r=0,089 and 0,185 in order, the Pearson correlation test). Also, no correlation was detected between NLR&PLR and central corneal thickness (r=0,052 and 0,237 in order, the Pearson correlation test).

Conclusion: The results of this study showed the NLR and PLR values which were believed to be inflammation markers, were significantly higher in the progressive keratoconus group than the control group. The higher NLR and PLR values could be related to the continuing process of inflammation. But to support this theory clinical studies with larger groups and more subgroups which include the non-progressive keratoconus patients are needed.

Keywords: keratoconus, neutrophil-lymphocyte ratio, platelet-lymphocyte ratio, inflammation

S-15 **Abstract Referance: 14**

CLINICAL, DEMOGRAPHIC AND NEURO-OPHTALMOLOGICAL FEATURE OF PITUTARY TUMORS

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Introduction: Pitutary tumors comprise %12-15 of all intracranial lesions and is seen with or without visual involvement. Compression of optic chiasm can lead to compromised visual function. This study's aim is assement of demographic and neuroopthalmologic feature of pitutary tumours.

Material and Methods: We analyzed 99 eyes of 51 patients diagnosed with pituitary tumors who were consulted to

Department of Neuro-ophthalmology in the period between 2016 and 2018. All neuro-opthalmological examinations, visual field (VF) tests were performed.

Results: The visual acuity was 0.03 LogMar (0-1). In fundus examination, optic discs were normal in 79 eyes, however pallor in 15 eyes and atrophy in 5 eyes were detected. Discromatopsia was found in 14 eyes. Relative afferent pupillary defect was positive in 2 eyes of two patients; One of these patients had apolexy and 6th cranial nerve paralysis caused by craniopharyngioma, and the other had macroadenoma due to prolactinoma. Most common complaint was headache (%47). %36,4 of patients with visual acuity between 0-0.03 logMar and %42,3 of patients with normal optic disc appearance, %35,3 of patients with microadenoma had visual field defects. Tumor volume was significantly greater in patients with GA defects than those without. (p <0.001).

Conclusions: We found VF defect in one-third of the patients with good visual acuity, normal optic disc and microadenoma. VF examination is important for patients referred to opthalmology clinics with this complaint. Although ophthalmologists rarely take role in the primary diagnosis of pituitary tumors, we would like to emphasize the importance of performing a complete neurophthalmologic examination including pituitary tumor light reflexes and eye movements in pituitary tumor cases since it will prevent permanent loss of vision.

Keywords: Pitutary adenoma, Visual fields, Ophthalmology

S-16 **Abstract Referance: 45**

EVALUATION OF ACCOMMODATIVE RESPONSE IN PATIENTS WITH MULTIPLE SCLEROSIS WITH OPTIC NERVE INVOLVEMENT

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Introduction: Evaluation of accommodation amplitudes of patients with multiple sclerosis with optic nerve involvement

Material-Methods: Twenty eyes of 20 patients who were referred to our clinic between October 2018 and February 2019, which were previously diagnosed with MS by the neurology department and had optic nerve involvement findings in VEP examination, were included in the study. As a control group, age matched twenty eyes of 18 healthy volunteers were included in the study. Patients under 40 years of age (25-40 years of age) were included for both groups. After a complete ophthalmologic examination was performed in all participants, and accommodation amplitudes with spherical lens test and RMS for higher order aberrations (HOA) with iDesign aberrometer (Abbott medical optics, Abbott Park, IL) were evaluated. Because higher order wavefront aberration have been also shown to change with increased accomodation.

Results: The mean age of the participants were in the MS group and the control group were 35,25±4,52 years, 32,28±6,83 years, respectively (p = 0,170). Gender distribution were 50 %(10) female, 50 %(10) male in the MS group, 62 %(11) female 38%(7) male in control group. In the MS group and in the control group, the accommodation amplitudes were 4,05±1,25, 6,00±1,03 D (dioptre) in the MS group and the control group ,respectively and there was a significant difference between two groups (p<0,001). In the MS group and the control group RMS for HOA were 0,44±0,22, 0,43 ±0,10 respectively and there a statistically significant difference between the two groups (p=0824)

Conclusions: Based on PUBMED scans, as far as we know, it is the first study to evaluate accommodation amplitude in MS patients. In patients with MS with optic nerve involvement, accommodation amplitude may decrease in addition to demyelination but there may not be a significant change in RMS for high order aberrations.

Keywords: aberration, accomodation, multiple sclerosis

S-17 **Abstract Referance: 59**

IDENTIFICATION OF CORRELATION BETWEEN THE ETİOLOGY, DEMOGRAPHIC DATA AND FINDINGS IN OPTIC DISC EDEMA

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Introduction: The aim of this study is to to analyse the role of etiology, age, gender and systemic diseases in patients with optic disc edema. The correlation between these demographic data and the causative diseases is also evaluated.

Material and Methods: This is a retrospective study of 85 subjects diagnosed with optic disc edema. Best corrected visual acuity, anterior segment examination, intraocular pressure measurement, color vision test with Ishihara chart and fundus findings were recorded. Visual field testing and fundus photography was performed in all patients. Sine Wave contrast sensitivity test and VEP were performed in required cases. The neurology, internal medicine, endocrinology and neurosurgery departments performed systemic evaluations.

Results: The most common three etiology for the disc edema were nonarteritic ischemic optic neuropathy (36.5% of all cases) , idiopathic intracranial hypertension (29,4%) and optic neuritis (14,1%). There was a statistically significant female predominance in the idiopathic intracranial hypertension group and the ratio of male patients was higher compared to other series published in the literature. The mean age and presence of a vascular risk factor was significantly higher in the NAION group. Visual acuity and color vision testing values were lowest in the optic neuritis group and highest in the IIH group.

Conclusions: Optic disc edema may be related to various different diseases and must be evaluated in an algorithm for determining the way of treatment.

Keywords: optic disc edema, optic neuritis, idiopathic intracranial hypertension

S-18 Abstract Referance: 7

THE PREDICTIVE VALUE OF MAGNETIC RESONANCE IMAGING OF RETINOBLASTOMA FOR THE LIKELIHOOD OF HIGH-RISK PATHOLOGIC FEATURES

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Abstract Purpose: To evaluate the predictive value of magnetic resonance imaging in retinoblastoma for the likelihood of highrisk pathologic features.

Methods: A retrospective study of 64 eyes enucleated from 60 retinoblastoma patients. Contrast-enhanced magnetic resonance imaging was performed before enucleation. Main outcome measures included demographics, laterality, accuracy, sensitivity, and specificity of magnetic resonance imaging in detecting high-risk pathologic features.

Results: Optic nerve invasion and choroidal invasion were seen microscopically in 34 (53%) and 28 (44%) eyes, respectively, while they were detected in magnetic resonance imaging in 22 (34%) and 15 (23%) eyes, respectively. The accuracy of magnetic resonance imaging in detecting prelaminar invasion was 77% (sensitivity 89%, specificity 98%), 56% for laminar invasion (sensitivity 27%, specificity 94%), 84% for postlaminar invasion (sensitivity 42%, specificity 98%), and 100% for optic cut edge invasion (sensitivity100%, specificity 100%). The accuracy of magnetic resonance imaging in detecting focal choroidal invasion was 48% (sensitivity 33%, specificity 97%), and 84% for massive choroidal invasion (sensitivity 53%, specificity 98%), and the accuracy in detecting extrascleral extension was 96% (sensitivity 67%, specificity 98%).

Conclusions and relevance: Magnetic resonance imaging should not be the only method to stratify patients at high risk from those who are not, eventhough it can predict with high accuracy extensive postlaminar optic nerve invasion, massive choroidal invasion, and extrascleral tumor extension.

Keywords: Retinoblastoma, magnetic resonance imaging, laminar optic nerve invasion

S-19 Abstract Referance: 52

ASSESSMENT OF WINROP ALGORITHM FOR PREDICTING SEVERE RETINOPATHY OF PREMATURITY IN A TERTIARTY CENTER IN ISTANBUL

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Introduction: WINROP is an algorithm developed for prediction of retinopathy of prematurity (ROP), which distinguishes high-risk-for-ROP patients from low-risk patients by monitoring postnatal weekly weight gain and insulin-like growth factor 1. Recently it was modified to use only weekly weight gain. The aim of this study is to assess the sensitivity and specificity of WINROP algorithm to predict severe ROP in preterm infants in a tertiary hospital neonatal intensive care unit.

Material and Methods: The medical records of preterm infants screened for ROP from 2012 to 2018 were analysed retrospectively. Weights of infants born before 32 weeks' gestation were recorded on the WINROP online database system weekly from birth until postmenstrual week 36. The sensitivity, specificity, positive and negative predictive values of the WINROP algorithm were analysed.

Results: A total of 204 infants were included. WINROP highlighted a low-risk result in 104 infants (51%) and a high-risk result in the remaining 100 infants (49%). The sensitivity of the WINROP online system was found to be 77.1% (27/35), whereas its specificity was found to be 56.8% (96/169). Positive and negative predictive values were 27% and 92.3%, respectively. Eight of the 35 infants with treated ROP were not detected with WINROP.

Conclusions: With WINROP algorithm only, a substantial number of infants requiring ROP treatment would be missed. Nevertheless, since it is a non-invasive and a user-friendly method, it can be used in conjunction with other risk factors to predict and monitor ROP.

Keywords: Prediction, premature, retinopathy of prematurity, screening, WINROP

S-20 Abstract Referance: 3

COMPARISON OF ANATOMICAL AND FUNCTIONAL EFFICACY OF RANIBIZUMAB AND AFLIBERCEPT IN TREATMENT OF DIABETIC MACULAR EDEMA

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Purpose: To compare the functional and anatomical efficacy of Ranibizunab and Aflibercept which are used in diabetic macular edema (DME) treatment of diabetic retinopathy (DR).

Materials and Methods: This prospective study included 100 eyes of 100 patients with Type 2 Diabetes Mellitus (DM) who had DME and treatment naïve. Ranibizumab group (50 patients) and Aflibercept group (50 patients) were included. The best corrected visual acuity (BCVA), intraocular pressure (IOP) values, and central macular thickness (CMT) with optical coherence tomography (OCT) were evaluated before and after treatment. The duration of DM, the latest HbA1C levels and the severity of DR by fundus fluorescein angiography (FFA) were determined. The patients were treated with three monthly loading doses, subsequently; Pro re nata (PRN) schedule was conducted. In the first, third and sixth month controls, BCVA, CMT and IOP values were measured. The data were evaluated statistically.

Results: Visual acuity increased significantly in the first, third and sixth months after treatment ($p < 0.05$). When the two groups were compared, the difference between visual acuity (1, 3, and 6 months) was not statistically significant ($P > 0.05$). In terms of central macular thickness, a statistically significant difference was found in both groups (1, 3, and 6 months) after the treatment ($p < 0.05$). The difference between the two groups was not statistically significant during follow-up periods (1, 3, and 6 months) ($P > 0.05$). In both groups, mean visual acuity and central macular thickness were observed to be at the best level in the first month.

Conclusion: It was determined that both of the agents used in the treatment of DME had functional and anatomical improvement and showed similar results.

Keywords: Keywords: Diabetic Macular Edema, intravitreal Anti-VEGF, ranibizumab, aflibercept.

S-21 Abstract Referance: 13

QUALITATIVE AND QUANTITATIVE ANALYSIS OF OPTİCAL COHERENCE TOMOGRAPHY ANGIOGRAPHY FEATURES IN PATIENTS WITH CHOROIDAL NEOVASCULAR MEMBRANES

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Introduction: The aim of this study was to quantitatively and qualitatively evaluate the choroidal neovascular (CNV) membranes according to their classification, morphological features and flow areas using optical coherence tomography angiography (OCTA).

Material and Methods: The patients with CNV membranes who were followed from December 2017 through November 2018 were retrospectively evaluated. CNV membranes divided to 2 groups according to their classification. The morphological appearance of the CNV membranes were classified as: medusa, sea-fan, lacy-wheel, glomerular, dead tree and mature vascular network via OCTA. Also the presence of the perivascular halo and loop anastomoses were evaluated. Moreover the quantitative characteristics of the CNV membranes including the size and the flow area (mm^2) were calculated.

Results: This study included 53 eyes of 39 subjects. The etiology of the CNV membranes were: 45 eyes with age related macular degeneration, 2 eyes with myopic CNV, 2 eyes with stage 5 macular telangiectasia type 2A, 2 eyes with angioid streaks, 1 eye with pachychoroid neovasculopathy and 1 eye with idiopathic CNV. The morphological appearance of the CNV membranes were: 14 eyes with lacy-wheel, 11 eyes with mature vascular network, 7 eyes with medusa, 6 eyes with glomerular, 6 eyes with dead tree, 3 eyes with seafan and 6 eyes were unidentifible. 28 eyes had type 1 and 25 eyes had type 2 CNV membranes. The mean size and flow area of the type 2 CNV membranes were greater than 1 CNV membranes (p=0,031 and p=0,016 respectively) (6,52±15 mm2 and 3,31±2,43 mm2 versus 3,64±3,58 mm2 and 1,81±1,67 mm2). 36 eyes had exudative and 17 eyes non-exudative CNV membrane. Among the exudative CNV membranes 27 eyes had perivascular halo and 26 eyes had loop anastomoses (p=0,048 and p=0,003 respectively).

Conclusions: OCTA let clinicians to evaluate CNV membranes qualitatively and quantitatively. It also provides objective documantation about behaviours of these membranes.

Keywords: Choroidal neovascular membrane, optical coherence tomography angiography.

S-22 Abstract Referance: 20

INTRAVITREAL AFLIBERCEPT VERSUS RANIBIZUMAB FOR TREATMENT OF MYOPIC CHOROIDAL NEOVASCULARIZATION

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Introduction: To compare one-year treatment outcomes of intravitreal aflibercept (IVA) and ranibizumab (IVR) for myopic choroidal neovascularization (CNV).

Material and Methods: The medical records of a total of 30 eyes who were diagnosed with myopic CNV and underwent IVA or IVR for a minimum one year follow-up period were retrospectively studied.All the subjects had an axial length more than 26 mm and received 1 + PRN (Pro re Nata) IVA or 1+PRN IVR. Best-corrected visual acuity (BCVA) and central macular thickness (CMT) on optical coherence tomography were evaluated before and after treatment.

Results: There were 12 eyes in IVA group, with mean age of 60.0 ± 10.2 years. The mean BCVA significantly improved from baseline 0.14 ± 0.30 to 0.29 ± 0.30 (snellen) and the mean CMT significantly decreased from baseline 384.3 ± 119.1 μm to 305.9 ± 75.4 μm at Month 12 following IVA (p:0.024, p: 0.011; respectively). There were 18 eyes in IVR group, with mean age of 57.4 ± 13.1 years. The mean BCVA significantly improved from baseline 0.24 ± 0.23 to 0.28 ± 0.28 and the mean CMT significantly decreased from baseline 366.5 ± 102.3 μm to 323.6 ± 103.6 μm at Month 12 after IVR (p: 0.024, p:0.011; respectively). There was no significant difference between the groups regarding to change in BCVA and CMT during the study period (p: 0.178, p:0.704; respectively).

Conclusions: Both IVA and IVR showed a similar functional and anatomical improvement in patients with myopic CNV over a 12-month follow-up period.

Keywords: Aflibercept, Myopic Choridal Neovascularization, Ranibizumab

S-23 Abstract Referance: 39

EFFICACY OF INTRAVITREAL ANTI-VASCULAR ENDOTHELIAL GROWTH FACTOR INJECTIONS FOR THE TREATMENT OF VITREOUS HEMORRHAGE IN PREVIOUSLY VITRECTOMIZED DIABETIC EYES

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Introduction: Vascular endothelial growth factor (VEGF) has an important role in diabetic eye disease especially at increase of vascular permeability and proliferation of newly formed vessels that can lead to vitreous hemorrhage (VH). The purpose of our study was to investigate the efficacy of intravitreal anti-vascular endothelial growth factor (anti-VEGF) injections on VH at previously vitrectomized eyes with proliferative diabetic retinopathy (PDR).

Material and Methods: This is a prospective, comparative study comprised of previously vitrectomized eyes of patients with PDR and severe VH. Detailed treatment options were explained to the patients. Those who selected intravitreal anti-VEGF injection treatment (repeated at 4 weeks interval when VH clearance was incomplete) were included in group 1(n:25); and those who did not accept re-vitrectomy surgery or intravitreal injection were included in group 2(n:20), which was observation alone group. In both groups, retinal photocoagulation was performed after adequate VH clearance obtained. When there was no improvement in VH after 20 weeks, vitrectomy was performed in patients with consent.

Results: Vitrectomy rate was 5 patients (20%) in group 1; 11 patients (55%) in group 2(P=0,04). Complete VH clearance was achieved in 12 (48%) patients after 1st, 6 (24%) patients after

2nd,2(8%) patients after 3rdinjection. 6 patients (30%) showed total clearance at 1stmonth, 3(15%) patients after 2ndmonth in group 2. Recurrence of VH was 8% in group1, 12% was in group 2(P=0,07). Better visual acuity was achieved in group 1 (P=0,03).

Conclusion: Intravitreal anti-VEGF injections may be useful as a treatment option in vitrectomized eyes of PDR patients with severe VH.

Keywords: Vitreous Hemorrhage, Anti-VEGF, Vitrectomy, Diabetic Retinopathy

S-24 **Abstract Referance: 46**

RARELY SEEN RETINAL CHANGES ASSOCIATED WITH TAMOXIFEN AND AROMATASE INHIBITORS: FOVEOLAR CYSTOID SPACES AND PACHYCHOROID PIGMENT EPITHELIOPATHY

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Introduction: Aromatase inhibitors (letrozole, anastrozole) and tamoxifen are currently used as the first-line endocrine theraphy of breast cancer. There is no previous report of foveolar or parafoveolar cystoid spaces associated with aromatase inhibitors and there is only one report pachychoroid pigment epitheliopathy associated with tamoxifen therapy.

Material and Methods: Spectral-domain optical coherence tomography (SD-OCT) were performed for all breast cancer patients under treatment of tamoxifen or aromatase inhibitors. Retinal optical cohorence tomography (OCT) changes associated with tamoxifen and aromatase inhibitors were analised.

Results: 88 eyes of 44 patients who are under tamoxifen therapy and 112 eyes of 56 patients who are under aromatase inhibitors (letrozole n:16, anastrozole n:40) therapy were enrolled in this retrospective study. The mean age was 51.8±6.5 (range 36-68) in tamoxifen group and 60.7±6.2 (range 50-76) in aromatase group. The mean tamoxifen therapy time was 3.9±1.9 years (range 1-9) and the mean aromatase inhibitors therapy time was 3.5±1.4 years (range 1-6).

We demonstrated the development of foveolar and parafoveolar cystoid spaces by SD-OCT in 2 patients using letrozole, 2 patient using anastrozole and 1 patient using tamoxifen.

We demonstrated 4 patients showing pachychoroid pigment epitheliopathy using tamoxifen. In these patients we showed thick choroid and pachyveins (enlargement of Haller's layer) under the retinal pigment epithelium change.

Conclusions: This is the first report of foveolar and parafoveolar cystoid spaces associated with aromatase inhibitors. The patients who have intraretinal foveolar or parafoveolar cystoid spaces have to be followed up closely and according to the placement and largeness of cyctoid spaces, modifying the dose or discontinuing the drug should be thougt. The choroid should be evaluated carefully with OCT in patients using tamoxifen in order not to miss pacyhychoroid pigment epitheliopathy.

Keywords: tamoxifen, aromatase inhibitors, pachychoroid pigment epitheliopathy, foveolar cystoid spaces

S-25 **Abstract Referance: 56**

THREE VERSUS FIVE INTRAVITREAL AFLIBERCEPT INJECTIONS AS INITIAL LOADING PHASE IN TREATMENT OF DIABETIC MACULAR EDEMA: ONE YEAR RESULTS

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Introduction: To compare three initial monthly intravitreal aflibercept injection (IVA) followed by pro-re nata (PRN) dosing with that of five initial monthly IVA followed by PRN dosing in patients with diabetic macular edema (DME).

Material/Methods: A total 30 treatment-naive DME patients who underwent IVA and followed at least one year period were included and analyzed. The patients were divided into two groups regarding to IVA number administered in the loading phase. Sixteen patients constituted 3+PRN group, while 14 patients constituted 5+PRN group. The visual and anatomical outcomes were compared between the groups at baseline, 1st, 2nd, 3rd,6th, 8th,10th and 12th months.

Results: Both 3+PRN and 5+PRN groups showed statistically significant improvements in best-corrected visual acuities (BCVA) and central macular thicknesses throughout the study period ($p<0.001$, $p<0.001$; respectively). There was no significant difference between the groups in terms of BCVA and CMT change (p:0.571 and p:0.730; respectively). The mean number of IVA was significantly greater in 5+PRN group (5.6±0.7) than 3+PRN group (3.7±0.7) ($p<0.001$).

Conclusion: 3+PRN and 5+PRN regimens showed similar 12-month visual and anatomical outcomes with IVA treatment in DME.

Keywords: Aflibercept, Diabetic macular edema, Loading phase

S-26 **Abstract Referance: 60**

ND: YAG LASER HYALOIDOTOMY FOR THE TREATMENT OF SUBHYALOID HEMORRHAGE

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Introduction: Subhyaloid haemorrhage is a cause of sudden painless visual loss and it may occur due to various conditions like trauma, valsalva maneuvere, proliferative diabetic retinopathy, retinal artery macro aneurysm, age-related macular degeneration, hematological disorders, chemotherapy induced pancytopenia, Terson's syndrome and Purtscher's syndrome.

Material and Methods: Retrospective presentation of a case with subhyaloid hemorrhage.

Results: A 23-year-old male presented to our clinic with the history of sudden visual loss in his left eye for 10 days. He was under chemotherapy for acute lymphoblastic leukemia and on presentation his platelet count was 16.000. On examination he had counting fingers vision in his left eye and dilated fundus examination revealed premacular subhyaloid haemorrhage. We performed Nd-yag laser hylaoidotomy and observed the drainage of subhyaloid hemorrhage. The visual acuity was 0.4 on Snellen chart the following day and 1.0 first week.

Conclusions: Neodymium yag laser hylaoidotomy is a safe out-patient procedure for the treatment of subhyaloid haemorrhage which provides satisfactory increase in visual acuity. It also prevents the complications like epiretinal membrane formation, macular pigmentary alterations and photoreceptor toxicity.

Keywords: subhyaloidal haemorrhage, nd-yag laser hyaloidotomy

S-27

SURGICAL MANAGEMENT OF MACULAR HOLE CAUSED BY REMOVAL OF RETAINED SUBMACULAR PFCL

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Subretinal PFCLretention following vitreoretinal surgery has been reported between 1 to 11% of cases. It is associated with central scotoma and poor visual outcome. Therefore, early removal is necessary. Direct surgical aspiration via a juxtafoveal retinotomy site adjacent to the retained PFCL bubble is generally the method of choice. this is the case of of 62 yo with the diagnosis of retinal detachment underwent PPV and silicone oil injection in his right eye. But postop. OCT revealed PFCL under the fovea. In discussion, I will focus on ILM peeling during PFCL removal. Although it is considered beneficial in some articles, it is reported that macular hole can also occur , despite ILM peeling. In conclusion surgical removal of subfoveal PFCL using a 41-gauge flexible needle may cause to macular hole formation.However, anatomical satisfactory outcomes can be obtained after PPV combined with ILM peeling.

Keywords: Subfoveal perfluorocarbon liquid macular hole

S-28 **Abstract Referance: 66**

COMPARISON OF AMINO ACID PROFILING OF DIABETIC AND NON-DIABETIC PATIENTS VITREOUS TISSUE

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Purpose: The aim of this study is to identify obvious different amino acid profiling to elucidate the etiology of as to provide direction toward the diagnosis of diabetic retinopathy.

Methods: Vitreous samples from 57 eyes of 57 patients (26 diabetic patients and 31 non-diabetic patients) were collected during pars plana vitrectomy. Prior to surgical maneuvers and with infusion off, the vitrector was used to aspirate samples into a tuberculin syringe (~0.3 mL) while cutting at 4500 cuts per minute. Samples were classified as control (non-diabetic) and diabetic retinopathy and were immediately cooled and stored at −80 till to the lab study. Chromatographic separation and mass detection parameters were used for sample analysis. After preparation according to the amino acid profile commercial kit (JASEM, Turkey) protocol in vitreous samples, the analysis was performed with LC / MS-MS (Shimadzu 8045).

Results: Evaluation of diabetic and non-diabetic vitreus tissues of 57 patients, comprising 20 females and 37 males with a mean age of 52.65 ± 9.56 years diabetic and 51.03 ± 23.46 years non-diabetic (p=0.727) was made. While a dramatic increase was observed in all the amino acid levels in the diabetic vitreous tissue compared to the non-diabetic vitreous (p=0.05).Glutamic acid, asparagine, citrulline, lysine, ornithine, phenylalanine, proline, valine, leucine and isoleucine amino acids were determined to be statistically significant (p = 0,034), (p = 0,048), (p =0,008), (p = 0,037), (p = 0,012), (p = 0,008), (p < 0,001), (p = 0,005), (p = 0,018), (p < 0,001). Glycine is the only increases amino acid in non-diabetic vitreous (p=0,001).

Conclusions: Amino acid profiles have been identified that were present in vitreous at significantly different levels between diabetic and non-diabetic patients. These amino acid profiles are likely to be involved in the pathology of diabetes and may potentially be used to diagnose and treat diabetic retinopathy.

Keywords: Liquid chromatography- mass spectrometry (LC-MS/MS) metabolomics, vitreous, vitreoretinal disease, diabetic retinopathy, vitrectomy

S-29 **Abstract Referance: 67**

COMPARISON OF TOPICAL AND PERIBULBAR ANESTHESIA FOR SAFETY AND EFFICACY OF 27 GAUGE PARS PLANA VITRECTOMY SURGERY

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Purpose: To compare the safety and efficacy of topical anesthesia and peribulbar anesthesia without sedation in 27 gauge pars plana vitrectomy surgery.

Materials-Methods: Twenty-two male and 10 female patients who underwent 27 Gauge pars plana vitrectomy for the indication of vitrectomy without scleral depression were divided into two groups. Topical anesthesia was used in Group 1 and peribulbar anesthesia was used in Group 2. Visual analog pain scale was used to evaluate the pain during the operation. Complications and operation durations were noted. A total of 23 patients who underwent 27G pars plana vitrectomy were included in the study. Patients were randomly selected to receive topical (Group 1, n = 11) and retrobulbar anesthesia (Group 2, n = 12). Pre-op, per-op and post-operatively were measured by visual analog pain scale from 1 (no pain or discomfort) to 4 (severe pain or discomfort) to measure pain levels.

Results: There was no statistically significant difference between the two groups in terms of age, gender and duration of operation (p = 0.8, 0.85, p = 0.93, respectively). There was a significant difference between Group 1 and Group 2 in terms of pain at the beginning of surgery (p = 0.001). No significant difference was observed between the two groups during and at the end of the surgery (p = 0.88, p = 0.78). There were no complications related to anesthesia technique in both groups. No patient was required to be sedated or anesthetized during the operation or in the postoperative period.

Conclusion: Topical anesthesia with a suitable case selection is a safe and effective alternative to retrobulbar and peribulbar anesthesia for 27gauge vitrectomy.

Keywords: 27 Gauge Vitrectomy, topical anesthesia, vitreoretinal surgery, pars plana vitrectomy

S-30 Abstract Referance: 2

AMD AND RISK FACTORS IN THE OLDER POPULATION OVER 40 YEARS OLD

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Introduction: To evaluate the frequency, risk factors, and distribution of AMD in Eskişehir rural area.

Material and Methods: The fundus photographs of 5182 patients who were taken with non-mydriatic fundus camera were examined in the population over 40 years of age. And participants with macular degeneration findings were identified. A questionnaire was used to analyze the demographic characteristics and habits of patients who had previously been filled with fundus photographs. Data were evaluated statistically.

Results: The body mass index, systolic and diastolic blood pressure values, education level, the presence of smoking and alcohol use, presence of comorbid disease and eye color did not show any difference among patients without AMD. Only one significant relationship was with age.

Conclusions: Age is also the most important determining factor in AMD. Considering that the proportion of the elderly population will increase in the coming years, it is important for the public health to further concentrate the geriatric group health studies.

Keywords: AMD, age, non-mydriatic fundus camera

S-31 Abstract Referance: 28

SOLAR RETINOPATHY FROM SUN-GAZING UNDER THE INFLUENCE OF "ECSTASY": EARLY SUBACUTE FINDINGS

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Introduction: We aimed to describe the visual acuity, fundus appearance and OCT findings in 3 cases with foveal damage from solar retinopathy(SR).

Material and Methods: This was a prospective, observational case series of patients who were admitted to our clinic simultaneously with the complaints of visual sight decrement, metamorphosis and diagnosed with SR. It is learned that they had no history of drug use except 2 days ago which they all had ecstasy together, and under the influence of this substance, all 3 watched the sun on a normal day. The patients underwent VA testing, dilated fundus examination and OCT imaging.

Results: The 3 patients' ages at presentation were 16,16 and 19 years. All fundus examinations revealed a yellow speckle foveal reflex loss in both foveas at the time of the admission while the BCVA ranged from 0,8-1,0.

Case 1: In OCT hyperreflective band was observed in the right eye, while the left eye was normal at presentation. In the 1st month(VA:1,0/1,0) OCT was normal in both eyes. All the findings were normal in 2nd-3rd months' follow-ups.

Case 2: At presentation, hyperreflective band reaching to RPE was observed in OCT in both eyes. In the 1st month(VA:1,0/0,9) hyporeflective space and RPE thinning was observed in both eyes in OCT. In the 2nd-3rd months, OCT was normal for the right eye, but hyporeflective space located in the inner retinal layers and thinning in RPE was found in the left eye while VA:1,0/1,0.

Case 3: At the time of admission(VA:0,8/0,8) OCT revealed a hyperreflective band extending to RPE in both eyes. In the 1st month(VA:0,9/0,9) OCT revealed a hyporeflective space and RPE thinning in both eyes. In the 2nd month(VA:1,0/0,9), hyporeflective space and RPE thinning were observed in the right eye, while the left eye was normal in OCT. In the 3rd month OCT showed no difference while VA:1,0/1,0.

Discussion: These cases aim to draw attention to SR that may occur after the use of hallucinogenic drugs and the importance of OCT in the follow-up.

Keywords: Hallucinogens, solar retinopathy, OCT

S-32 Abstract Referance: 23

LONG-TERM RESULTS OF PRIMARY PTERYGIUM SURGERY WITH CONJUNCTIVAL TRANSPOSITION FLAP

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Introduction: To investigate the long-term results of primary pterygium surgery with conjunctival transposition flap method.

Material and Methods: The medical records of 27 patients who underwent primary pterygium repair using conjunctival transpositional flap between 2009 and 2011 were retrospectively analyzed. All of the surgeries were performed by one surgeon under subconjunctival anesthesia. The conjunctival flap prepared from the lower nasal quadrant was transposed and sutured to the defect area with 8.0 vicrille.

Results: Twenty-seven eyes of 27 patients were repaired by conjunctival transposition flap. The mean pterygium size was 2.8 mm, and the operation time was 15.9 minutes. During the follow-up period (mean 72 months; data interval 67-82 months), one recurrence was observed in one patient. No complication was observed during and after the operation.

Conclusion: In primary pterygium repair, conjunctival transposition flap is a successful and less time consuming surgical alternative with less recurrence rate

Keywords: transpositional flap, pterygium, surgery

S-33 Abstract Referance: 31

INTENSE PULSED LIGHT TREATMENT FOR DRY EYE IN MGD

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Purpose: Dry eye is caused by chronic lack of sufficient lubrication and moisture of the surface of the eye. Depending on which component of tears is affected, we have different categories of dry eyes: aqueous deficiency dry eye and evaporative dry eye wich is caused by MGD. Treatment of MGD is very important in the treatment of dry eye.

Methods: We return Meibomian glands to their normal function by stimulating them with the device that generates intense polychromatic pulsed light (IPPL). The generator delivers flash as a pulse train. Each pulse has its own parameter: light intensity and duration. Spectrum and energy are precisely determined to stimulate Meibomian glands. The full success of treatment depends on the compliance with three sessions. The IPPL affects Meibomian glands indirectly by flashing the supraorbital and zygomatic region. This is the area, where the parasympathetic nerve passes. The emission on a nerve of infrared as a train of pulse leads to the creation of a micro gradient of temperature between the inner and outer layer of the myelin sheath wich triggers the release of neurotransmitter and secretion of Meibomian glands.

Results: From August 2016 to May 2018 we were treating 79 patients suffering from MGD with IPPL. Before treatment with IPPL they all received standard treatment for MGD. Because results were not satisfying, we added IPPL therapy into their treatment. All participants have filled out the FAST (fast assessment of ocular surface trauma) form before the IPPL therapy and three months after the last session. 2 of them stopped after 1st treatment, 1 of them started another treatment with three sessions after 1,5 year and 76 of them were satisfied with 3 sessions treatment. Those 76 patients improved their FAST form score from 1-5 points.

Conclusion: Intense pulsed light therapy with multiple sculpted pulses shows therapeutic potential for MGD, improving tear film quality and reducing symptoms of the dry eye.

Keywords: Meibomian glands dysfunction. intense pulsed light therapy

S-34 **Abstract Referance: 33**

EFFECT OF GLYCATED HEMOGLOBIN ON TEAR FUNCTION TESTS IN DIABETIC PATIENTS

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Introduction: Dry eye syndrome is a common occurrence in diabetic population which is correlated with hyperglycemic control and glycated hemoglobin (HbA1C) levels. In this study, we investigated the effects of HbA1c levels on Schirmer test, Tear Break up Time (TBUT) and Ocular Surface Disease Index scoring (OSDI) .

Material and Methods: Four groups were defined (n=40): control group; group 1 (HbA1c 6.5–7.9%); group 2 (HbA1c 8–9.5%); and group 3 (HbA1c>9.5%). All diabetic patients were newly diagnosed and treatment naïve without diabetic complications

Results: Schirmer test results showed that group 1 had no difference compared with control group. Group 2 and 3 results were significantly lower compared with control ($p<0.0001$ both), but had no difference in between. Group 1 had significantly lower TBUT compared with control ($p=0.040$). Group 2 and 3 results were significantly lower compared with control ($p<0.0001$), with no difference within each other ($p=0.491$) All diabetic groups had significantly higher OSDI compared with the control group ($p<0.0001$ for all). Group 3 had a significantly higher score compared with group 2 ($p=0.005$), and group 2 had a significantly higher score compared with group 1 ($p<0.001$).

Conclusions: Diabetic patients are at increased risk of developing lacrimal function unit dysfunction and its accompanying complications. Therefore, early diagnosis and treatment of dry eye - with glycemic control monitoring - should also be a part of ophthalmological follow ups in diabetic patients. Our study showed that the effects of diabetic dry eye is first presented in OSDI and TBUT, and then showed in Schirmer testing. OSDI scores were also the only method to show directly proportional effect with HgA1c. Therefore, we would like to emphasize the importance of using multiple diagnostic and scoring systems when dealing with diabetic patients, and plan their treatments accordingly.

Keywords: Dry Eye, Diabetes Mellitus, Schirmer, OSDI

S-35 **Abstract Referance: 42**

OCULAR SURFACE FINDINGS AND CORNEAL SENSATION IN IRRITABLE BOWEL SYNDROME

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Purpose: Irritable bowel syndrome (IBS) is a condition within the spectrum of central sensitization syndromes. The aim of this study was to evaluate the ocular surface findings and whether this condition was associated with changes in corneal sensation.

Methods: IBS patients were diagnosed according to ROMA-IV criteria and compared with age and gender matched healthy controls. None of the subjects had a history of previous ocular surgery or coexisting ocular pathology. All subjects had a detailed ophthalmological examination, OSDI questionnaire and Cochet-Bonnet esthesiometry. The measurements from both eyes were averaged. The distribution was evaluated with Kolmogorov-Smirnov test, the continuous data were compared with Mann-Whitney U and Students T tests, and categorical data with chi square test. Bonferroni correction was applied for multiple testing.

Results: There were 29 patients with IBS (mean age: 45.3±10.2 years, 9 male, 20 female) and 32 healthy subjects (mean age: 38.4±8.9 years, 10 male, 22 female). The age and gender distribution was similar between the groups ($p=0.72$, $p=0.98$). There was a slight trend for increased corneal sensation in the IBS group, but it was not statistically significant after Bonferroni correction in central (57.5 vs. 57.5, $p=0.44$), superior (55.0 vs. 52.5, $p=0.06$), inferior (57.2 vs.52.5, $p=0.04$), nasal (57.5 vs. 57.5, $p=0.86$) and temporal (57.5 vs. 57.5, $p=0.64$) regions. There was an insignificant decrease in Schirmer results (11.5 vs. 14.0, $P=0.07$) and TBUT was significantly decreased in IBS (10.0 vs. 14.0, $p=0.01$). There was also a trend towards a higher OSDI scores among IBS patients (22.7 vs. 14.7, $p=0.07$).

Conclusion: This study has demonstrated for the first time that TBUT is significantly decreased in IBS and these patients tend to have more ocular surface complaints. Unlike other central sensitization syndromes, these complaints are associated with dry eye disease but not an increase in corneal sensation.

Keywords: irritable bowel syndorme, corneal sensation, ocular surface, dry eye disease, central sensitization syndromes

S-36 Abstract Referance: 48

EVALUATION OF BLEPHARITIS -OCULAR DEMODICOSIS RELATIONSHIP AND THE ROLE OF DEMODICOSIS IN INSULIN DEPENDENT DIABETES

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Objective: To investigate the role of demodex infestation in anterior blepharitis, and in insulin-dependent diabetic anterior blepharitis patients.

Methods: Totally 117 volunteers (78 blepharitis, 39 control) were included in the study. The blepharitis positive patients were separated into two groups according to their biomicroscopic findings: anterior blepharitis and mix blepharitis (anterior and posterior compaund). Twenty five of them had been had type 2 insulin dependent diabetes for over than 5 years. Eyelash samples (2 upper, 2 lower eyelids) were taken randomly from one of each eyes of the volunteers with forceps and fixed to the lamella with gliserol solution. The samples were delivered to the microbiology laboratory as soon as possible. The samples were examined by 20 and 40 magnifications in light microscope and presence of adult parasites, larvae or eggs of demodex spp. was recorded as positive.

Results: Forty-four of 117 were male and 73 were female. Mean age was 51.38±16,12. Fifty-four of 78 were anterior and 24 of 78 were mix blepharitis. Forty-two (%53.8) of 78 blepharitis cases had positive demodex microscopy. Demodex positivity was found in 28 (52%) of the anterior blepharitis cases and 14 (58.3%) of the mixed blepharitis patients. Totally, demodex positivity was observed in 16 (64%) of 25 diabetic blepharitis patients. Twenty-two of the diabetics were anterior blepharitis and 13 (59%) were demodex positive. Only 10 (25.6%) of the 39 volunteers were positive in the control group.

Conclusion: The role of demodex infestation in the etiopathogenesis of anterior blepharitis was also supported by statistical significance (p=0.003). High rates of demodex positivity in patients with mixed blepharitis and diabetic blepharitis are noteworthy. Our study is one of the rare studies in the literature in terms of demodex research in insulin-dependent diabetes population.

Keywords: anterior, blepharitis, demodex, diabetes,

S-37 Abstract Referance: 65

MANAGEMENT OF THE OCULAR SURFACE IN CONTEXT OF SURGERY

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Purpose: To evaluate the importance of the management of the ocular surface in patients undergoing refractive and cataract surgery.

Methods: 15 patients underwent full ophthalmologic examination with the addition of Schirmer's Test, Tear Break-Up Time (TBUT) and corneal topography to evaluate the ocular surface. All diagnostic procedures were performed by the same ophthalmologist. In cases of dry eye disease and Meibomian Gland Dysfunction (MGD) patients were treated accordingly either with lubricating eye drops and/or expression of the lid margin of the meibomian glands. After treatment of the ocular surface all the measurements were done once more to avoid incorrect IOL power or laser ablation pattern.

Results: Out of 15 patients 2 underwent ICL implantation, 7 patients – LASIK and 6 patients – Cataract surgery with premium IOL implantation. All surgeries were uneventful and satisfactory refractive results were achieved in all cases. All the patients reported high rate of satisfaction and none of them complained of delayed recovery of visual ability.

Conclusions: In cases of refractive surgeries prompt postoperative recovery is crucially important due to patients' high expectations and demands. One of the most important factors for the successful surgery and good postoperative outcomes is to optimize the ocular surface before the surgery

Keywords: Ocular Surface, Refractive Surgery, DED, MGD

S-38 Abstract Referance: 22

EVALUATION OF PTOSIS AND SURGICAL TIPS FOR APONEUROTICAL PTOSIS

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Introduction: Blepharoptosis is an abnormal low-lying upper eyelid margin with the eye in primary gaze which can be congenital or acquired.

Detailed history is one of the key points for diagnosis and after the measurements laboratory tests and imaging may be helpful to reach the proper diagnosis.

Management can be with medical treatment and surgery according to the disease underlying.

Materials and Methods: Between May2016-August2018 we performed anterior aponeurosis repair and levator advancement in 8 unilateral and 7 bilateral cases of aponeurotical ptosis. 3 of the unilateral cases and all of the bilateral cases were performed with the combination of blepharoplasty operation due to accompanying dermatochalasis. The patients were between 26-82 years old and 7 of the patients were male. Preoperative and postoperative MRD(margin reflex distance),LF(levator function) and LC(lid crease) measurements were performed.

Results: The results were satisfactory for all the patients after the surgery. We were not able to follow up all our patients. MRD was the important measurement which points the success rate. It went stable for 1week and 6 months except one of the eye of a bilateral female case but she did not want a resurgery.

Conclusions: Anterior approach levator aponeurosis repair is suitable for all cases aponeurotic ptosis especially elder patients who have dermatochalasis as well. The focus of this presentation is a discussion of the indications, operative techniques and tips to reduce complications.

Keywords: blepharoptosis, levator aponeurosis surgery

S-39 Abstract Referance: 51

THE ROLE OF BACTERIAL ETIOLOGY IN THE TEAR DUCT INFECTIONS SECONDER TO CONGENITAL NASOLACRIMAL DUCT OBSTRUCTIONS

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Congenital nasolacrimal duct obstructions (CNLDO) could cause tear duct infections. When a tear duct infection first occurs, it is called acute dacryocystitis. If a dacryocystitis is not treated immediately, it could be more challenging to heal. Also, dacryocystitis could cause pre-septal cellulitis. The infection is seen in a long period then called chronic dacryocystitis. Bacterial dacryocystitis was seen about 60.8% to 94.9% of all dacryocystitis. In our study attempted to identify and define the microbiological features of dacryocystitis. With this study, we aimed to contribute to the first antibiotic selection.

Material and Methods: Patients with dacryocystitis seconder to CNLDO between 2017 and 2019 in Izmir, Turkey were included study. Inclusion criteria of the study were being mucopurulent secretion, under 4 years old and not received prior antibiotic treatment. Samples from secretion were planted in sheep blood agar, eosin methylene blue (EMB) and chocolate agar. Reproduction was checked intermittently. Clinically significant growths were reported.

Results: Seventy eyes of 70 patients with Dacryocystitis seconder to CNLDO included in the study. Sixty percent of patients were female (n=42) and 40% (n=28) percent of patients were male. The mean age of participants was 2,09±0,68 (1-3) years old. Culture gave positive bacterial proliferation results were noted in 20 patients (28,6%) (28,6% of specimens). Eighty percent (n=16) of culture-positive bacterias were gram-negative bacteria and 20% (4) were gram-positive bacteria. Twenty percent of culture-positive bacterias were aerobic and 80% were facultative bacterias. The most common bacteria that seen in culture specimen was Haemophilus (40%) [Haemophilus haemolyticus (20%) and Haemophilus influenzae (20%)].

Conclusion: Gram-negative organisms especially Haemophilus were most prevalent. It could be helpful for antibiotic selection.

Keywords: Congenital nasolacrimal duct obstructions; Dacryocystitis; Bacteria; Haemophilus

S-40 Abstract Referance: 38

ORBITAL DERMOID CYSTS: THE UPPER EYELID CREASE APPROACH

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Introduction: Orbital dermoid cysts are congenital lesions and the most common orbital mass in children. Different surgical techniques that can be used to excision of dermoid cysts. The aim of this study was to evaluate the clinical and surgical outcome in patients with dermoid cysts excised via the upper eyelid crease incision.

Material and Methods: A total of 11 patients (5 males and 6 females) with dermoid cysts were studied between January 2015 and January 2019. Dermoid cysts excised via the upper eyelid crease incision was performed on all patients. Demographics and clinical outcomes (cosmesis, complications) of dermoid cysts were evaluated. Cosmesis was assessed blindly with comparative photographs.

Results: The median age at surgery time was 8 years (range 3-21). All patients were followed up for 18 ± 3.4 months. Six cysts were located supero-temporally (54.5%), four supero-medially (36.3%), and one at the frontal bone (9.0%). The mean cyst diameter was 15.2 mm±6.1. Intraoperative cyst rupture did not occur. The scar resulted invisible when the affected side was evaluated with the eye open and closed. All patients and their parents reported satisfaction and a good scar. No recurrence was observed after complete excision. None had signs of malignant disease.

Conclusions: The upper eyelid crease approach can produce a desired aesthetic effect for dermoid cyst patients as its slight skin scar formation. This surgical procedure was found to be a safe, simple and effective method in patients with dermoid cysts.

Keywords: dermoid cyst, eyelid crease incision, orbita, surgical excision

S-41 Abstract Referance: 29

OBJECTIVE ACCOMMODATION MEASUREMENTS IN DIFFERENT AGES BY USING AN AUTOREFRACTOMETER

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Introduction: To measure accommodation amplitude (AA) at different ages by using Tonoref 3 (NIDEK CO., LTD.) and to investigate a possible correlation with pupil diameter.

Material and Methods: AA was measured in both eyes of 125 subjects between 25 and 69 years of age by using Tonoref 3. Pupil diameter was also measured at the same time with AA measurement. All measurements were repeated 3 times and for test–retest reliability, the same protocol was repeated on 3 additional days as well as twice on the same day in the young adults and the average values were collected for statistical analysis. Subjects were grouped into 10-year bins, and a descriptive univariate analysis of the data performed.

Results: The mean age was 37.82 years ±1.72 (SD). The mean AA was 1.6682±0.1841 (range 0.14-8.06). In order to investigate the relationship between age and AA, the age data is divided into three groups as 30 and under, 30-39, 40 and above. A significant difference was found between 30 and 40 age above groups and 30-39 and 40 age and above (p=0.000, for each). A negative correlation was found between age and AA. In addition, a weak correlation was found between pupil diameter and AA.

Conclusions: The accommodative responses measured with Tonoref 3 were significantly suitable for objective measurement of accommodation with varying ages. Pupil diameter has a weak effect on the measurement of AA.

Keywords: age, amplitude of accommodation, objective amplitude of accommodation, pupil diameter

S-42 Abstract Referance: 41

INSIGHT TO SIGHT (I): DO WE ALWAYS NEED THE INPUT FROM THE EYES TO "SEE"?

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Introduction: The conventional physiological knowledge is, that human eyes need direct light input into the eye to see. Sharpness of the image depends on the focusing of the light on the retina and colour of it on the wavelength of the incoming light rays. There are some physiological and pathological conditions of the body where humans "see" without eye participation. Understanding the conditions may help in making innovations for artificial or prosthetic vision.

Material and Methods: Some of the conditions in which humans see without eye involvement are dreaming, synaesthesia, artificial vision and hallucinations.

Results: In dreams human's eyes are shut. But dreaming persons can see object in their dreams very sharply and in colour. Synaesthesia is having perception in another sense also, when triggered in one sense. Hearing a certain voice may end up in a additional colour perception, which doesn't exist or certain shapes may end up in certain colours. These the visual perception modalities are so real that one cannot differentiate it from reality. Tractions on the retina may end up in photopsia, which is due to the omnipotent perception nature of the neurons. In artificial vision the input is electrical stimulations of the neurons in the retina or in the visual cortex in the brain. The visual perception is phosphens which are different from the human vision. Halluninations are pathological visual experiences, which seem very realistic which may be very sharp and in colour. Their pathological character but realistic visual perception is important. Prosthetic vision implant site is going to change from the eye to the brain. The knowledge of different visual perceptions without direct light input into the eyes may open new horizons in understanding vision and further research on artificial vision.

Conclusions: The effect and pathway of non direct light dependent visual modalities which may be physiologic or pathologic may change the prosthetic vision approach.

Keywords: Artificial vision, dreaming, synaesthesia, hallucinations.

S-43 Abstract Referance: 47

A NEW VISUAL PERCEPTION MODE: "HEADS UP" 3D SURGERY?

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Introduction: The new Heads Up 3D surgery (HU3DS) is a new imaging and viewing technology for surgery in contrast to conventional operating microscope (COM) without looking through the oculars of the microscope. It is a new visual perception mode. It is important to know its optical and perceptual features to evaluate it as user and in case of problems forensically.

Material and Methods: The illumination, imaging, presentation and perception parts of the Heads Up 3D Surgery system are evaluated in term of physics, optics and human visual perception.

Results: Heads Up 3D surgery uses the image in binocular operating microscopes. In COM surgeon's eyes look through the oculars. With the square of magnification the illumination has to be increased for seeing with the eye. These may be as high than 160.000 lux (operating rooms have 1.000 lux, instrumentation tables 2.000 lux, illumination for comfortable vision is 500-2.000 lux). In HU3DS the amount of light can be regulated digitally through software to have the optimal amount for the screen, which is much less, which is preferable for surgeons' and patients' eye health. In CM binocularity is achieved through oculars ,in HU3DS with stereoscopic polarising glasses. Because the LED screen is polarized itself and the image also polarised there is a certain amount of illumination loss. Through polarising in surgical field images some of the reflections may be dimished, which may be disadvantageous. It is no real time image for the surgeon. Due to technology, even if it is in milisecond range, there is a delay in the image from the reality in the HU3DS. The image is captured with 25 frames/s and played on the screen with 25 frames/s. Actually it is an illusion like in a movie or on all screens. But in surgery the surgeon may need more accuracy. The forensic aspects because of potential failure in HU3DS system are still not discussed.

Conclusions: HU3DS has some advantages compared to COM. Possible problems should be evalauted.

Keywords: Heads Up 3 D surgery, conventional operating microscopes, illumination, stereopsis.

S-044 Abstract Referance: 74

THE EFFECT OF TOPICAL COENZYME Q10 ON THE CORNEAL EDEMA AFTER PHACOEMULSIFICATION

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Introduction: Coenzyme Q10 has been shown to be effective in cellular regeneration. We aimed to evaluate its effect in the treatment of corneal edema.

Materials and Methods: Patients who had developed corneal edema after phacoemulsification and intraocular lens implantation between 2016 August and 2018 February were evaluated retrospectively. The Q10 Group comprised 16 eyes of 16 patients who were treated with Coenzyme Q10 (Coqun). The Control Group comprised 23 eyes of 23 patients who were followed with the standard treatment protocol. Corneal thickness was evaluated by Pentacam.

Results: In Q10 Group and Control Group the median age was 74.50 (58-88) years and 69.00 (55-88) years (p=0.03) respectively, female to male ratio was 8/16 and 14/23. The groups were similar in terms of gender (p=0.50), existence of diabetes (p=0.77), use of stains (p=0.62), initial visual acuities (p=0.9) and initial thinnest corneal thickness (p=0.14). The groups were similar in terms of initial and final intraocular pressure values (p=0.53, p=0.27) and final visual acuities (p=0.67). The initial pupil center thickness was significantly higher in the Q10 Group as the median was 838 μ (642-999) in the Q10 Group and 718 μ (565-1028) in the control group (p=0.025). The groups were statistically similar in terms of median recovery times (p=0.10), final

pupil center thickness (p=0.95) and thinnest corneal thickness measurements (p=0.49) and the reduction of corneal thickness at thinnest location (p=0.08).

The reduction of corneal thickness was calculated by substracting the initial and final corneal thickness at the pupil center. In the Q 10 Group the decrease in pupil center thickness values were significantly greater as the median value was 283.50 µ (103-505) in the Q 10 Group and 203.00 µ (16-416) in the control group (p=0.016).

Conclusion: Topical coenzyme Q10 seems to have adjunctive effect on resolving the corneal edema after phacoemulsification.

Keywords: coenzyme Q10, corneal edema, phacoemulsification

S-45 **Abstract Referance: 75**

EFFECTIVENESS OF DIGITAL MASSAGE IMMEDIATELY BEFORE OR AFTER INTAVITREAL ANTI-VEGF INJECTION TO THE IOP

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Purpose: To examine the role of ocular massage immediately before or after intavitreal anti-VEGF injection.

Methods: The randomized prospective study conducted a hundred and ninety nine eyes with macular edema who treated anti-VEGF therapy were enrolled. The patiens were diveded to 2 main groups and 3 subgroups. First main group is Aflibercept the other one is Ranibizumab group. The subgroups are none-massage, premassage and post massage groups. In non-massage group patients did not have any massage before or after enjection. The second group patients had digital massage before intravitreal injection. The last group had massage afer injection. The intraocular pressures were recorded before, after and 24 hours later of intravitreal injection in all groups.

Results: Statistically significant (p<0.05) elevation of IOP was recorded in non-massage group. And the other subgroups there were no difference in before and post injection IOP. This result were similar in two main groups Aflibercept and Ranibizumab. In all groups the intraocular pressures turned into pre injection levels

Conclusıons: Digital ocular massage has a useful role to play in the management of the hypertensive phase after intravitreal enjection.

Keywords: Intravitreal enjection, digital ocular massage, intraocular pressure

S-46 **Abstract Referance: 76**

THE THICKNESSES OF CHOROID, MACULAR SEGMENTS AND PERIPAPILLARY RETINAL NERVE FIBER LAYER IN HIV-INFECTED PATIENTS RECEIVING ANTIRETROVIRAL THERAPY WITHOUT INFECTIOUS RETINITIS

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Purpose: To evaluate choroidal, macular and peripapillary retinal nerve fiber layer (RNFL) thicknesses in HIV-infected patients receiving antiretroviral therapy without opportunistic infections.

Methods: This prospective case-control clinical study included 50 HIV-infected patients and 50 healthy subjects. Best corrected visual acuities, anterior and posterior segment examinations were performed in both groups. Spectral domain optical coherence tomography was used for assessment of choroidal, macular and peripapillary RNFL thicknesses.

Results: The mean disease duration, the mean CD4 count, the mean HIV-RNA level in HIV-infected group were 8.8 ± 2.3 years,605.4 ± 279.5 cells per milliliter and 173.6 ± 913.8 copies/mL, respectively. Age, gender, AL, spherical equivalent differences between the patients and subjects were insignificant (p>0.05). Subfoveal, temporal quadrant and average choroidal thickness were significantly lower in HIV-infected patients except for nasal quadrant(p< 0.05 for all). Macular thickness was significantly thinner at all measurement points in HIV-infected patients compared to healthy controls (p< 0.05). Mean ganglion cell-inner plexiform layer thickness was lower in HIV-infected patients (p< 0.05). RNFL thickness at all quadrant was significantly lower in HIV-infected patients except for temporal segment (p< 0.05).

Conclusions: Retinal and choroidal alterations occurred in HIV-infected patients compared with control subjects. Changes in HIV-related neuroretinal disorder are thought to be associated with persistent viremia beyond the number of CD 4 cells.

Keywords: The thicknesses of choroid, macular segments and peripapillary retinal nerve fiber layer in HIV-infected patients receiving antiretroviral therapy without infectious retinitis.

S-47

TRAVMATIK KANALIKÜL KESILERININ SILIKON TÜP İLE ONARIMI UZUN DÖNEM SONUÇLARIMIZ

A. Burcu Dirim , Ceylan Uslu Doğan

Amaç: Lakrimal kanalikül kesilerinin demografik verilerini,klinik özelliklerini,cerrahi yöntem ve sonuçlarını değerlendirmek

Gereç ve Yöntem: Bu retrospektif çalışmaya Haziran 2013-Aralık 2018 tarihleri arasında travmaya bağlı acil poliklinik başvurusunda bulunan, lakrimal kanalikül kesisi olan 35 olgunun 35 gözü dahil edildi. Olguların 27'sine mini-monoka silikon tüp ile onarım yapıldı, 8'ina ritleng silikon entubasyonu yapılarak kanalikül onarıldı. Klinik başarı laserasyonun onarımı ve sulanma şikayetinin olmaması olarak değerlendirildi.

Sonuçlar: Olguların 27 'si erkek 8 'i kadın olup yaş ortalaması 41.6 idi. Hem mini-monoka silikon tüp entübasyonu hem de ritleng silikon entübasyon yapılan olguların ameliyat sonrası takiplerinde yara yeri iyileşmesi ve sulanma şikayetleri açısından her iki grup arasında istatistiksel olarak anlamlı fark saptanmadı.

Tartışma: Kliniğimize başvuran travmatik kanalikül kesilerinde yapılan mini-monoka silikon tüp entübasyonu ve ritleng silikon entübasyonu operasyonlarının sonuçlarında klinik başarı açısından fark saptanmamış olup her iki yöntemin de etkin ve güvenilir olduğunu düşünüyoruz.

Anahtar Kelimeler : Kanalikül kesisi, Mini-monoka silikon tüp,Ritleng silikon tüp

S-48

COMPARISON OF AUTOREFRACTION AND PHOTOREFRACTION WITH AND WITHOUT CYCLOPLEGIA USING 1% TROPICAMIDE IN PRESCHOOL CHILDREN

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Purpose: We aimed to investigate whether the accuracy of the Plusoptix A09 photorefractor in children with ametropia is enhanced by cycloplegia with 1% tropicamide.

Methods: A total of 70 eyes (70 children) were retrospectively reviewed. Noncycloplegic photorefraction, cycloplegia with 1% tropicamide, cycloplegic photorefraction and cycloplegic refraction with a tabletop autorefractometer were performed on all subjects in this order. Measurements were compared statistically.

Results: The mean age was 45.9 ± 11.4 months. The mean spherical equivalent (0.61 ± 1.03 diopters [D]) and mean spherical power (1.16 ± 0.92 D) values that were acquired from the photorefraction without cycloplegia showed statistically significant differences from those of the autorefraction with cycloplegia (mean spherical equivalent = 1.00 ± 1.27 D, mean spherical power = 1.60 ± 1.14). The mean difference for the spherical equivalent was −0.39 ± 0.93 D (P = 0.021; 95% limits of agreement [LoA] = −2.22 D to 1.44 D) and for spherical power was −0.44 ± 1.02 D (P = 0.016; LoA = −2.44 D to 1,56 D).Without cycloplegia, Plusoptix A09 showed myopic shift, while after cycloplegia, it showed hyperopic shift, spherical equivalent (mean difference [MD] ± SD = 0.78 ± 1.00 D, P < 0.001; LoA = −1.17 D to 2.72 D) and spherical power (MD ± SD = 0.73 ± 1.04 D, P < 0.001; LoA = −1.31 D to 2.77 D) values that were significantly different from those of autorefraction with cycloplegia). Cylindrical power values obtained by photorefraction both with and without cycloplegia were not statistically different from those of autorefraction with cycloplegia (P > 0.05).

Conclusion: Cycloplegia with 1% tropicamide did not improve the accuracy of photorefraction using Plusoptix A09 in preschool children. The spherical equivalent and spherical power values obtained by photorefraction with cycloplegia were significantly higher from those obtained by autorefraction with cycloplegia.

Poster Presantations

P-01 Abstract Referance: 5

NEW PATHOGENETIC MECHANISMS OF AGE-RELATED MACULAR DEGENERATION

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Purpose: To investigate new pathogenetic mechanisms of age-related macular degeneration.

Methods: In 19 patients (26 eyes) with an intermediate stage and 15 (30 eyes) with an advance stage of age-related macular degeneration (AMD), according to AREDS classification, platelets (PLT) were extracted by centrifugation from peripheral blood. Adenosine, adrenalin and isadrin were used for PLT stimulation. Agregation study was carried with ChronoLog analyzer.

Results: In AMD with choroidal neovascularization (CNV), serous or hemorrhagic detachment of the retina, the increase of the A2A-adenosine receptors activity of PLT was 153% (76±1.8%; p <0.001), β2-adrenoreceptors at 246% (67.0 ± 1.8%; p <0.001) and a decrease of α2-adrenergic receptors activity by 113.9% (36.0±1.2%; p <0.001), reflecting the effects of systemic (catecholamines) and local (adenosine secreted by the pigmental retina epithelium (PES) of the factors on the PLT functional state. In the hemorrhagic detachment of the retina, the activity of the A2A receptors of PLT was 8.8% (p <0.001) higher. It characterized the increase of extracellular content of adenosine as a result of degradation of ATP in the release of erythrocytes from the vascular bed. Negative linear correlation between A2A-adenosine and α2-adrenergic receptor activity (r=-0,708;p= 0.005) in patient with serous detachment showed that PES by secreting adenosine may inhibit the decrease of the PES barrier function by decreasing the sympatho-adrenal system activation. Positive correlation between the activity of the A2A-adenosine and β2-adrenergic receptors (r = 0.805; p <0.001) with the development of CNV indicated the possibility of potentiating the effects of secretion of VEGF by glial cells and PES.

Conclusions: Determination of the reactivity of the A2A-adenosine, α2- and β2-adrenoreceptors PLT lelps to analyze of development of AMD and prediction of the neuronsentricular retina or PES detachment and CNV.

Keywords: Age-related macular degeneration, platelets, choroidal neovascularization, serous detachment of the retina, hemorrhagic detachment of the retina, A2A-adenosine, α2-adrenoreceptors, β2-adrenoreceptors

P-02 Abstract Referance: 10

EFFICACY OF SURGICAL TREATMENT OF DIABETIC MACULOPATHY

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The purpose of this paper was to assess the efficacy of vitreoretinal surgery in patients with type 2 diabetes mellitus (T2DM), and to compare vitrectomy with no inner limiting membrane (ILM) peeling versus vitrectomy with ILM peeling regarding efficacy, safety, and postoperative functional results.

Materials and methods: 163 patients (163 eyes), 80 men and 83 women with T2DM and moderate/severe non-proliferative (NPDR) or proliferative diabetic retinopathy (PDR) with diabetic maculopathy (DMP) and diabetic macular edema (DME). Patients were allocated into two groups: Group I (n=78) underwent closed subtotal vitrectomy 25+ with no ILM peeling; Group II (n=85) underwent the same procedure with ILM peeling. The follow-up period was 6 months.

Results: Within 1 and 3 months of follow-up, vitrectomy with no and with ILM peeling proved to be an effective method of DMP treatment. There were resorption of solid exudates and microhemorrhages, and DME resolution in Group I after 1 month of follow-up in 60,7% and after 3 months of follow-up in 82,4% eyes; in Group II in 80,8% and 82,4% eyes respectively; central macular thickness and macular volume decreased statistically significantly.

After 6 months of follow-up, the frequency of DME resolution in Group I was 76.9%, in Group II - 75.29%. The frequency of DME relapse in Group I was 10.26%, in Group II - 10.59%, thus not statistically significant. In Group II there were concentric narrowing of the visual field to 5-10° in 10 eyes (11.76%), as well as central and paracentral relative scotomas in 5 eyes (5.88%) without relapse of DMP and DME. Ophthalmoscopy and OCT data showed signs of optic nerve atrophy in these eyes.

Conclusions: 1. Vitrectomy with and without ILM peeling is an effective method of DMP treatment in patients with T2DM. 2. ILM peeling does not provide any benefit in DME treatment, and is a risk factor for reducing visual functions and developing of optic nerve atrophy.

Keywords: diabetic maculopathy, inner limiting membrane, vitrectomy, 2 diabetes mellitus

P-03 Abstract Referance: 16

GLYCAN ANALYSES OF RETINAL PROTEIN(S) FROM RD1 MOUSE MODEL OF RETINITIS PIGMENTOSA (RP) SUGGESTS THAT GLYCOSYLATION PROCESS OF SUCH MUTATED PROTEINS NEEDS INVESTIGATION, TO IMPROVE EFFICACY OF CURRENT GENE THERAPIES

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Introduction: Retinal degeneration1 (*rd1*) mouse, an animal model of *Retinitis Pigmentosa*, has a mutation in β-subunit of cGMP phosphodiesterase-6 gene. This elevates cGMP/Ca^{2+} ion levels in the rods, modifies expression of ~60 other genes affecting transcription/cell-adhesion/proliferation leading to blindness by loss of ~90% rods in *rd1* mice.

Correct glycosylation of proteins after translation of mRNA is achieved by a balance in glycosyl transferase/-hydrolase activities. Gene therapies for mutated glycoproteins are less efficient as protein glycosylations have not been included. This report reviews dynamic changes in the nature/extent of retinal protein glycans which participate in retinal function/development/degeneration and highlights significance of glycans for success of gene therapy.

Material & Methods: Comparative dynamic changes in the nature/extent of glycosylation (including sialic acid-Sia) of retinal proteins, from neonatal *wt* and *rd1*mice, were profiled/quantified by lectin microarray analyses and compared for their published role in retinal function/development/degeneration.

Results: Age/mutation dependent relative dynamic changes in high-mannose- and GlcNAc-, Siaα2-3Galβ1-4GlcNAc-glycans associated with *wt* and *rd1* retinal proteins suggest their participation in neonatal retinal function/development/degeneration. Degree of glycan sialylation with Siaα2-3Gal (not Siaα2-6Gal) possibly regulates ERG function. Decreased core fucosylation and increased outer bisecting GlcNAc glucosylation/galactosylation correlated with retinal degeneration. Functional/dynamic quantitative differences observed in *wt* and *rd1* retinal protein glycans suggested that *rd1* mutation affects glycome biosynthesis/degradation, possibly by an imbalance in the levels/activities of glycosyl-transferases/-hydrolases.

Conclusions: Studies on glycosylation of retinal proteins in *rd1* mouse model of RP are needed to improve the efficacy of current gene therapies.

Keywords: Mice, Retinal-Development/Degeneration/Function, Glycans, Gene-Therapy

P-04 **Abstract Referance: 17**

RETINAL VEIN OCCLUSION AFTER CARDIAC SURGERY: DISTANT OBSERVATION

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The purpose: To investigate the nature of retinal vein occlusions (RVO) after cardiac surgery with the use of artificial blood circulation (AC) in the long term of observation (during 6 month).

Methods: Three months after cardiac surgery, an ophthalmologic examination of 190 patients (368 eyes) was performed, and after 6 months - 182 patients (356 eyes). All patients underwent standard ophthalmologic studies, as well as optical coherent tomography (OCT) and OCT angiography (Revo NX, Optopol technology). Types of retinal vein occlusion were evaluated according to the international classification Bloom S. and Brucker A. (1991). The observation period was 6 months.

Results: At the examination of patients after 3 months, the following occlusions of the retina vessels were observed: central retinal vein occlusion (CRVO) - 2 eyes (0.5%), branch retinal vein occlusion (BRVO) - 35 eyes (9.5%), of which the BRVO of the 1st order - 19 eyes (5.4%), BRVO of the second order - 13 eyes (3.5%), BRVO of the third order - 3 eyes (0.8%). The total number of RVO for 3 month - 37 eyes (10,1%). Macular edema (ME) due to retinal vein occlusions was detected in 27 eyes (73.4%) according to OCT. At 6 months of observation, the following occlusions of RVO were observed: BRVO of the 1st order - 2 (0.56%), BRVO of the 2nd order - 1 (0.28%), recurrence of CRVO - 1 eye (0.28%) and recurrence of BRVO - 1 eye (0.28%). The total number of RVO for 6 months were 1.4% (5 eyes), including ME was fixed on 3 eyes (60%).

Conclusions: Patients with cardiovascular diseases who have undergone cardiac surgery with artificial circulation are in the risk group of the retinal vein occlusions. Late postoperative ophthalmologic complications after cardiac surgery with AC include CRVO, BRVO, recurrence of occlusions, macular edema, development of neovascularization of the anterior or posterior segment of the eye. The total percentage of RVO for 3 months was 10.2% (37 eyes), at 6 months - 1.4% (5 eyes)

Keywords: retinal vein occlusion, cardiosurgery, artificial circulation, complication.

P-05 **Abstract Referance: 18**

THE STATE OF MICROCIRCULATION OF THE CENTRAL RETINAL REGION AT DIFFERENT STAGES OF DIABETIC MACULAR EDEMA

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Purpose: to estimate the correlation of the retinal microcirculation state with the data of OCT-angiography with the progression of the severity of diabetic macular edema (DME).

Methods: 62 patients (103 eyes) with type 2 diabetes mellitus (DM) and different stages of DME were included in the study: DME absent (group 0) - 11 patients (19 eyes), DME mild (group 1) - 18 patients (26 eyes), DME moderate (group 2) - 17 patients (28 eyes), DME severe (group 3) - 16 patients (30 eyes). The degree of severity of DME was assessed according to the International clinical DME disease severity scale The average age was 62 years, the average stage of diabetes was 13 years. All patients underwent standard ophthalmologic studies, as well as spectral optic coherent tomography (OCT) and OCT angiography (Revo NX device, Optopol technology, protocol Retina 3D and Retina Angio wide 6*6). The coefficient of the microcirculation of the central retina was calculated by the ratio of the area of the foveolar avascular zone (FAZ) to the area of capillary density (CD) in the surface and deep capillary plexus of the macular area. Evaluated the correlation of the obtained coefficient with the degree of severity of DME and visual functions.

Results: The coefficient of the microcirculation of the macula in average was as follows: group 0 - the microcirculation coefficient in the surface capillary plexus was 0.056, in the deep - 0.019; Group 1 - 0.09 and 0.035 respectively ($p < 0.05$); Group 2 - 0.12 and 0.04 respectively ($p < 0.05$); Group 3 is 0.21 and 0.062 respectively ($p < 0.01$). A strong negative correlation between the microcirculation and visual acuity coefficient ($r = -0.91$) was obtained at each of the DME stages compared with the DME 0 stage.

Conclusions: With an increase in the severity of DME, the value of the microcirculation coefficient in both the surface and deep capillary plexus was increased ($p < 0.05$), indicating an increase in ischemia and a worse prognosis of visual functions.

Keywords: diabetic macular edema, OCT-angiography, coefficient of microcirculation.

P-06 **Abstract Referance: 19**

METHOD OF DIAGNOSTICS OF THE MICROCIRCULATION OF THE CENTRAL REGION OF THE RETINA WITH DIABETIC MACULAR EDEMA

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Purpose: to calculate the coefficient of the state of macular microcirculation according to OCT-angiography and to evaluate its correlation with the degree of severity of diabetic macular edema (DME).

Methods: The study included 56 patients (95 eyes) with type 2 diabetes mellitus (DM) and different DME stages. The average age was 64 years, the average stage of diabetes was 15 years. The

control group consisted of 20 healthy volunteers (40 eyes). All patients underwent standard ophthalmologic studies, as well as optical coherent tomography (OCT) and OCT angiography (Revo NX, Optopol technology, Retina 3D, and Retina Angio wide 6*6). After binaryizing the image and counting the number of white and black pixels, the capillary density (CD) was calculated. Next, a binary image was applied to the allocation of adjacent color pixels in the central zone, and after calculating the gray pixels, a foveolar avascular zone (FAZ) was installed and its area was calculated. The coefficient of the state of microcirculation of the central retina was calculated by the ratio of the area of FAZ to the area of the MD in the surface and deep capillary plexus separately.

Results: In calculating the coefficient of microcirculation of the state of the central retina in the control group, the index in the surface capillary plexus did not exceed 0.076 (mean 0.033) and in the deep capillary woven - 0.025 (mean 0.017). When calculating the coefficient of microcirculation of the central retinal zone in patients with diabetes and various degrees of severity of DME, the average value of the coefficient in the surface capillary retina was 0.134 and in the deep - 0.044, which significantly exceeded the normaly ($p < 0.01$) and indicated an increase in ischemia and edema the central region of the retina.

Conclusion: Determination of the coefficient of the microcirculation of the cental retina opens up new possibilities in the diagnosis of DME and prognosis of visual functions.

Keywords: diabetic macular edema, OCT-angiography, coefficient of microcirculation.

P-07 **Abstract Referance: 21**

USING 3D SIMULATION IN RECONSTRUCTIVE-REHABILITATION SURGERY IN PATIENTS WITH DEFECTS IN ORBITAL WALLS

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Introduction: Restoration of the volume of the orbit and its integrity, elimination of aesthetic and functional complications in patients with defects in the walls of the orbit remains an urgent problem of ophthalmology and maxillofacial surgery.

Materials and methods: CT Toshiba Activion 16, CT Philips Diamond Select Brilliance CT 64, software environment Sim Plant 13.02 and Geomagic Freeform Plus, statistical data processing.

Objective: to evaluate the results of surgical treatment of patients with defects in orbital walls using individually-made implants using 3D modeling based on CT data

Results: After treatment of patients with orbital bone defects using individually-made implants using computer 3D modeling based on CT data, the mean difference in orbital volume was 2.7±0.9 cm3.

Conclusion: The use of computer 3D modeling in the manufacture of individual implants for the treatment of patients with defects in the orbital walls increases the accuracy of the recovery of the orbital volume, and, accordingly, minimizes the number of postoperative complications.

Keywords: orbit defect, 3D modeling, orbit reconstruction

P-08 **Abstract Referance: 30**

INTRAVITREAL ANTI-VEGF TREATMENT OF NEOVASCULAR AGE-RELATED MACULAR DEGENERATION WITH PRO RE NATA REGIMEN OF RANIBIZUMAB AND AFLIBERCEPT AFTER THREE INITIAL LOADING DOSES IN REAL LIFE SETTINGS

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Objective: To report two-year real-life treatment experiences of neovascular age-related macular degeneration (w-AMD) after three initial monthly loading doses and pro re nata (PRN) regimen of ranibizumab and aflibercept.

Methods: Treatment-naive w-AMD patients received intravitreal treatment between June 2012, and December 2016 were included in the study. The w-AMD diagnosis was verified with fundus fluorescein angiography after a complete ophthalmologic examination, and spectral domain optic coherence tomography (SD-OCT) scans with intraretinal and/or subretinal fluid. Three initial monthly loading ranibizumab and/or aflibercept injections and PRN treatments were used to analyse visual acuity (VA) and SD-OCT central macular thickness changes and distribution of the intravitreal injections and patient visits throughout 24 months.

Results: Forty-nine eyes of 44 patients who received aflibercept or ranibizumab injections were included. Mean age was 73.45±10.35 years. Baseline VA increased from 0.91±0.52 logMAR to 0.79±0.45 at 24th month. Mean intravitreal injection was 5.4±2.1 for the first year and 1.8±0.8 for the second year. The mean total visit was 9.1±1.9 and 14.8±3.8 in the first and second year, respectively. After the intravitreal treatments, mean baseline central macular thickness decreased from 332.4±118 μm to 259.6±54.1 in the 3rd, 277.7±72.3 in the 12th and 250.3±64.4 in 24th months, respectively with a statistical significance.

Conclusion: Three initial monthly loading doses and PRN treatment is effective in VA stability and VA gain and SD-OCT measurements in w-AMD treatment. Aflibercept can protect the initial VA in those with relatively better VA and ranibizumab can increase the initial VA in those with poor VA.

Keywords: anti-VEGF, neovascular age-related macular degeneration, real life, intravitreal treatment

P-09 **Abstract Referance: 34**

PROGNOSTIC ROLE OF SUBRETINAL HYPERREFLECTIVE MATERIAL IN AGE-RELATED MACULAR DEGENERATİON

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Introduction: To study the correlation between subretinal hyperreflective material (SHRM) seen on spectral domain optical coherence tomography (SD-OCT) at baseline and visual

outcomes after intravitreal injections in neovascular age-related macular degeneration.

Material and Methods: Treatment-naive neovascular age-related macular degeneration treated with 3 monthly intravitreal anti-VEGF treatment, continued as needed, from 2016 to 2019 patients data were reviewed retrospectively. Baseline SD-OCT SHRM parameters were calculated manually by two different retina specialist. Biomarkers of neovascular activity on OCT scans (intraretinal fluid, subretinal fluid, central retinal thickness) and also the integrity of external limitan membrane, ellipsoide zone and the presence of pigment epithelial detachment were determined. These baseline parameters were correlated with visual acuity at baseline and final visit.

Results: One hundred eight eyes of 108 patients, 76 (70.4%) having SHRM at baseline, were studied. Mean age was 71.5 ± 9.1 years. Best-corrected visual acuity (BCVA) was divided into 3 goups(BCVA > 20/40 group 1; 20/40-20/200 group 2; <20/200 group 3) Mean follow up time was 24.3 ± 8.2 month. Mean number of injection was 7.7 ± 5.2. Baseline parameters with a significant correlation with poorer final visual acuity were presence of intraretinal fluid and SHRM, nonhomogenity of SHRM, poor-defined SHRM borders; longer and broader SHRM. Presence of SHRM at baseline was correlated with the disruption of ellipsoide zone and external limiting membrane integrity.

Conclusion: This study supports the quantitative analysis of SHRM by optical coherence tomography as an important prognostic morphologic biomarker in neovascular age-related macular degeneration.

Keywords: Age-Related Macular Degeneration, Optical Coherence Tomography, Visual acuity, prognostic factors

P-10 **Abstract Referance: 40**

VISUAL OUTCOMES OF MINI-SCLERAL CONTACT LENS WEAR IN KERATOCONUS PATIENTS

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Introduction: To assess the visual results of the mini-scleral contact lenses (Misa®, Microlens, Netherlands) applied to the keratoconus patients at different stages.

Materials and Methods: We retrospectively reviewed the data of keratoconus patients who underwent mini-scleral contact lens application at our clinic. Uncorrected visual acuity(UCVA), best corrected visual acuity(BCVA), visual acuity with mini-scleral contact lens(CLVA), manifest spherical and cylindric refractive values, corneal topographic data, and topographic cone morphology were evaluated.

Results: Seventy-five eyes of 50 keratoconus patients were included. The mean age of the patients was 28.43 ± 9.6 (15-57) years. The mean manifest spherical and cylindric refraction values were -5.92 ±5.5 dioptry(D) and -3.08 ± 1.96 D, respectively. The mean K1, K2, mean K, maximum K values were 51.89 ±7.2 D, 57.09 ±8.5 D, 54.48 ±7.7 D, and 70.48 ±14.9 D, respectively. Nineteen eyes (25%) were mild, 22 eyes (28%) were moderate, and 35 eyes (45%) were advanced keratoconus. Cone was located centrally in 60 eyes (79%) and paracentrally in 16 eyes (21%). The mean UCVA, BCVA, and CLVA were 1.20 ±0,57(0.15-2.0), 0.69 ±0.44(0.15-2.0), and 0.17 ±0.20(0-1.0) according to logMAR restropectively (p <0.001). The mean CLVA was statistically significantly higher than the mean BCVA (p<0.001). There were 3.0, 4.8, and 4.5 lines (Snellen) of visual improvement with the contact lenses in mild, moderate, and advanced stages, respectively. The increase was higher in eyes at moderate and advanced stages (p<0.001, p<0.001, respectively).

Conclusion: The visual results of the mini-scleral contact lens application to keratoconic eyes at all stages are satisfying. Patients with moderate and advanced keratoconus experienced the greatest improvement in visual acuity. Mini-scleral contact lens application is a good alternative treatment option for advanced keratoconus patients to reduce the need for keratoplasty surgery.

Keywords: Keratoconus, mini scleral contact lens

P-11 **Abstract Referance: 43**

THE IMPACT OF ND:YAG LASER CAPSULOTOMY ON REFRACTION,ANTERIOR SEGMENT PARAMETERS AND INTRAOCULAR PRESSURE IN PATIENTS WITH POSTERIOR CAPSULAR OPACIFICATION AFTER COMBINED PHACOVITRECTOMY

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Introduction: Posterior capsule opacification in vitrectomized pseudophakic eyes and its treatment is important for visual prognosis. The study aimed to identify the changes in refraction, anterior segment parameters after Nd:YAG laser capsulotomy in eyes that underwent combined phacovitrectomy.

Methods: This study enrolled 45 eyes of 40 patients with visually significant posterior capsular opacification(PCO) after uncomplicated combined phacovitrectomy. Exclusion criteria were complications related to cataract surgery, corneal pathology, pseudoexfoliation, glaucoma, uveitis, previous ocular surgery or trauma, and posterior segment with tamponade (silicone, air). Nd: YAG laser posterior capsulotomy was done in a single session by the circular pattern to all eyes. Complete ocular examinations were performed for all patients before YAG capsulotomy and 1 hour, 1 day, 1 week, 1 month, and 3 months after. The visual acuity , intraocular pressure, anterior chamber depth (ACD), central corneal thickness (CCT), Anterior chamber angle (ACA), angle opening distances (AOD) at 500 mm (AOD500), AOD at 750 mm (AOD750), trabecular-iris space area at 500 (TISA 500), and TISA at 750 (TISA 750) measurements were obtained in all examinations. Anterior segment optical coherence tomography (AS-OCT), Aladdin optical biometer was used.

Results: The mean patient age was 58.25 ± 8.33 years. A non-significant trend toward myopic shift was observed. There were non-significant changes in IOP, ACD, and CCT with P values 0.495, 0.253, and 0.441, respectively. ACA, AOD500, AOD750, TISA 500, and TISA 750 highly significantly increased with P value < 0.001 at first hour and week and stay stable after.

Conclusions: Nd:YAG laser capsulotomy is an effective and safe method of treatment of posterior capsular opacification of eyes without vitreous support.

Keywords: Nd: YAGlaser, Posterior capsulotomy, Phacovitrectomy, Anterior segment optical coherence tomography

P-12 Abstract Referance: 49

CONJUNCTIVAL SQUAMOUS CELL CARCINOMA IN A 6-YEAR-OLD GIRL WITH XERODERMA PIGMENTOSUM

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Introduction: Xeroderma pigmentosum is a rare autosomal recessive disorder characterized with defects in the DNA repair mechanisms, leading to tumorigenic processes in the skin and mucous membranes exposed to UV light. Ophthalmological disease can present as ectropion, conjunctival injection, conjunctival melanosis or neovascularization, corneal ulceration, pterygium and cancers of both the ocular surface and eyelids. Herein, we present a case of conjunctival squamous cell carcinoma in a young patient with xeroderma pigmentosum.

Case Report: A 6-year-old girl with xeroderma pigmentosum, microcephaly and history of liver transplantation presented to our clinic with a conjunctival mass in the right eye that is enlarging for the last two months. Slit lamp examination revealed a fixated conjunctival mass with a size of 8x12 mm, located temporal to limbus. Conjunctival cryotherapy, 70% ethyl alcohol application to the scleral base and amniotic membrane transplantation was performed. Histopathological studies confirmed that the tumor was moderately differentiated squamous cell carcinoma.

Conclusions: Although ocular surface cancers are rarely seen in normal patients, they can be seen up to 10% of patients with xeroderma pigmentosum. We presented one of the rare cases of conjunctival squamous cell carcinoma that should be considered in differential diagnosis of ocular masses in patients with xeroderma pigmentosum.

Keywords: Cornea, squamous cell carcinoma, xeroderma pigmentosum

P-13 Abstract Referance: 61

PROTEIN MARKERS OF GLAUCOMA IN AQUEOUS HUMOR

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Introduction: Glaucoma is a public health problem, being the leading cause of irreversible visual loss, affecting subjects older than 40 years. It affects more than 70 million people worldwide with approximately 10% being bilaterally blind (Quigley H.A.,2006). The pathophysiology is a complex one, influenced by risk factors, genetic predisposition and pathological changes in the eye'chambers and trabecular meshwork. All of these conduct to glaucomatous structural and functional deficit of ON.

Last years there is a big interest in determining the biomarkers for eye's pathologies. There have been already determined specific changes in aqueous humor (AH) for myopia, keratoconus, AMD, BRVO.The purpose of the review is to point out the proteomic changes in a glaucomatous patient's AH.

Methods:A literature search was conducted using PubMed abstracts and articles for studies published between 2000 and 2018.

Results: In glaucomatous patients, the AH concentration of the proteins are higher than in healthy patients (Zaidi M., 2010). There were determined numerous proteins of complement cascade, immunoglobulin, neuronal and amyloidogenic proteins (Adav S.S., 2018), that induced altered metabolic state, inflammatory response, and impaired antioxidant defense. All of these cause modifications in trabecular meshwork by increasing resistance to outflow, data by Prata T. (2007). Knepper P.'s research (2010) proved that it is an increased levels of proinflammatory cytokines that cause progressive fibrosis leading to the disease process. Duan X.(2010) determinate high levels of transthyretin, albumin precursor, and transferrin in glaucomatous patients. Transthyretin forms amyloid deposits and cause outflow obstructions thereby increasing IOP (Grus F.H.,2008).

Conclusions: Glaucoma leads to changes to the AH proteome. Specific protein markers for glaucoma represent nowadays an important field of research.

Keywords: aqueous humor, proteins, glaucoma

P-14 Abstract Referance: 72

CHANGE OF MEDICATION FOR INTRAVITREAL APPLICATION TO TREAT AMD

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Aim: To present our observations on patients with wet age-related macular degeneration (wAMD) after treatment was changed with a different anti – VEGF medication. The changing of the drug was due to insufficient response to the previous one. They have demonstrated significant response to three anti vascular growth factor agents (anti-VEGF). Therefore improved best corrected visual acquit (BCVA) and central foveolar thickness (CFT) has decreased.

Patients and methods: A 13 patients (8 men and 5 women) mean age 75.3 (61 – 80 years) with wAMD and were treated with anti-VEGF medications. The therapy has switched from Bevacizumab to Zif – Aaflibercept, from Bevacizumab to Aflibercept and from Zif – Aflibercept to Aflibercept were included in a retrospective study. All patients underwent full ophthalmologic examination, optical coherent tomography (OCT) and fluorescein angiography (FA). Such therapy became possible due to change in reimbursement policies. We analyzed visual acuity (VA) and central foveal Thickness (CFT) before and after the switch. Follow – up period after change medication was 2 months.

Results: Treatment was changed from Zif – Aflibercept to Aflibercept in 7 patients. We observed an improvement of 1,5 lines in VA and reduction of CFT with an average of 77,0 μm. 4 patients swiched therapy from Bevacizumab to Zif-Aflibercept. Visual improved by 0.33 lines in VA and CFT decreased by 23.3 μm. Positive response was recorded in 2 patients who changed the drug from Bevacizumab to Aflibercept: VA improvement of 1,5 lines and with 46.3 μm CFT reduction.

Conclusion: Intravitreal application of anti – VEGF agent is the standard treatment of wAMD. Change of the anti – VEGF medication should be considered an option for achieving better VA and CFT in wAMD patients. We reported better results

when changing the drug to Aflibercept. VA improved and CFT decreased occurred when both drugs were changed.

Keywords: wAMD, anti-VEGF, change, intravitreal

P-15 **Abstract Referance: 70**

PARTIAL FUNCTIONAL RECOVERY POST INTERRUPTION OF ANTI-VEGF THERAPY IN AGE-RELATED MACULAR DEGENERATION (AMD)

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Purpose: To present patients with exudative age – related macular degeneration (AMD), who interrupted anti-VEGF intravitreal therapy for a period above 10 months and to evaluate the observed changes in macular morphology and visual acuity.

Methods: Cases include six patients – three men and three women of mean age 65 years(range 50-85). All of them were diagnosed with exudative age – related macular degenerations

Keywords: Age-related macular degeneration , anti-VEGF therapy , interruption, visual acuity , macular morphology

P-16 **Abstract Referance: 4**

COMPLICATION OF STRABISMUS SURGERY (CLINICAL CASE)

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Purpose:

Strabismus – eye misalignment.

The goals of the management of strabismus are the restoration of visual acuity and of comfortable binocular single vision.

Nonsurgical management of the ocular deviation comprises:

- optical treatment
- orthoptic exercises
- occlusion
- pharmacological management.

- Operations on the extraocular muscles are indicated when nonsurgical treatment cannot succeed or has failed to achieve the desired result.

The aims of surgery are:

- to restore or expand a field of binocular single vision
- to straighten the eyes for improved appearance
- to restore or maintain concomitance
- to relieve symptoms.

Methods: Clinical Case

Patient: Female 13y Old

Race - Caucasian

Vis OD= 0.8 – 0.5ax125=0.9-1.0

Vis OS=0.5-0.6 -0.5 -0.5 ax 65=0.9-1.0

Fundus – without abnormality; Pupil Reaction – N; Lang II – Neg.

Convergence OU - 25PD in the distance. 30 PD – near. Vertical - Hyper deviation OD=25PD.

Diagnosis: Esotropia; OD – IV Nerve Palsy; OS Hypotropia

Plan for Operation:

OU – Medial Rectus Recession – 4mm

OD – Inferior Oblique Tenotomy

OS – Inferior Rectus Recession – 3mm

Intra-operative Complication:

Haemorrage – during inferior oblique tenotomy.

Postoperative care: MRI revealed free orbital space OCT - fundus without abnormality B scan - N.

Anti-inflammatory drops, lubricant - OU

Cold Compresses after the operation - OD

Heparin gel 1000 IU/g – topically after 3 days during 2-3 weeks OD

Results: After 1 month from the surgery hemorrhage resolved.

Conclusion: Damage to vortex vein and orbital haemorrhage during strabismus surgery is one of the surgical complication: If a vortex vein is torn, it bleeds profusely, and if it cannot be cauterised successfully it should be tied off using a 7.0 Vicryl suture. Occlusion of one vortex vein occasionally causes choroidal haemorrhage, but usually no complication ensues. (Diagnosis and Menegment of Ocular Motility Disorders 4th Edition Alec M. Anson Helen Davis p.265).

Keywords: Pediatric Ophthalmology, Strabismus.

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