50th ECLSO Congress

Delegate Program

April 26-27 2024

Hilton Istanbul Bomonti Hotel & Conference Center

Istanbul, Turkey

EUROPEAN CONTACT LENS SOCIETY
OF OPHTHALMOLOGISTS (ECLSO)

Registration Desk: Open 07:30 - 18:00

Louise Richards and the team will be available if you have any questions about the congress.

WIFI access

Register for free at Network: **ECLSO2024**

CPD

ECLSO awards **16** self-accredited points. An e-copy of your attendance certificate will be emailed to you shortly after the meeting.

Meeting evaluation

Your feedback about the meeting is invaluable to ECLSO and the speakers presenting. Please complete your evaluation survey throughout the day @ www.eclso2024.com/evaluation.

.

View the program online: Scan the QR code to view the day's program, read the abstracts and see the e-posters online via the ECLSO congress website:

EUROPEAN CONTACT LENS SOCIETY OF OPHTHALMOLOGISTS (ECLSO)

ECLSO 2024 Praesidium

President
Carina Koppen, Antwerp, Belgium

Past President
Réne Mély, Valmont, France

Vice-Presidents
Andrena McElvanney, London, UK
Adriana Stanila, Sibiu, Romania

Treasurer
Ursula Vogt, London, UK

Secretary General
Ömür Uçakhan-Gunduz, Ankara, Turkey

Vorstand
Cornelius Berzas, Frankfurt, Germany

ECLSO 2024 Congress Program FRIDAY April 26th

08:45 - 09:00	President's welcome	**Carina Koppen**, Antwerp, Belgium

09:00 - 09:45 PRESBYOPIA: CONTACT LENSES, REFRACTIVE SURGERY OR DROPS?

Moderators: **Adriana Stanila**, Sibiu, Romania and **Ursula Vogt**, London, UK

Contact lenses for prebyopia	**Cristina Schnider** Vancouver, USA
Refractive correction: the indication for cornea or lens surgery, the role of eye drops	**Altan Atakan Özcan** Adana, Turkey
SESSION DISCUSSION PANEL	

09:45 - 10:15 FREE PAPER SESSION 1

Moderators: **Adriana Stanila**, Sibiu, Romania and **Ursula Vogt**, London, UK

2	Spectrum of scleral lens fit and patient compliance at a University Hospital in Turkey	**Oğuzhan Özçelik** Izmir, Turkey
3	Parameters and visual outcomes of scleral contact lenses used in cases of keratoconus	**Atilim Armağan Demirtaş** Izmir, Turkey
4	How does the use of scleral contact lenses affect intraocular pressure, retinal nerve fibre layer, ganglion cell complex and choroidal structure?	**Rabianur Eroglu Ayaz** Istanbul, Turkey
5	Keratoconus demographic data in tertiary health care	**Ekrem Can Arabaci** Sanliurfa, Turkey

10:15 - 10:45	Refreshments & Exhibition

10:45 - 11:45 OCULAR SURFACE SHAPE TOPOGRAPHY: A NECESSITY IN THE SCLERAL LENS FITTING

Moderators: **Carina Koppen**, Antwerp, Belgium and **Eef van der Worp**, Amsterdam, The Netherlands

Utilizing profilometry measurements to efficiently fit scleral lenses	**Gregory DeNaeyer** Ohio, USA
Scleral lenses: practical, straightforward & efficient fitting with diagnostic trial sets	**Esther-Simone Visser** Nijmegen, The Netherlands
Update on scleral lens research	**Eef van der Worp** Amsterdam, The Netherlands
SESSION DISCUSSION PANEL	

11:45 - 12:10 FREE PAPER SESSION 2

Moderators: **Carina Koppen**, Antwerp, Belgium and **Eef van der Worp**, Amsterdam, The Netherlands

6	Predicting dual-elevation scleral lens rotation based on front corneal elevation map	**Boris Severinsky** Atlanta, USA
7	Mini-scleral contact lens for patients with corneal ectasia	**Fateme Alipour** Tehran, Iran
8	Visual outcomes of scleral contact lenses in patients with keratoconus and the use of anterior corneal topography parameters in predicting the contact lens vault for a successful fitting	**Gülay Güler Canözer** Konya, Turkey
9	Results of applying a differently designed scleral contact lens in eyes with keratoconus that have previously used ineffective contact lenses	**Burcu Kazanci** Ankara, Turkey

12:10 - 12:30	INDUSTRY SPONSORED SYMPOSIUM

12:30 - 13:30 Lunch & Exhibition

13:30 - 14:30 CONTACT LENS SOLUTIONS: THERE'S THREE IN THE MARRIAGE

Moderators: **Cornelius Berzas**, Frankfurt, Germany and **Mark Willcox**, Sydney, Australia

Efficacy against regular tested pathogens, plus adenovirus/coronavirus/ acanthamoeba	**Mark Willcox** Sydney, Australia
Compliance and its impact on solutions	**Lyndon Jones** Waterloo, Canada
Scleral disinfecting and filling solutions	**Henny Otten** Nijmegen, The Netherlands

SESSION DISCUSSION PANEL

14:30 - 15:00 FREE PAPER SESSION 3

Moderators: **Cornelius Berzas**, Frankfurt, Germany and **Mark Willcox**, Sydney, Australia

10	Human factors in contact lens care compliance	**Cristina Schnider** Vancouver, USA
12	Cytotoxic and genotoxic effect of two different multipurpose solutions on contact lens materials	**Gamze Dereli Can** Bursa, Turkey
13	Competence of ophthalmology clinic staff on self-application of eye drops	**Ceren Ersoy** Izmir, Turkey
14	Compliance of hospital healthcare professionals with contact lens use and care	**Ayşe Tüfekçi Balikçi** Ankara, Turkey
29	The impact of different daily disposable contact lenses on tear film stability and objective optical quality	**Gamze Özkan** Istanbul, Turkey

15:00 - 15:15 **FICK-KALT-MÜLLER MEDAL**
Presented by ECLSO President, Carina Koppen
Penny A. Asbell Memphis, USA

15:15 - 15:45 **INVITED LECTURE**
Drug delivery with contact lenses
Penny A. Asbell Memphis, USA

15:45 - 16:05 INDUSTRY SPONSORED SYMPOSIUM

16:05 - 16:35 Refreshments & Exhibition

16:35 - 16:50 INDUSTRY SPONSORED RAPID FIRE ON INNOVATIONS
PRESENTING COMPANIES: COOPERVISION, JOHNSON & JOHNSON

ECLSO 2024 Congress Program FRIDAY April 26th

16:50 - 17:40 **Free Paper session 4**

Moderators: **Peter Gorka**, St. Pölten, Austria, **Canan Gurdal**, Ankara, Turkey and **Merieme Harouch**, Casablanca, Morocco

15	Pulsed light therapy in the management of dry eye disease: Current perspectives	**Bruno Barbosa Ribeiro** Porto, Portugal
16	Efficacy of epithelial-island corneal collagen crosslinking in the treatment of progressive keratoconus patients with thin corneas	**Tuna Celik Buyuktepe** Ordu, Turkey
17	Iontophoresis-assisted corneal cross-linking method - a potential therapy for keratoconus	**Karla Randelovic** Zagreb, Croatia
18	Case report: Herpetic keratitis after cross-linking of corneal collagen with riboflavin and ultraviolet-A for keratoconus in a healthy 20-year-old patient	**Ivana Radman** Zagreb, Croatia
19	Mini-scleral contact lens for patients with radial keratectomy	**Parya Abdolalizadeh** Urmia, Iran
20	Assessment of ICD FlexFit scleral lens fitting characteristics and on eye performance in patients with keratoconus	**Burcu Kilic** Ankara, Turkey
40	Evaluation of scleral thickness in keratoconus patients	**Mukaddes Damla Ciftci** Izmir, Turkey
21	Experiences with two different scleral contact lenses in keratoconus patients	**Sinem Kaya** Sanliurfa, Turkey

17:40 - 17:45 Round up of the day — **Omur Ucakhan-Gunduz**, Ankara, Turkey

17:45 Close

ECLSO 2024 Congress Program SATURDAY April 27th

08:15 - 08:45 ECLSO General Assembly — Members only

08:45 - 10:00 A LIFESTYLE EPIDEMIC: OCULAR SURFACE DISEASE, HIGHLIGHTS OF THE TFOS REPORT

Moderators: **Omur Ucakhan-Gunduz**, Ankara, Turkey and **Lyndon Jones**, Waterloo, Canada

Impact of contact lenses on the ocular surface	**Lyndon Jones** Waterloo, Canada
Impact of cosmetics on the ocular surface	**Christina Grupcheva** Varna, Bulgaria
Impact of the environment on the ocular surface	**Penny A. Asbell** Memphis, USA
Impact of nutrition on the ocular surface	**Jose Benitez del Castillo** Madrid, Spain

DISCUSSION PANEL

10:00 - 10:20 INDUSTRY SPONSORED SYMPOSIUM

10:20 - 10:45 Free Paper session 5

Moderators: **Omur Ucakhan-Gunduz**, Ankara, Turkey and **Lyndon Jones**, Waterloo, Canada

23	Corneal epithelial thickness correlation with dry eye symptom severity: a cross-sectional study	**Bruno Barbosa Ribeiro** Porto, Portugal
24	Comparison of dry eye symptoms between keratoconus eyes and normal eyes	**Saba Javadi** Tehran, Iran
25	The influence of preoperative dry eye treatment on intraocular lens power calculation: Case series	**Pinar Aydin Ellialtioglu** Ankara, Turkey
26	Management of ocular manifestations in Stevens-Johnson Syndrome (SJS) and toxic epidermal necrolysis (TEN): a systematic review	**Felon Mahrous** Portsmouth, UK

10:45 - 11:15 Refreshments & Exhibition

11:15 - 12:05 CONTACT LENS SUBDIVISION OF THE TURKISH OPHTHALMOLOGY ASSOCIATION (TOA): CONTACT LENS CONTROVERSIES

Moderators: **Emrrullah Tasindi**, Istanbul, Turkey and **Meltem Yagmur**, Adana, Turkey

FOR: Children can wear contact lenses safely AGAINST: Contact lens wear is dangerous in children	**Hatice Elvin Yildiz** Istanbul, Turkey **Sevda Aydın Kurna** Istanbul, Turkey
FOR: I give a chance to contact lenses in seasonal allergies or dry eyes AGAINST: I am against contact lenses in any kind of ocular surface issue	**Canan Gurdal** Ankara, Turkey **Semra Akkaya Turhan** Istanbul, Turkey
FOR: Every keratoconus deserves a trial with contacts AGAINST: Surgery is the only efficient and ultimate management modality for every keratoconus patient	**Zeynep Ozbek** Izmir, Turkey **Cezmi Dogan** Istanbul, Turkey
SESSION DISCUSSION PANEL	

12:05 - 12:30 FREE PAPER SESSION 6

Moderators: **Emrrullah Tasindi**, Istanbul, Turkey and **Meltem Yagmur**, Adana, Turkey

27	Long-term effect of intense pulsed light combined with low-level light therapy in the treatment of meibomian gland dysfunction	**Bruno Barbosa Ribeiro** Porto, Portugal
11	The effectiveness of pulsed light in treatment in dry eye	**Laila Rais** Casablanca, Morocco
28	Twenty-seven years of contact lens fittings at a tertiary Hospital in Brazil	**Millena Pacheco** Campinas, Brazil
30	Histopathological evaluation of excised pterygium tissues	**Seray Sahin** Izmir, Turkey

12:30 - 13:00 INDUSTRY SPONSORED SYMPOSIUM

13:00 - 14:00 Lunch & Exhibition

ECLSO 2024 Congress Program SATURDAY April 27th

14:00 - 14:55 MYOPIA MANAGEMENT UPDATE

Moderators: **Andrena McElvanney**, London, UK and **Dean Saric**, Zagreb, Croatia

Insights into the problem of myopia	**Serge Resnikoff** Geneva, Switzerland
State of the art of myopia control treatments	**Chris Hammond** London, UK
SESSION DISCUSSION PANEL	

14:55 - 15:20 FREE PAPER SESSION 7

Moderators: **Andrena McElvanney**, London, UK and **Dean Saric**, Zagreb, Croatia

31	Is physiological axial length growth achieved with DIMS spectacle lenses in myopic children? A retrospective analysis of real-life results in a German clinical setting	**Hakan Kaymak** Düsseldorf, Germany
32	Persian Eye Cohort Study (PECS): Design, Methodology	**Fateme Alipour** Tehran, Iran
33	The effect of topical cyclopentolate on axial length, refractive and keratometry measurement with myopia master	**Göksu Yılmaz** Istanbul, Turkey
34	Efficacy of multifocal soft contact lenses for myopia management: 1-year follow-up from a single center	**Ayshan Abiyeva** Ankara, Turkey

15:20 - 15:35 INDUSTRY SPONSORED RAPID FIRE ON INNOVATIONS
PRESENTING COMPANIES: ALCON, BAUSCH & LOMB

15:35 - 15:50 History of the ECLSO *Celebrating 50 years* — **René Mély**, Valmont, France

15:50 - 16:20 Refreshments & Exhibition

16:20 - 16:50 **KERSLEY LECTURE**
Screens and Genes: an update on myopia risk factors
Introduced by ECLSO General Secretary, Omur Ucakhan-Gunduz
Chris Hammond
London, UK

16:50 - 17:45 FREE PAPER SESSION 8

Moderators: **Parwez Hossain**, Southampton, UK, **Rets Skrickis**, Riga, Latvia and **Mirna Stabuc**, Ljubljana, Slovenia

35	Mini-scleral contact lens for patients with non-ectatic corneal diseases	**Fateme Alipour** Tehran, Iran
36	Chronic inflammation of orbital tissue (clinical case)	**Katerina Hrizhzhymalska** Vinnytsia, Ukraine
37	Evaluation of clinical and histological effects of KGF-2 and NGF on corneal wound healing in an experimental alkali burn rabbit model	**Sebnem Kaya Ergen** Izmit, Turkey
38	Exploring the impact of residency, income, and education status on the prevalence of contact lens usage among Iranian adults	**Maryam Mohammadzadeh** Tehran, Iran
39	The inter-examiner reproducibility and intra-examiner repeatability of the Myopia Master	**Abdullah Zengin** Istanbul, Turkey
41	Accuracy of Myopia Master in children with myopia	**Munise Altınbaş** Istanbul, Turkey
42	Evaluating the ocular impact of 0.01% atropine	**Nisa Karaaslan** Istanbul, Turkey
43	Do soft contact lenses have an impact on corneal epithelial mapping?	**Zeynep Soysarac Nergizal** Ankara, Turkey
22	Evaluation of soft contact lens wearers with central cornea throughout, corneal astigmatism and changes in corneal aberrations	**Bahar Aydogdu** Ankara, Turkey

17:45 - 17:50	BEST FREE PAPER & POSTER AWARD	**ECLSO Praesidium**
17:50 - 18:00	President's round-up and announcement of future meetings	**Carina Koppen**, Antwerp, Belgium
18:00	Close	

FICK-KALT-MÜLLER MEDAL

Professor Penny A. Ashbell MD, FACS, MBA, FARVO

External Professor, Biomedical Engineering, University of Memphis, Tennessee. Visiting Professorial Fellow, School of Optometry and Vision Science, UNSW Medicine at the University of New South Wales (UNSW)

Dr. Asbell is committed to "improving sight and `empowering lives" through contributions to education and mentoring, clinical and translational research, patient care, and innovative collaborations. She has held tenured professorships at Mount Sinai in New York, and UTHSC in Memphis, and leadership positions in academia and many professional societies, including the first President of WIO, Inc., President of CLAO/ECLA, Editor in Chief of ECLA journal, inaugural editor for the Cornea Section for AAO Eyewiki, and has been Study Chair and/or PI for many clinical trials including HEDS, ZEDS, DREAM, Intacs, CXL, and ARMOR. She has published over 300 peer-reviewed articles.

KERSLEY LECTURER

Professor Chris Hammond

Professor of Ophthalmology, King's College, London, UK and paediatric ophthalmologist/strabismologist, St Thomas' Hospital, London, UK

Professor Hammond is Professor of Ophthalmology at King's College London and is a paediatric ophthalmologist/strabismologist at St Thomas' Hospital in London, with a special interest in myopia. His research examines the genetic epidemiology of myopia and other common eye diseases including glaucoma, age-related cataract, dry eye disease and age-related macular degeneration. His research is aiming to deliver personalized, predictive, preventive and participatory medicine, using Omics technology and Big Data analytics with the ultimate aim of reducing blindness and debilitating eye diseases. His research is highly collaborative, and he contributes to international consortia with data from the TwinsUK cohort, UK Biobank and local patient datasets.

E-Poster - only

44	Secondary acanthamoeba keratitis in a case with peripheral ulcerative keratitis due to Wegener's granulomatosis	Büşra Karadağ, Midyat, Turkey
45	Brittle cornea	Fateme Alipour, Tehran, Iran
46	Improving vision with scleral lens after adenoviral keratitis	Reyhan Hazal Kaplan Koruk, Istanbul, Turkey
47	The quadrant-specific scleral lens: An effective strategy after a Baerveldt implant in keratoplasty	Henny Otten, Nijmegen, The Netherlands
48	An innovative optics lab design for residency training in ophthalmology	Fateme Alipour, Tehran, Iran
49	Short-term comparison of myopia control: 0.01% atropine vs. defocus incorporated multiple segment lenses in Turkish children	Sevil Karaman Erdur, Istanbul, Turkey
50	Intracorneal ring segment implantation and corneal collagen crosslinking in the treatment of keratoconus	Tuna Celik Buyuktepe, Ordu, Turkey
51	Understanding ChatGPT's capabilities in providing information on keratoconus and contact lenses	Yavuz Kemal Arıbaş, Ankara, Turkey
52	Can multifocal contact lenses provide visual performance beyond the progressive addition spectacles?	Busra Yorulmaz, Bursa, Turkey
53	A comparison of myopia control with myopia control spectacles (Myopi-X), atropine, and combined Myopi-X/atropine	Yunus Emre Budak, Istanbul, Turkey
54	Indications for bandage contact lens use in a tertiary referral center	Ömer Özer, Nigde Omer, Turkey
55	Efficacy of DRL othokeratology lenses in myopia control: Retrospective 24-month study	Mihaela Petrescu, Nantes, France
56	The effect of different contact lens designs on quality of life in keratoconus	Seda Duran Guler, Istanbul, Turkey
57	Special contact lens fitting after corneal transplantation in the last 12 years	Tamás Tönköl, Budapest, Hungary
58	Scleral lens wear while deep-sea (SCUBA) diving - A questionnaire-based study	Esther-Simone Visser, Nijmegen, The Netherlands
59	Improvement of RGPCL surface properties by MPDS containing a novel hyaluronic acid derivative	Katsuhide Yamasaki, Kobe, Japan
60	Satisfaction with a spherical silicone hydrogel daily disposable contact lens among new contact lens wearers and their eyecare professionals	Ertugrul Akbas, Istanbul, Turkey
61	Patient and eyecare professional satisfaction with a spherical silicone hydrogel daily disposable contact lens	Ertugrul Akbas, Istanbul, Turkey
62	Patient and eyecare professional satisfaction with a toric Samfilcon A contact lens	Tuzun Karaoglan, Istanbul, Turkey
63		Withdrawn
64	Corneal topographic changes in patients with thyroid eye disease: A retrospective cross-sectional study	Yu-Min Chang, Taipei, Taiwan, Republic of China
65	The association between corneal topographic changes and cross-sectional areas of extraocular muscles in patients with thyroid eye disease: A retrospective cross-sectional study	Yu-Min Chang, Taipei, Taiwan, Republic of China
66	The changes in corneal epithelial thickness and higher-order aberrations treated with newly designed orthokeratology: A randomized prospective trial	Yu-Min Chang, Taipei, Taiwan, Republic of China
67	Detection of virulence factors genes of exoU and exoS in ocular isolates of *Pseudomonas aeruginosa*	Tanzina Akter, Sydney, Australia
68	The effect of bacteria adhesion to RGPCL with protein and lipid depositions and disinfectant efficacy of povidone-iodine based care system	Eriko Tai, Kobe, Japan
69	Repair effect of low molecular weight hyaluronic acid derivatives on silicone hydrogel lens surfaces	Shoko Yano, Kobe, Japan
70	Statistical analysis of refraction in a large city in Brazil	Victor Pansani, Campinas, Brazil
71	Contact lens associated microbial keratitis (CLAMK): A case series	Ömer Özer, Nigde Omer, Turkey

1 - Withdrawn

2 - Spectrum of scleral lens fit and patient compliance at a university hospital in Turkey

Oğuzhan Özçelik
Z. Ozbek, C.A. Yıldırım, I. Durak
Dokuz Eylul University Hospital, Department of Ophthalmology, Izmir, Turkey.
oguzhanozcelik07@gmail.com

Purpose: To discuss the conditions we fit scleral contact lenses and our success in terms of patient compliance.
Materials and Methods: This is a single-centre, retrospective cross- sectional study, including patients who were fitted scleral lenses between 2018 and 2023, mainly to improve vision. All patients underwent Pentacam corneal topography and full ophthalmological examination. Uncorrected (UCVA), spectacle (SCVA) and scleral lens corrected visual acuity (SLVA) were evaluated with Snellen and converted to LogMar. Success was defined as scleral lens use for more than 1 year.
Results: Thirty-one patients (46 eyes) were enrolled, of whom 19 (61%,3) were male. The mean age was 37,4±14,8 years (range: 12-71). Twenty-two eyes with keratoconus, 10 eyes with refractive error after penetrating keratoplasty, 8 eyes with irregular astigmatism due to corneal scar, 4 eyes with advanced stage Steven-Johnson syndrome and 2 eyes with severe dry eyes were included. The appropriate lens was determined after 3,6±1,9 trials (range: 1-8). Lenses was successfully worn by 35 eyes of 26 patients while 6 patients did not want to purchase the lens. Mean follow-up was 50,6± 50,1 months (range:1-180) Mean UCVA, SCVA and SLVA were 1,089, 0,668, and 0,126 and the difference was statistically significant (p□0.0001). SLVA remained stable and no serious complications were noted during follow-up.
Conclusion: Scleral lens fit is a time-consuming practice for the ophthalmologist and an intimidating task for the patient, However their comfort and stability is superior to both rigid gas-permeable and hybrid lenses besides good optical results. Although the large diameter may seem like a major disadvantage, the cost becomes more of an issue in developing countries.

3 - Parameters and visual outcomes of scleral contact lenses used in cases of keratoconus

Atılım Armağan Demirtaş
University of Health Sciences, Izmir Faculty of Medicine, Ophthalmology Department, Izmir, Turkey.
atilimdemirtas77@gmail.com

Objective: To present the parameters and visual outcomes of scleral contact lenses applied to eyes with keratoconus.
Background: Scleral contact lenses are often recommended for those with irregular corneas, such as those with keratoconus or corneal scarring, as they can help provide a more even and smooth surface for vision correction.
Methods: An assessment was conducted on 37 eyes of 23 keratoconus patients, which included the evaluation of best-corrected visual acuity (BCVA), biomicroscopic examination, and corneal topo-tomography. All patients were fitted with ICD Flexfit (Lenticon, Spain) lenses.
Results: A total of 23 kearoconus patients underwent contact lens application, with 15 being male and 8 being female. The average age of the patients was 36.15 years (ranging from 25 to 48). Prior to the application, the average BCVA was 1,1 LogMAR (ranging from 0,4 to 1,3), which improved to 0,06 LogMAR (ranging from 0,4 to 0,0) after the application. The lens parameters used, including diameters of 14.8 and 16.3, were found to be sufficient. The vaults of the lenses varied between 3600 and 4800.
Conclusion: Scleral contact lenses are recommended for cases of keratoconus where satisfactory vision cannot be attained with glasses or other types of contact lenses, or in cases where they are not suitable. Moreover, the use of scleral contact lenses can help minimize or postpone the need for keratoplasty in advanced keratoconus cases. Applying scleral lenses requires careful attention and time, and it is crucial to invest sufficient effort before considering keratoplasty as a treatment alternative.

4 - How does the use of scleral contact lenses affect intraocular pressure, retinal nerve fibre layer, ganglion cell complex and choroidal structure?

Rabianur Eroglu Ayaz
S.A. Turhan
Ophthalmology Department, Marmara University Faculty of Medicine, Istanbul, Turkey.
rabianureroglu@gmail.com

Objective: The aim of this study was to evaluate intraocular pressure (IOP), retinal nerve fiber layer (RNFL), ganglion cell complex (GCC), and choroidal parameters in keratoconus patients using scleral contact lenses (SCL) and compare them with healthy control group.
Method: In this prospective study, 25 eyes of 25 keratoconus patients wearing scleral contact lenses (SCL) and 25 eyes of healthy participants were enrolled. IOP was measured using i-Care before and after 4 hours of SCL wear. Lens fit was assessed using anterior segment optical coherence tomography (AS-OCT) after 1 hour of SCL wear. RNFL and GCC were evaluated using spectral domain OCT before and after 4 hours of SCL wear. Subfoveal choroidal thickness (SFCT) was measured using Enhanced Depth Imaging OCT. Choroidal vascularity index (CVI) was quantified using ImageJ software.
Results: The mean age of the patients was 25.8±10.2 years. The mean follow-up was 2.7±3.0 years. No significant difference was observed between the IOP before SCL wear (12.14±3.0 mmHg) and 4 hours of SCL wear (12.16±2.9) ($p>0.05$). There was no significant difference between mean RNFL thickness and GCC values after 4 hours ($p>0.05$). The mean SFCT and CVI values remained stable during follow-up ($p>0.05$). Compared to the healthy control, there was no statistical difference in CVI measurements in patients using SCL after 4 hours ($p>0.05$).
Conclusion: This pioneering study investigated the association between SCL and CVI. The results demonstrated that the extended use of SCL does not exert a notable effect on IOP, RNFL, GCC, or CVI parameters.

5 - Keratoconus demographic data in tertiary health care

Ekrem Can Arabaci
Ayhan Sağlık
Harran University School of Medicine, Department of Ophthalmology, Sanliurfa, Turkey.
ekremcanarabaci@gmail.com

Purpose: To evaluate the demographic profile, clinical and topographic features of keratoconus (KCN) patients admitted to our university hospital.
Material and Methods: In this cross-sectional study, patients were randomly selected by identifying all patients admitted to Harran University, Department of Cornea and Contact Lens between September 2016 and January 2024 and diagnosed with KCN. The following data were obtained from patient records: age, gender, visual acuity, refraction, keratometry, pachymetry and treatment procedures. KCN stage, morphology and cone location data were also obtained by analyzing corneal topography and tomography.
Results: File records of 2050 eyes of 1100 patients with keratoconus were analyzed. The mean age of the patients was 22.06±6.82 years (range, 6 to 61 years) and 55% of the patients were female. The highest incidence of KCN was in the 10-20 age group, and the lowest incidence was in the 50+ age group. Bilateral KCN was detected in 88% of the patients. The cones were paracentral in 52%, central in 44% and peripheral in 4%. The frequency percentages for mild, moderate and severe stages were 25.4%, 42.7% and 31.7%, respectively. As the frequency of paracentral and peripheral cones increased with aging, only cone location was significantly associated with age (p=0.001)
Conclusion: The mean age of the KCN patients in our study was similar to other studies. Most patients had bilateral and paracentral localization. Most of the patients had intermediate and advanced stage of KCN.
Key Words: Keratoconus, epidemiology, topography, keratometry.

6 - Predicting dual-elevation scleral lens rotation based on front corneal elevation map

Boris Severinsky
Emory University School of Medicine, Atlanta, USA.
boris.severinsky@emory.edu

Background: Scleral lenses (SL) with dual sagittal depth (DSD) allow advanced fitting on eyes with front corneal elevation differences, specifically those with keratoconus. Many SL patients may need front toric or multifocal optics to achieve best vision. Predicting on-eye rotation can improve fit success and shorten chair time in absence of DSD trial lenses. The study aims to extrapolate the expected amount of SL rotation based on front surface corneal elevation maps.
Methods: We retrospectively analyzed the records of 32 patients (40 eyes) fitted with DSD lenses at the Department of Ophthalmology, Emory University from 06/2023 to 09/2023. Fitting indications, SL sagittal depth difference, presence of toric peripheral curves, and amount of post-settling rotation were evaluated.
All fitted lenses had shallow elevation along the horizontal meridian and higher along the vertical. Pentacam meridional analysis was performed to determine the shallow versus tall meridian axes of the front corneal surface. Meridian axis approximation was obtained by utilizing the front elevation display from four refractive map analysis.
Results: 35 eyes were keratoconic, 3 after corneal transplant, and 2 with corneal scarring. The mean front corneal astigmatism was 5.9 (range 0.5 to 13.4) diopters, with SD 3.59. The average DSD difference was 263±56 um. A difference of 200-300 um was the most frequently utilized (87.5 % of fitted eyes). In most instances (85%), DSD lens meridian with higher elevation rotated toward the shallow front corneal meridian. The average rotation was 19.7±20.5 degrees. In 19 eyes (47.5%) the amount of rotation was within 10 degrees, in 9 (22.5%) eyes 10 to 20 degrees and 6 (15%) eyes 20 to 45. The other six eyes had rotation toward the elevated meridian.
17 out of 40 lenses fitted had spherical peripheral curves while 17 lenses utilized minimal peripheral toricity differences of ≤90 um. The remaining 6 lenses had peripheral toricity differences >90um. All fitted lenses exhibited on-eye stability in follow up visits.
Discussion: Higher sagittal depth meridian of DSD scleral lens tends to rotate toward the shallow front corneal meridian, with misalignment of up to 20 degrees in vast majority of cases. Utilizing this technology may provide on-eye stability achieved by the elevation differences of cornea and contact lens meridians. 85% of eyes required minimal or non-toric peripheral curves. Accurate prediction of SL rotation allows for efficient factoring in of toric or multifocal front optics due to predictable stability of DSD lens.

7 - Mini-scleral contact lens for patients with corneal ectasia

Fateme Alipour [1]
Parya Abdolalizadeh [2], Kasra Panahi [1]
1) Eye Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran. 2) Department of Ophthalmology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran.
shiva_mehrdad@yahoo.com

Overview: Scleral contact lenses are useful for patients with corneal irregularities to enhance visual acuity.
It is a retrospective cohort study to investigate the changes of visual acuity and mini-scleral lens (MSD) parameters by time among patients with corneal ectatic diseases. Patients who underwent MSD fitting at contact lens clinic from March 2010 to December 2021 in a tertiary center were enrolled. Patients with keratoconus, pellucid marginal degeneration (PMD), and post-refractive surgery ectasia were included. The data were extracted by reviewing charts. Visual acuity and MSD parameters were also measured at baseline and last follow-up. Since 2010, 311 eyes from 222 patients have been examined for MSD including 293 eyes (212 patients) with keratoconus (KCN), 11 eyes (6 patients) with PMD, and 7 eyes (4 patients) with post refractive surgery ectasia. The history of previous contact lens wearing and corneal surgeries (corneal transplant and corneal ring) were found in nearly 40%. The corrected visual acuity increased from 0.53±0.37 logMAR with glasses to 0.11±0.13 logMAR with MSD (P<0.001). Similar findings were observed in subgroups including eyes with KCN (P<0.001) and PMD (P=0.005). In contrast, the corrected visual acuity of post-refractive ectasia did not increase by MSD prescription (P=0.48). Among 311 eyes with ectatic disorders, 145 eyes had follow-up visits. The mean follow-up time was 41.30±30.97 months. Neither visual acuity nor MSD parameters changed by time. Therefore, MSD fitting usually did not require significant revision and its parameters remained stable in eyes with corneal ectasia.

8 - Visual Outcomes of Scleral Contact Lenses in Patients with Keratoconus and the Use of Anterior Corneal Topography Parameters in Predicting the Contact Lens Vault for a Successful Fitting

Gülay Güler Canözer
B. Bozkurt, G. Erdem, A. Oflaz Bozkurt
Selçuk University Faculty of Medicine, Department of Ophthalmology, Konya, Turkey.
gulayguler14@gmail.com

Objectives: To assess the visual outcomes of scleral contact lenses (SCLs) in patients with keratoconus and to evaluate the relationship between the prescribed SCL vault and anterior corneal tomography parameters (CTPs).
Methods: This retrospective study was conducted on 25 patients with keratoconus who had been successfully fitted with SCLs (Misa® lens, Microlens). Best corrected visual acuity (BCVA) and autorefractometry (AR) values with and without SCL were compared by paired-sample t test and the correlations between CTPs and SCL vault were evaluated by Pearson correlation test.
Results: Forty-one eyes of 25 patients with a mean age of 33.52±9.67 years were included in the study. The mean values of flat K1, steep K2, K maximum, anterior elevation and thinnest corneal thickness were 49.96 D, 55.17 D, 69.46 D, 61.22 □m and 395 µm, respectively. During the fitting process, the mean number of SCL trial was 2.89 (range, 2-5 lenses). The prescribed vaults were between 3250-4250 micrometer in eyes with stage 1-2 keratoconus and 3750-5000 micrometer in eyes with stage 3-4 keratoconus. The mean AR of the patients was -11.93±5.49 D, which remarkably decreased after SCL fitting (-0.21±0.80) (p<0.001). Mean BCVA with SCLs was significantly better than BCVA with eyeglasses (0.83±0.16 and 0.27±0.15, respectively, p<0.001). Prescribed SCL vault showed strong correlations with K2 (r=0.69), KMax (r=0.61) and anterior elevation parameters (r=0.77) (p<0.001, all).
Conclusion: SCLs remarkably improve visual acuity of patients with keratoconus and anterior CTPs are helpful in deciding the vault of SCL for a successful fitting.

9 - Results of applying a differently designed scleral contact lens in eyes with keratoconus that have previously used ineffective contact lenses

Burcu Kazanci
Ankara Etlik City Hospital, Ankara, Turkey.
drburcus@hotmail.com

Objective: Our aim is to present the clinical results of using scleral contact lenses (SCLs) in keratoconus patients who did not indicate that they had used before.
Methods: We applied ICD Flexf Fit (Presicion Technology, Canada) contact lenses to 47 eyes of 33 patients. Uncorrected visual acuity (VA), SCL corrected VA ,flat keratometry (K1), steep keratometry (K2), Average K, thinnest corneal thickness, cone type, lens parameters of keratoconus patients with SCL, were evaluated. The corneal-lens distance was measured at the narrowest point with the anterior segment OCT MS-39 corneal topography device.
Results: Of the 47 eyes, 8 had keratoplasty surgery and 1 had INTACS. There was minimal corneal scarring in 8 of 47 eyes. Previously, 9 of 47 eyes were using another SCL and the others were using rigid gas permeable contact lenses (RGPSL). Uncorrected Snellen VA was 0.2±0.1, and VA with SCL was 0.8±0.1 ($p<0.05$). The lowest 4000 and the highest 5200 vault lenses were applied and the average distance between the cornea and the lens was 275.1±54.8 µm. There was no statistically significant correlation between K flat and SCL Vault values. ($r=0.204$ $p=0.168$) but a statistically significant positive correlation was observed between K steep and Vault values. ($r=0.601$ $p<0.001$).
Conclusion: We believe that SCL with different designs and features should be tried for patients who cannot gain satisfaction and visual improvement with other contact lenses, even if they have SCLs.

10 - Human factors in contact lens care compliance

Cristina Schnider [1]
Katsuhide Yamasaki K [2], Erika Tai [2]
1) K Ophtecs Corporation (Consultant), KOBE Laboratory,K Ophtecs Corporation, Hyogo, Japan. 2) Ophtecs Corporation Kobe Research center, Kobe, Japan.
drcrisfaao@gmail.com

Objective: To understand how human factors research can be used to better inform our contact lens (CL) care recommendations Introduction: An emerging concern for regulators is whether manufacturers have done enough to ensure that devices are used correctly. For CL solutions this includes everything from formulation to cases to labelling and applies equally to professional instructions as to patient use.
Methods: A hydrogel peroxide (H2O2) care system was compared to a povidone iodine (PVP-I) system using human factors analysis. For every item and task in the process, an assessment was made to identify possible errors, hazards that could occur, potential harm to the patient, identification of critical tasks and any risk mitigation measures employed by the manufacturer.
Results: Key differences were identified in creating visible feedback to patients regarding safety and efficacy: the red cap on the H2O2 system bottle provided a better indication of the danger of instilling the disinfecting solution directly into the eye, but the system scored poorly for indicating safe use after disinfection. The latter area was a key point of superiority for the PVP-I system with the change from orange to clear an excellent indicator of the conclusion of disinfection. We will present steps involved in this assessment.
Discussion: As practitioners, we weigh safety and efficacy of our recommendations against patient concerns such as ease of use and cost. Better awareness of human factors can help us in making more informed decisions for our patients when choosing CL care systems.

11 - The effectiveness of pulsed light in treatment in dry eye

Laila Rais
Private clinic, Casablanca, Morocco.
lailaraism@yahoo.fr

Overview: The objective of our presentation is the IPL technology, and I am excited to share our results and successful experimental cases during a presentation at your event. We have conducted over 200 experiments, and our findings have consistently yielded precise and noteworthy results. The presentation will delve into the intricacies of our experiments, showcasing the precision and effectiveness of IPL treatment. This unique perspective promises to contribute valuable insights to the event and provide attendees with a comprehensive understanding of the capabilities and real-world applications of IPL treatment.

12 - Cytotoxic and genotoxic effect of two different multipurpose solutions on contact lens materials

Gamze Dereli Can [1]
Gokce Taner [2], Busra Yorulmaz [3]
1) Retina Eye Hospital, Bursa, Turkey. 2) Bursa Technical University, Faculty of Engineering and Natural Sciences, Department of Bioengineering, Bursa, Turkey. 3) Bursa City Hospital, Bursa, Turkey.
gamzederelican@gmail.com

Purpose: To compare the toxicity of two different multipurpose solutions (MPS) at various concentrations on L929 mouse fibroblast cells (MFC) by using neutral red uptake assay (NRU), 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) and Comet DNA assay.
Materials and methods: MFCs were derived using primary culture techniques. Various concentrations of two different MPSs (MPS-A, MPS-B) (1%, 5%, 10%, 25%, 50%) were applied on MFCs and the cultures were analyzed using NRU and MTT after 2h and 24h exposure for cytotoxicity. The cells were also treated with normal medium as the negative and with same medium containing 1% Triton X-100 as the positive control, were incubated for 2h and 24h. The degree of DNA damage was determined by Comet assay with MPS-A and MPS-B (5%, 10%, 25%, 50%) for 1h exposure.
Results: 2h of treatment with both MPSs were not determined to cause a significant decrease in cell viability. However, a concentration-dependent effect on viability was determined with treatment for 24h. Cell viability fell below 70% for MPS-A in the NRU and MTT tests after the concentration of 10% and 25%, respectively. Additionally, MPS-A was toxic at 25% and 50% concentrations, which means the cell viability fell below 50%. According to the MTT test, MPS-B caused an increase in cell proliferation at low concentrations. Additionally, both solutions did not cause a genotoxic effect compared to the untreated negative control group and even caused lower DNA damage in the Comet DNA assay test.
Conclusions: The results show that these two MPSs have variable effects on cell viability. The formulations of MPSs need to balance antimicrobial effectiveness with low cytotoxicity.

13 - Competence of ophthalmology clinic staff on self-application of eye drops

Ceren Ersoy
M.D. Tas, M. Esen Baris, S. Guven Yılmaz, M.Palamar.
Ege University, Department of Ophthalmology, Izmir, Turkey.
cerenersoy@hotmail.com

Overview: The study aims to evaluate the competence of ophthalmology department staff on self-administration of eye drops.
Doctors and nurses working at Ege University Ophthalmology Department were included as the study group (SG). Age, gender and visual acuity matched healthy volunteers were included as the control group (CG). All participants were given 0.3 ml single dose sodium hyaluronate drops and were asked to self-apply in both eyes. Eye-drop instillations were evaluated according to the following criteria: dropping at least one drop on the ocular surface or fornix, contacting the bottle tip to the ocular surface or surrounding tissues, and instilling multiple drops at a time were recorded. "Successful drop application" was defined as success on all the criteria. Eighty-six cases were included, 43 (28 F, 15 M) in the SG and 43 (21 F, 22 M) in CG. Successful instillation was observed in 26 (60.4%) vs (27.9%) participants in SG and CG (p=0.002). Contacting the dropper tip to any surface occurred in 7 (16.2%) vs 23 cases (53.4%) in SG and CG (p=<0.001). Even the experienced SG had a failure rate of ~40% in self-application of eye-drops. SG is significantly better at steps that require better control, such as not contacting the bottle tip to anywhere.
This finding demonstrates that education on this subject possibly will have a positive impact on sustaining a healthy usage of eye-drops, such as having less infection rates.
Keywords: Eye drops, patient compliance, treatment compliance.

14 - Compliance of hospital healthcare professionals with contact lens use and care

Ayşe Tüfekçi Balikçi
I. Cazımoğlu, Z. Yalnız Akkaya
University of Health Sciences Turkey, Ankara Training and Research Hospital, Department of Ophthalmology, Ankara, Turkey.
drtufekciayse@yahoo.com

Objective: The study aimed to assess if healthcare professionals who wear contact lenses (CL) in hospitals comply with the rules for contact lens use and care.
Methods: A survey consisting of questions about contact lens use and care was distributed to healthcare professionals. The survey investigated the following:
a) Demographic data,
b) Routines related to the use of CL (type, indication, duration, overnight use),
c) Routines related to CL maintenance and cleaning (solution usage habit, exposure to water, hygiene of hands and lens cases).
Results: The average age of the participants was 28.35±5.58; 76% were women, and 87.3% were doctors. CL usage duration was 8.16 years. Most of them wore soft contact lenses for myopia that were changed monthly. 95.8% of participants were prescribed CL by an ophthalmologist. To clean the CL, 93.3% of the participants used multi-purpose solutions, and 7.3% reported that they rarely washed the CL with tap water. A high level of compliance was observed with overnight use, washing hands before putting on and taking off CL, expiration date, and filling the solution into the box or sharing it. Moderate compliance rates were noted for swimming and showering with CL, cleaning, and changing the lens case and CL.
Conclusion: Although healthcare professionals are compliant with the use and care of the CL, it is thought that some of them still need training on avoiding contact with water while wearing the CL, never using tap water, and cleaning the lens case and the CL effectively.

15 - Pulsed light therapy in the management of dry eye disease: Current perspectives

Bruno Barbosa Ribeiro
Ana Marta, João Ramalhão, João Heitor Marques, Pedro Menéres, Irene Barbosa
Ophthalmology Department - Unidade Local de Saúde Santo António, Porto, Portugal.
brunot.barbosaribeiro@gmail.com

Objective: To review the indications and efficacy of Intense Pulsed Light (IPL) in the treatment of Meibomian Gland Dysfunction (MGD). To describe its physiology, efficacy, indications, and adverse effects.
Methods: A two database search was performed using the MeSH terms ("Intense Pulsed Light" AND ("Meibomian Gland Dysfunction" OR "Dry Eye"). We included randomized studies and systematic reviews with meta-analysis. Exclusion criteria were non-randomized trials, studies enrolling non-MGD dry eye disease, and other works older than 5 years.
Results: Current literature shows that IPL is an effective and safe treatment modality for severe dry eye. Available evidence shows improvement of symptoms and objective indicators, such as non-invasive breakup time, thickness of lipid layer, and Schirmer test. However, our review concluded that the beneficial effects of IPL may lose some efficacy at 6-months after the initial session, and subsequent sessions may be required. Thus, IPL treatment should not be considered as first-line therapy for MGD but instead as an adjuvant option to the standard of care. The optimal treatment modality remains unknown and should be tailored according to each patient's phenotype, clinician's experience, and available technology. There is evidence that IPL treatment may down-regulate pro-inflammatory markers.
Conclusion: MGD is a multifactorial disease and IPL treatment seems a promising treatment modality. Despite this, more evidence is needed to study its benefits – since this is an emerging technology, it is expected an increase in comparative studies in the following years, with longer follow-up periods, which may enable more precise conclusions about this treatment modality.

16 - Intracorneal ring segment implantation and corneal collagen crosslinking in the treatment of keratoconus

Tuna Celik Buyuktepe [1]
Burcu Kilic [2], Omur Ucakhan-Gunduz [2]
1) Department of Ophthalmology, Unye State Hospital, Ordu, Turkey. 2) Department of Ophthalmology, Ankara University School of Medicine, Ankara, Turkey.
tuna_clk@yahoo.co.uk

Overview: Standard corneal collagen crosslinking (CXL) treatment requires at least 400 µm stromal thickness after epithelial debridement, to avoid endothelial toxicity. However, most of keratoconic eyes may not fulfill this criterion, and several alternative protocols have been proposed for thin corneas.
Herein, we aimed to evaluate the short-term visual, refractive, tomographic and aberrometric outcomes of epithelial-island CXL in thin keratoconic eyes. In this study, retrospective, cross-sectional review of consecutive progressive keratoconus patients who underwent epithelial-island CXL was performed. The procedure involved tomography-guided customized epithelial debridement, the use of both hypo-osmolar and iso-osmolar riboflavin solutions, and 3.0 mW/cm^2 ultraviolet-A irradiation for 30 minutes. Best spectacle-corrected distance visual acuity (CDVA), manifest refraction (MR), slit lamp biomicroscopy, corneal tomography, corneal aberrometry and endothelial cell counts were evaluated before CXL and at postoperative month-3.
Overall, 14 eyes of 13 patients with the median age of 22.0 (range 12-51) years were included in this study. The median preoperative thinnest corneal thickness was 307 (range 232-381) µm. At postoperative month-3; CDVA, MR, maximum keratometry, topographic indices, aberrometry and endothelial cell count remained stable ($p>0.05$). No significant haze, endothelial cell loss or any other clinically significant adverse event was encountered in any patient eye. In conclusion, epithelial-island CXL seems to offer a therapeutic opportunity for progressive keratoconic eyes with very thin corneas, in which the standard treatment is contraindicated. Further studies with a longer follow-up and a larger sample size will help to establish its long-term safety and efficacy in halting keratoconus progression.

17 – Iontophoresis-assisted corneal cross-linking method – potential therapy for keratoconus

Karla Randelovic
Z. Vatavuk
University Hospital Center, "Sestre milosrdnice", Zagreb, Croatia.
karla.randelovic@gmail.com

Aim: To present procedure of iontophoresis-assisted corneal cross-linking.
Patients and methods: The paper will present 3 male patients (4 eyes in total) with an advanced stage of keratoconus. During the examination and recording of the topography with the Pentacam device, diagnoses of keratoconus, stage 3 (4) Belin ABCD, with corneas thinner than 400 µm, were made. An iontophoresis-assisted cross-linking procedure was performed using hypotonic 0.1% riboflavin, leaving the corneal epithelium intact. After a 5-minute iontophoresis, the Dresden cross-linking protocol was continued with the resulting synergistic effect of ultraviolet A light (370 nm) and vitamin B2 using the CSO Vega 3mW device.
Results: Postoperative recovery is faster than with standard CXL. During the three-month follow-up, the uncorrected visual acuity of the treated eye improved postoperatively, while with the help of Rose K2 contact lenses, better visual acuity was achieved than preoperatively, thus rehabilitating the patient into everyday life. At each control, the topography of the cornea and its Kmax values were monitored, whose stabilization is expected after 12-24 months.
Conclusion: Corneal cross-linking has become a standard therapy for keratoconus progression due to its biomechanical feature. The method of removing the epithelium proved to be effective due to easier penetration of riboflavin into the corneal stroma. With thin corneas, this option is unfortunately not the method of choice, and iontophoresis with its properties proved to be a possible solution for riboflavin to enter the depth of the cornea, without the need to remove the epithelium. Also, side effects related to pain, photophobia and infections are reduced with this procedure. I-CXL has proven to be a good method of choice when standard methods are not possible.

FREE PAPERS

18 - Case report: Herpetic keratitis after cross-linking of corneal collagen with riboflavin and ultraviolet-A for keratoconus in a healthy 20-year-old patient

Ivana Radman
F. Bagatin, K. Ranđelović, Z. Vatavuk
University Hospital Centre "Sestre milosrdnice" Zagreb, Croatia.

Aim: In this case report, we present patient who developed clinically diagnosed herpetic keratitis in the early postoperative period after CXL.
Patient and methods: A 20-year-old man referred to our Clinic because of bilateral keratoconus, stage III right eye and stage I-II left eye. There was no previous intraocular or corneal surgery, herpetic keratitis, autoimmune disease, or systemic connective tissue disease. Central pachymetry was 422 µm in the right eye (OD) and 468 µm in the left eye (OS). Topography showed inferior bilateral thinning. The recommended treatment was CXL with riboflavin and UV-A to stabilize the cornea. The patient underwent a thorough discussion of the risks and benefits of CXL with the surgeon and signed a written informed consent in accordance with institutional guidelines based on the Declaration of Helsinki
Results: On the first day, the postoperative findings were normal. On the fifth postoperative day, slow re-epithelialization was observed and the patient had a central dendritic epithelial defect. Local therapy included acyclovir in the form of ointment, continued antibiotic therapy, and oral therapy with acyclovir and vitamin B. Several subconjunctival injections DexaLido were applicated to the patient. Topical corticosteroid drops were continued after healing of the epithelial defect. All medications were gradually decreased over the following weeks. Three months later, a central Vogt's striae was found, the rest of the ophthalmological status was normal. In therapy, maintenance oral therapy 1 tablet per day and corticosteroid 1x and artificial tears without preservatives 5-6x. With regard to the best visual acuity with the correction of glasses, 0,2-0,3 we are planning to prescribe RK2 contact lenses.
Conclusion: Herpetic keratitis can be induced by CXL, even in cases with no history of herpetic eye disease.

19 - Mini-scleral contact lens for patients with radial keratectomy

Parya Abdolalizadeh [1]
Fateme Alipour [2], Kasra Panahi [2]
1) Department of Ophthalmology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran. 2) Eye Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran.
Paryaabdolalizadeh@gmail.com

Overview: Scleral contact lenses are useful for patients with previous radial keratotomy (RK) to decrease corneal irregularities. This is a retrospective cohort study to investigate the changes of visual acuity and mini-scleral design (MSD) lens parameters by time among patients with previous RK. Patients who underwent MSD fitting at contact lens clinic from March 2010 to December 2021 in a tertiary center were enrolled. Patients with previous RK were included. Age, sex, refractive error, corneal curvature, glasses-corrected visual acuity, previous corneal surgery and previous history of other types of contact lens use were extracted by reviewing charts. MSD-corrected visual acuity as well as MSD parameters including vault, power and mid-peripheral curve were also measured at baseline and last follow-up.
Since 2010, 22 eyes from 14 patients with previous RK have been examined for MSD. The mean age of patients was 42.07 ± 10.53 years, ranging from 25 to 59. One third of patients (35.7%) were female. Only three eyes have myopia with refractive error less than 1 diopter. The mean logMAR of corrected visual acuity with glasses was 0.41±0.33 improving to 0.18±0.15 after MSD fitting (p=0.003 based on Wilcoxon signed ranks test). Among 22 eyes, 7 eyes had follow-up visits with mean time of 33.00±38.96 months ranging from 3 to 87 months. Neither visual acuity nor MSD parameters changed by time. Therefore, MSD fitting usually did not require revision and its parameters remained stable in eyes with previous radial keratotomy.

20 – Assessment of ICD FlexFit scleral lens fitting characteristics and on eye performance in patients with keratoconus

Burcu Kilic
Omur Ucakhan-Gunduz
Department of Ophthalmology, Ankara University School of Medicine, Ankara, Turkey.
bnur9038@gmail.com

Purpose: The aim of this study was to evaluate fitting characteristics of ICD FlexFit scleral lens using slit lamp biomicroscopy (SLB) and anterior segment optical coherence tomography (AS-OCT) and to investigate its early outcomes in patients with keratoconus.
Methods: Files of consecutive patients with keratoconus who were fit with ICD FlexFit scleral lens were retrospectively evaluated. Following detailed ophthalmological examination, demographic data, stage of keratoconus, visual acuities, SLB and AS-OCT measurements during initial scleral lens fitting process as well as patient comfort were evaluated.
Results: Scleral lenses were fit on 21 eyes of 14 patients with mean age of 33.6±10.8 years. Fourteen patient eyes had stage IV, 1 patient eye had stage III, 5 patient eyes had stage II, and 1 patient eye had stage I keratoconus according to Amsler Krumeich classification. The mean uncorrected and corrected visual acuities were 1.15±0.46 and 0.21±0.12 logMAR respectively. The central corneal clearance 15 minutes and 2 hours after lens fit were 332.04±113.7 and 284.57±87.9 µm. All cases had adequate limbal clearance, no mid-haptic compression, optimum edge alignment at SLB and AS-OCT assessment. Ideal lens fit was achieved with 1 trial lens in 18 patient eyes, 2 trial lenses in 3 patient eyes. Lens comfort was evaluated as 'very good' to 'excellent' by all patients.
Conclusion: ICD FlexFit scleral lens fit seems to be easy and time saving with ideal lens fit being achieved with only 1 to 2 trial lenses. The lenses seem to provide excellent patient comfort and visual outcomes at the time of fitting.

21 - Experiences with two different scleral contact lenses in keratoconus patients

Sinem Kaya
Ayhan Sağlık
Harran University School of Medicine, Department of Ophthalmology, Sanliurfa, Turkey.
sinemmkaya@icloud.com

Objective: Evaluation of success of two different scleral contact lenses (SCL) in different keratoconus (KCN) groups.
Methods: The study included a total of 144 eyes from 90 patients who were prescribed SCL due to KCN and examined between 2019 and 2023. Corrected distance visual acuity (CDVA), corneal topography, anterior segment optical coherence tomography, and biomicroscopic examination findings were assessed before SCL use.
Results: The mean follow-up period was 12.08±0.93 months (6-36 months). Mild KCN was present in 58 eyes (40%), moderate KCN in 52 eyes (36%), and severe KCN in 34 eyes (24%). Mini Misa (MM) (Microlens Contact Lens Technology, Arnhem, Netherlands) was applied to 111 eyes (78%), and AirKone Scleral (AKS) (LCS, France) was applied to 33 (22%). In the MM group, the mean CDVA improved from 0.98±0.05 logMAR to 0.15±0.01 logMAR (p=0.000), and in the AKS group, it improved from 0.87±0 logMAR to 0.08± .02 logMAR (p=0.000). The mean Snellen line increments were observed as 6 in the mild stage KCN, 7 in the moderate stage, and 5 in the severe stage. In the central KCN group the mean CDVA improved 6 Snellen lines, while in the paracentral KCN group it improved 5 Snellen lines.
Conclusion: Similar visual performance was achieved with both scleral lens designs in this study. Better visual outcomes were observed moderate KCN in both SCL group.

22 - Evaluation of soft contact lens wearers with central cornea throughout, corneal astigmatism and changes in corneal aberrations

Bahar Aydoğdu
N. Aslan, H. H. Telek
University of Sağlık Bilimleri, Dışkapı Yıldırım Beyazıt Training and Research Hospital, Department of Ophthalmology, Ankara, Turkey.
baharaydogduu96@gmail.com

İntroduction: Contact lens wear can affect corneal shape and physiology. Studies have reported a relative flattening of the corneal contour and changes in corneal aberrations. Object: Evaluation of changes in central corneal thickness, corneal astigmatism and corneal aberrations in people using soft contact lenses
Methods: Thirty eyes of 30 patients who had never used contact lenses before were included in this retrospective study. Central Corneal Thickness (CCT), simK1, simK2, astigmatism, Coma, trefoil, and spherical aberration components of Zernike's (5 mm),RMS (5mm) were evaluated using topographic (sirius topography) measurements at the 1st month, 3rd month, 6th month and 1st year after contact lens use.
Results: 13.3% of the patients were male and 86.7% were female. Their ages were between 29.37 ± 7.68 years. No statistically significant difference was detected in terms of CCT, keratometric values, and corneal aberrations in the measurements of the patients before using contact lenses and at the end of the 1st week, 3rd month, 6th month and 1st year after starting to use contact lenses. (p>0.05).
Conclusion: With the introduction of new generation silicone hydrogel lenses, corneal changes that may occur due to contact lenses have been minimized. We think that there will be no change in corneal keratometric, corneal thickness and aberrations with soft contact lenses used for less than 1 year and regularly.

23 - Corneal epithelial thickness correlation with dry eye symptom severity: a cross-sectional study

Bruno Barbosa Ribeiro
João Heitor Marques, Pedro Manuel Baptista, Pedro Menéres, Irene Barbosa
Ophthalmology Department - Unidade Local de Saúde Santo António, Porto, Portugal.
brunot.barbosaribeiro@gmail.com

Objective: To study corneal epithelial thickness in patients with Dry Eye Disease (DED).
Methods: Cross-sectional study in the outpatient clinic of a tertiary hospital. Adult patients with a clinical diagnosis of DED were eligible for participation. Each patient underwent corneal epithelial thickness mapping with swept-source optical coherence tomography (SS-OCT, Heidelberg, Anterion®) and automated ocular surface analysis. Schirmer's test, tear film osmolarity and Dry-Eye Related Questionnaire (OSDI-12) were evaluated. Patients were classified accordingly the severity of symptoms in the OSDI-12 in group 1 (mild disease) and group 2 (moderate to severe disease).
Results: This study enrolled 200 eyes (of 100 subjects): 65 in group 1 and 135 in group 2. Median OSDI and Schirmer's test in group 1 were 7 vs. 46 points, p<0.001 and 15 vs. 11 mm, p=0.007 in group 2. Eyes from group 2 showed higher mean epithelial thickness (48.4 vs. 47.1 µm, p=0.027) and lower mean stromal thickness (522.0 vs. 546.6 µm, p<0.001) in comparison with group 1. The OSDI score was positively correlated with mean epithelial thickness (r=0.188, p=0.008) and epithelial variability index (r=0.277, p=0.004) and negatively correlated with mean stromal thickness (r=-0.313, p<0.001). Patients in group 2 showed higher epithelial variability index (4.5 vs. 3.2, p<0.001).
Conclusions: Our study suggests that patients with more severe DED symptoms have thicker corneal epithelia and thinner stroma, which may be a compensatory response. The epithelial variability index is positively correlated with the OSDI score. This is the first study to report stromal thinning in patients with DED.

24 - Comparison of dry eye symptoms between keratoconus eyes and normal eyes

Saba Javadi (1)
Masoud khorrami_Nejad (2), Haider Hassan Ahmed (2)
1) Translational Ophthalmology Research Center, Tehran University of Medical Sciences, Tehran, Iran. 2) School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
javadi.saba@gmail.com

Overview: In this study, we aimed to compare dry eye symptoms between patients with keratoconus and normal healthy controls using the Ocular Surface Disease Index (OSDI) questionnaire.
For the methods, we conducted a cross-sectional study involving 48 eyes of 48 keratoconus patients and 48 eyes of 48 normal controls. All participants completed the OSDI questionnaire to assess dry eye symptoms over the past week. OSDI scores range from 0-100, with higher scores indicating greater dry eye severity. We compared average scores between groups and also examined individual symptom questionnaire items. In terms of results, the mean age was similar between the keratoconus (30.83±7.8 years) and normal (29.17±6.69 years) groups.
Keratoconus patients reported significantly higher OSDI scores (38.64±9.79) compared to normal controls (18.93±11.05), indicating moderate vs mild dry eye symptoms, respectively (all p-value <0.05). All individual OSDI items assessing symptoms such as photophobia, gritty eyes, pain, and visual disturbance were markedly and statistically higher in keratoconus patients. Activities like reading, computer use, and TV watching were also more limited by eye problems based on OSDI responses in keratoconus patients. In conclusion, our study found that patients with keratoconus experience significantly more severe dry eye disease than healthy controls based on OSDI scoring. Screening for and proactively managing dry eye symptoms may be important for keratoconus patients, given their elevated risk. Further investigation is needed to understand pathogenic mechanisms better and optimize supportive therapies.

25 - The influence of preoperative dry eye treatment on intraocular lens power calculation: Case series

Pinar Aydin Ellialtioglu
Omur Ucakhan-Gunduz
Department of Ophthalmology, Ankara University School of Medicine, Ankara, Turkey.
pinaraydin9416@gmail.com

Purpose: To evaluate the efficacy of dry eye treatment on intraocular lens calculation before cataract surgery.
Setting: Department of Ophthalmology, Ankara University School of Medicine, Ankara, Turkey.
Methods: Patients assessed as having moderate to severe aqueous deficient or evaporative dry eye disease (DED) at preoperative examination were included in this observational case series. Following detailed ophthalmological examination OSDI, non-invasive break-up time (NIBUT), Swept-source OCT (SS-OCT) biometry measurement, Scheimpflug imaging, meibography evaluation and Schirmer I tests were performed before and after intensive dry eye treatment.
Results: Five female patients between 54 and 75 years of age were included in this study. Before treatment differences were observed between keratometry measurements obtained by autokeratometry, Scheimpflug imaging and SS-OCT biometry. Following intensive dry eye treatment for a mean period of 3.2±2.2 months (range 1 to 6 months) all keratometry and biometry measurements were repeated. Cataract surgery was performed when keratometry measurements taken by all three instruments were in agreement. Whereas there were no significant differences between IOL power measurements taken by all three instruments before and after dry eye treatment, corneal astigmatism and keratometry measurements obtained by SS-OCT biometry were significantly lower following treatment.
Conclusions: Dry eye can affect the reliability of keratometry measurements before cataract surgery, thereby affecting the accuracy of intraocular lens power calculations. Each cataract patient needs to be assessed in regard to dry eye in order to avoid refractive surprises caused by inaccurate keratometry measurements.

26 – Management of ocular manifestations in Stevens-Johnson Syndrome (SJS) and toxic epidermal necrolysis (TEN): a systematic review

Felon Mahrous [1]
Parwez Hossain [2]
1) Portsmouth Hospital University NHS Trust, Portsmouth, UK.
2) Clinical and Experimental Sciences, Faculty of Medicine, University of Southampton, UK.
felonmahrous19@gmail.com

Introduction: Stevens-Johnson Syndrome (SJS)/Toxic epidermal necrolysis (TEN) is a rare and potentially life-threatening immune-complex-mediated hypersensitivity reaction affecting the skin and mucous membranes. SJS/TEN causes serious ocular complications, including symblepharon and corneal keratinisation, resulting in permanent vision loss. Eye care may not be prioritised during initial assessment and management despite potential long-term complications. Whilst various management strategies exist, there has yet to be a recent data collation and review of clinical practice. Our aim is to evaluate the existing practices for managing ocular manifestations in SJS/TEN patients and facilitate refinement of management protocols.
Methods: Screening, data extraction, and quality assessment followed PRISMA guidelines for preferred reporting of systematic reviews. Multiple databases, including Medline, Embase, and Clinicaltrials.gov, were searched for publications before 6 January 2024. Inclusion criteria included studies on managing ocular manifestations in SJS/TEN, adult patients (18+) and publications in English.
Results: 104 studies on managing ocular complications of SJS/TEN were included, 42 focusing on pharmacological interventions such as immunomodulators and steroids. Multiple studies focused on using amniotic membrane transplantation as a low-risk technique, demonstrating significantly positive outcomes. Emerging treatment modalities such as corneal epithelial stem cell transplantation and 5-Fluorouracil injections offer increased hope.
Discussion: Early input from ophthalmologists when a patient presents with Stevens-Johnson Syndrome (SJS) or Toxic Epidermal Necrolysis (TEN) is crucial. However, there is a need for more consensus regarding the specific management of SJS/TEN, and the effectiveness of current recommendations. Therefore, there is a need for more data comparison to develop a comprehensive guideline for ophthalmologists.

27 - Long-term effect of intense pulsed light combined with low-level light therapy in the treatment of meibomian gland dysfunction

Bruno Barbosa Ribeiro
João Leite, João Heitor Marques, Paulo Sousa, Pedro Menéres, Irene Barbosa, Saul Pires
Ophthalmology Department - Unidade Local de Saúde Santo António, Porto, Portugal.
brunot.barbosaribeiro@gmail.com

Objectives: To evaluate the efficacy of intense pulsed light (IPL) combined with low-level light therapy (LLLT) in the treatment of MGD.
Methods: Prospective, double-arm study from the outpatient clinic of a tertiary hospital. Adult patients with MGD were consecutively assigned to either IPL combined with LLLT (group 1, Eye-Light® + My-Mask®) or IPL therapy alone (group 2, E>Eye®). Subjects were evaluated at baseline and at1st, 6th, 12th and 18th month after treatment. Outcomes were variation of the validated Dry Eye Related Questionnaire (OSDI-12) and automated ocular surface analysis. Tear film osmolarity, Schirmer's test and presence of keratitis (Oxford score) were also evaluated.
Results: We enrolled 124 eyes (of 62 patients): 31 in group 1 and 31 in group 2. At 18 months follow-up, both groups showed a significant improvement in the OSDI-12 ($p<0.001$), lipid layer thickness ($p<0.001$) and Schirmer's test ($p<0.001$ for group 1 and $p=0.029$ for group 2, respectively). There was a significant improvement in blink rate ($p<0.001$ for group 1 and $p=0.618$ for group 2, respectively) and tear meniscus height in eyes from group 1 ($p=0.040$ for group 1 and $p=0.701$ for group 2, respectively). No differences were found regarding Oxford score ($p=0.659$ for group 1 and $p=0.158$ for group 2, respectively).
Conclusion: IPL is an effective and safe treatment choice for MGD. Both groups showed subjective and objective improvement at 18-month follow-up. There was need for earlier re-treatment in group 2, demonstrating superiority of combination therapy – thereby maintaining benefit for a longer period.

28 – Twenty-seven years of contact lens fittings at a tertiary Hospital in Brazil

Millena Pacheco
Marcelo Sobrinho, Felipe Belucio, Giovanna Nutels
Pontifical Catholic University of Campinas, Campinas, Brazil.
millena.arruda@hotmail.com

Purpose: To map the clinical characteristics of the contact lens (CL) fitting of 702 eyes of 388 patients over 27 years at a tertiary hospital in Brazil.
Methods: We reviewed the charts of the patients fitted between 1997 and 2024. We analyzed age, gender, diagnosis, visual acuity (VA) with spectacles and with CL fitting and CL parameters. We divided the fittings into 2 groups: normal eyes (NE) and special fittings (SF).
Results: The charts of 388 patients (702 eyes) were reviewed.
217 were female (55.93%) and 169 (44.07%) male. The average age: 32,29±15,9 years. Special fittings corresponded to 79.77% of the eyes (560) and normal eyes to 20.22% (142 eyes). The main diagnosis in the SF group were keratoconus (434 eyes; 77.5%), post keratoplasty (39 eyes; 6.96%) and pellucid marginal degeneration (19 eyes; 3.39%). The main designs in SF were monocurve rigid gas permeable (RGP) in 194 eyes (34.64%), multicurve RGP in 186 (33.21%), bicurve RGP in 92 (16.42%) and scleral in 45 (8.0%) eyes. In the NE group, 128 (90.14%) eyes were diagnosed with astigmatism, 7 (4.92%) with myopia, 4 (2.81%) with hyperopia and 3 (2.11%) with presbyopia. The main designs in this group were RGP monocurve (110 eyes; 77.46%), soft and RGP toric in 13 (9.15%) eyes each. The mean VA was 0,49±0,34 (logMAR) with spectacles and 0,20±0,21 with CL.

CONCLUSION
SF were 4 times more frequent than NE. RPG remains the best option to VA improvement in SF. CL provided better VA than eyeglasses.

29 - The impact of different daily disposable contact lenses on tear film stability and objective optical quality

Gamze Özkan [1]
T. Aydın [2], S.A. Turhan [2]
1) Department of Ophthalmology, Sultanbeyli State Hospital, Istanbul, Turkey. 2) Department of Ophthalmology, Marmara University, İstanbul, Turkey.
ozkngamze@gmail.com

Purpose: To compare changes induced over time by three daily disposable contact lenses (CL) on tear meniscus height (TMH), pre-lens non-invasive break-up time (NIBUT), total higher order aberrations (HOAs).
Method: Fourteen participants with a spherical refractive error <-3.50 D and no astigmatism were included in the study. During the initial week, subjects wore a kalifilcon A silicone hydrogel (SiHy) lens in the right eye and a nesofilcon A hydrogel (Hy) lens in the left eye. Following a 3-day wash-out period, for the second week, participants switched to wearing a kalifilcon A lens in the left eye and a verofilcon A SiHy lens in the right eye. All measurements were conducted prior to CL fitting and for each CL combination, on day 1 at 20 minutes and on day 7 after 8 hours of wear.
Results: TMH was unchanged on day 1 with all lenses and reduced on day 7 with nesofilcon A and verofilcon A compared to baseline (p=0.038, p=0.015, respectively) while remaining stable with kalifilcon A. Pre-lens NIBUT decreased with nesofilcon A on day 1 (p=0.039) and on day 7 (p=0.002) compare to baseline but no changes were observed with verofilcon A and kalifilcon A at both visits. The total HOA was increased on day 7 with nesofilcon A only, compared to the baseline (p=0.035).
Conclusion: SiHy lenses, developed with advanced surface technologies, exhibited improved stability in tear film dynamics and optical aberrations compared to Hy lenses. The incorporation of specific ingredients in kalifilcon A may have contributed to a more favorable impact on TMH.

FREE PAPERS

30 – Histopathological evaluation of excised pterygium tissues

Seray Sahin [1]
Banu Yaman [2], Melis Palamar [1]
1) Ege University, Department of Ophthalmology, Izmir, Turkey. 2) Department of Pathology, Izmir, Turkey.
serayy.sahin@gmail.com

Objective: To present the histopathological evaluation of the excised pterygium tissue and to investigate accompanying ocular surface pathologies.
Methods: The histopathologic data of the patients who underwent pterygium excision and limbal conjunctival autograft between 2013 and 2023 were retrospectively evaluated. The demographic data, pterygium location and if the pterygium was primary or recurrent were also noted.
Results: A total of 165 eyes of 165 patients were included. Mean age was 56.2±13.1 (range, 21-86) years, and the female-to-male ratio was 72/93. Pterygium was located in the nasal quadrant in all eyes (100%). Pterygium was recurrent in 20 (12.1%) of 165 eyes. The histopathological evaluation of the excised materials revealed epithelial hyperplasia, goblet cell hyperplasia, solar degeneration, squamous metaplasia, stromal inflammation, and proliferation in fibrovascular tissue 128 cases (77.6%) and the histopathological diagnosis showed features consistent with pterygium. Epithelial dysplasia was accompanying in one eye (0.6%). Limbal dermoid was detected in one case (0.6%) and intramucosal nevus was observed in one case (0.6%) in addition to histopathological features compatible with pterygium.
Conclusion: Pterygium is a common lesion on the ocular surface triggered by ultraviolet light exposure. Although the risk of malignant transformation is not clearly documented, its relationship with sunlight exposure indicates the risk of other malignancies. As pterygium location is similar and the appearance might mimic ocular surface squamous neoplasia, histopathological examination is important to achieve an exact diagnose.

31 – Is physiological axial length growth achieved with DIMS spectacle lenses in myopic children? A retrospective analysis of real-life results in a German clinical setting

Hakan Kaymak
B. Graff, A.-I. Mattern, M. Devenijn, H. Schwahn
Internationale Innovative Ophthalmochirurgie, Düsseldorf, Germany.
dr.h.kaymak@gmail.com

Purpose: In randomized, controlled trials the "Defocus Incorporated Multiple Segments" (DIMS) lenses have been proven to effectively inhibit children's myopia progression. We performed a retrospective analysis of real-life data to evaluate the effect of DIMS lenses on axial length (AL) growth.
Methods: Annual AL growth rates of 166 eyes treated with DIMS lenses at 12-month follow-up were compared to physiological AL growth rate using the AMMC (Age-Matched Myopia Control) system, which features three color -coded zones: green - physiological AL growth rate, yellow - moderately excessive AL growth rate and red - highly excessive AL growth rate. An AL growth rate within the green zone was considered a successful treatment. Potential differences in percentages of treatment success of various subgroups were investigated depending on baseline AL and age against the percentage of treatment success of total population.
Results: Median AL growth rates of eyes with moderate AL and of older children reached the range of physiological growth. Considering all eyes, treatment success was achieved by 46% respectively. 61% of eyes had high baseline AL. Male eyes with high baseline AL showed treatment success in a lower proportion (25%, $p<0.01$), while eyes with moderate baseline AL met the treatment goal in a higher proportion (73%, $p<0.01$). Female eyes showed the same trend but without statistical significance (51% and 42%). Eyes of younger children responded successfully to treatment in a lower proportion (male: 11%, $p<0.01$; female: 25%, $p<0.01$). Eyes of older children responded successfully to treatment in a higher proportion (male: 60%, $p<0.05$; female: 56%, ns).
Conclusions: Eyes with moderate baseline axial lengths and of older children showed treatment success after 12 months of wearing DIMS lenses. Eyes with a high baseline AL and of younger children showed less treatment success. In such eyes, the combination of DIMS lenses with low-dose atropine should be considered already to start with.

32 – Persian Eye Cohort Study (PECS): Design, methodology

Fateme Alipour [1]
H. Hashemi [2], A. Lashay [1], F. Jafari [1], N. Motamed-Gorji [1], M. Jabbarvand Behrouz [1], M. Mirzaei [3], Y. Alizade [4], M. Soleymani [5], M. Shoja [6], K. Shahraki [7], G. Khataminia [8], H. Poustchi [1], R.Malekzadeh [1]
1) Eye Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran. 2) Noor Ophthalmology Research Center, Tehran, Iran. 3) Tabriz University of Medical Sciences, Tabriz, Iran. 4) Guilan University of Medical Sciences, Rasht, Iran. 5) Rafsanjan University of Medical Sciences, Rafsanjan. Iran. 6) Shahid Sadoughi University of Medical Sciences, Yazd, Iran. 7) Zahedan University of Medical Sciences, Zahedan, Iran. 8) Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Purpose: To report the study protocol, methodology and latest enrolment data of a large epidemiological multi-central eye cohort named PERSIAN Eye Cohort Study (PECS) originated from the ongoing PERSIAN Cohort Study, to investigate the distribution of ophthalmic disorders in different regions and ethnicities of Iran, and determine their associations with various exposures of ophthalmic and non-ophthalmic nature.
Methods: A central committee designed the study and equipped 6 chosen centers (Khameneh, Some'e Sara, Hoveizeh, Yazd, Rafsanjan and Zahedan), a focal point in each center supervised and managed conduction of the study and the data gathering under close supervision of the central committee.
Results: This ongoing study launched in 2015. Out of 65,580 eligible participants of 6 centers of the PERSIAN Cohort, 48,618 individuals aged 35-70 have been enrolled in the PECS (response rate: 74.13%) until September 2021. Slit lamp and fundus photography were performed for 28,702 (59.03%) and 27,437 (56.43%) individuals, respectively. The number of participants who were referred for ophthalmology visit was 12,884, of whom, 6,885 completed the ophthalmology visit (response rate: 53.44%).
Conclusion: This large epidemiological multi-central eye cohort can improve our epidemiological knowledge of prevalent ophthalmic disorders in different regions and ethnicities of Iran, and determine their associations with various exposures of ophthalmic and non-ophthalmic nature. This will be very useful for future planned nationwide and global interventions.

33 - The effect of topical cyclopentolate on axial length, refractive and keratometry measurement with myopia master

Göksu Yılmaz
S. Karaman Erdur , F. Dikkaya Çiçek
Department of Ophthalmology, Istanbul Medipol University, Istanbul, Turkey.
drgoksuyilmaz@gmail.com

Introduction: The aim of this study is to investigate the effect of cycloplegia on keratometry, axial length and refraction values obtained using the Myopia Master device.
Methods: In this study 30 children with myopia (60 eyes) were evaluated prospectively (24 girls and 6 boys; age range: 4-18 years). Measurements of axial length (AL), autorefraction (spherical and cylindrical) and keratometry (K) were acquired with the Myopia Master (OCULUS, Wetzlar, Germany) device before and after cycloplegia.
Results: The mean age of the participants was 11.53±3.16, respectively. The mean AL value was 24.35±1.02 mm before cycloplegia and 24.35±1.02 mm after cycloplegia; mean K value was 43.70±1.36 diopters (D) before cycloplegia and 43.69±1.35 D after cycloplegia. Although spherical refraction and spherical equivalent ($p<0.05$) values changed as expected, cylindrical refraction ($p=0.717$), axial length ($p=0.822$) and keratometry ($p=0.942$) values didn't change significantly after cycloplegia.
Conclusion: Myopia Master could be an efficient tool for screening in children with myopia because of the consistent measurements (AL and K) despite cycloplegia.

34 - Efficacy of Multifocal Soft Contact Lenses for Myopia Management: 1-year follow-up from a single center

Ayshan Abiyeva
Omur Ucakhan-Gunduz
Ankara University School of Medicine, Ankara, Turkey.
ayshen.abiyeva@gmail.com

Overview: This study aims to investigate the effectiveness of Relax (SwissLens SA, Prilly, Switzerland) multifocal soft contact lenses (MFSCL) in controlling myopia progression.
Files of patients with progressive myopia who were prescribed MFSCL to slow down myopia progression were retrospectively reviewed. Following a detailed ophthalmic examination uncorrected visual acuity (UCVA), best-corrected visual acuity (BCVA), manifest refraction (MR), keratometry and axial length (AL) as measured by Scheimpflug tomography (Pentacam AXL, Oculus GmbH, Weztlar, Germany), were recorded. Measurements were repeated after 1-year wear of MFSCL to evaluate any efficacy on myopia management. A total of 36 eyes of 18 patients were included into the study.
One patient discontinued lens wear due to lens tear, and two patients discontinued the due to high cost. The average age of children who successfully continued lens wear was 13.6±3.04 (range;8 to 17years). After 1-year wear of MFSCL, no statistically significant difference was observed in UCVA, MRCyl (manifest refraction cylinder), MRSph (manifest refraction sphere), MRSE, Kf, Ks, AL values (p□0.05). There were no sight-threatening complication or serious side effect in any patient eye. In this study, after 1-year of Relax (SwissLens SA, 1008 Prilly, Switzerland) MFSCL wear AL remained stable in 50% of patient eyes and increased by less than 1 mm in 50% of patient eyes.
In conclusion Relax MFSCL seems to be effective in controlling the progression of myopia at one-year follow-up. Randomized controlled studies with larger number of patients and longer follow-up are required to demonstrate the potential of MFSCL in long-term myopia management.

35 - Mini-scleral contact lens for patients with non-ectatic corneal diseases

Fateme Alipour [1]
Parya Abdolalizadeh [2], Kasra Oanahi [1]
1) Eye Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran. 2) Department of Ophthalmology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran.
shiva_mehrdad@yahoo.com

Overview: Scleral lenses are useful to reduce ocular discomfort of patients with ocular surface diseases and correct corneal irregularities. This is a retrospective cohort study to investigate the changes of visual acuity and mini-scleral lens (MSD) parameters by time among patients without corneal ectatic disease including ocular surface diseases (first group), and other non-progressive corneal pathologies such as scars (second group). The charts of patients who underwent MSD fitting from March 2010 to December 2021 in a tertiary center were reviewed.
Since 2010, 94 eyes from 67 patients have been examined for MSD including 61 eyes (40 patients) with ocular surface diseases, 15 eyes (12 patients) with aphakia, and 18 eyes (15 patients) with corneal scar. More than 40% of the patients with ocular surface diseases had Stevens-Johnson syndrome. Patients with and without ocular surface diseases were not different in terms of age (p=0.70) and sex (p=0.66). More than half of the patients with ocular surface diseases were prescribed bilaterally, while only 15% of non-ocular-surface group received bilateral contact lenses (p=0.002). Two groups did not have significant difference in terms of corrected visual acuity with glasses and MSD and corneal radius of curvature although patients with ocular-surface diseases had less hyperopia (p=0.002) and less astigmatism (p=0.004) than others. In total and each group, the corrected visual acuity with glasses improved after MSD fitting (p<0.001). Among 94 eyes, 40 eyes had follow-up visits with mean time of 33.83±33.60 months. Neither visual acuity nor MSD parameters changed by time except MSD power that shifting toward plane (P=0.006). In conclusion, MSD fitting usually did not require significant revision and its parameters remained nearly stable in eyes with non-ectatic corneal diseases.

36 - Chronic inflammation of orbital tissue (clinical case)

Katerina Hrizhzhymalska
O. Andrushkova , T. Zhmud
National Pirogov Memorial Medical University, Vinnytsya, Ukraine.
Hrizhzhymalskagtatyana@email.ua

Case: Male, 55 years old complaints about swelling, redness in the area of the lower eyelid on the left (similar to a chalazion) - anti-inflammatory therapy.
Diagnosis: Chronic inflammatory disease of the left orbit.
Operation: inferior orbitotomy on the left.
Histological conclusion: Pseudoneoplastic process of the type of proliferative myositis. Anti-inflammatory therapy at the place of residence is recommended.
VOD=1.0, VOS=1.0, TOU=16 mmHg. Exophthalmometry OD-15 mm, OS-17 mm.
After 5 years. Pronounced exophthalmos, pains, diplopia, restriction of mobility of the eyeball. Exophthalmometry 15 mm, 21 mm. A dense formation is palpable in the area of the upper and lower eyelid, cheeks.
CT: In the paraocular soft tissues, mainly in the lower-lateral sector, a three-dimensional muscular tissue formation, irregular in shape, with a density of +60+84 HU, spreads to the skin and subcutaneous tissue of the upper and lower eyelids, buccal and temporal regions, with conventional dimensions of 40*64*53 mm (21*16*10 mm 2018)
The formation invades the lower and lateral oculomotor muscles, the anterior third of the upper and medial oculomotor muscles, envelops the optic nerve, shifts forward and deforms the posterior edge of the eyeball due to the mass effect, contact invasion cannot be ruled out.
Diagnosis: Malignant neoplasm of the orbit (low-differentiated adenocarcinoma of primary localization from the lacrimal gland or metastatic nature), cÐ¢2cN0cM0. Lagophthalmus. Complete ophthalmoplegia. Condition after surgical interventions for inflammatory disease in the orbit.
Treatment: A course of radiation therapy for a tumor of the left orbit, RVD - 2 Gy, SVD 40 Gy. No. 20. After 1-month, repeated course of radiation therapy No. 8. After radation therapy. Improvement of the volume of movements of the eyeball, reduction of exophthalmos, visual acuity did not change (did not deteriorate) - IOP is normal.
Conclusion: Timely radiation therapy in combination with operative treatment allows to obtain a successful functional and anatomical result.

37 - Evaluation of clinical and histological effects of kgf-2 and ngf on corneal wound healing in an experimental alkali burn rabbit model

Sebnem Kaya Ergen [1]
S. Subasi [2], S. Furat Rencber [3], G. Duruksu [4], Y. Yazir [5]
1) Kocaeli State Hospital, Kocaeli, Turkey. 2) Department of Ophthalmology, Kocaeli University Faculty of Medicine, Kocaeli, Turkey. 3) Department of Histology and Embryology, Kocaeli University Faculty of Medicine, Kocaeli, Turkey. 4) Stem Cell and Gene Therapies Research and Applied Center, Kocaeli University, Kocaeli, Turkey. 5) Department of Histology and Embryology, Stem Cell and Gene Therapies Research and Applied Center, Kocaeli University Faculty of Medicine, Kocaeli, Turkey.
dr.sebnem.kya@gmail.com

Objective: To investigate the clinical and histopathological effects of keratinocyte growth factor-2 (KGF-2) and nerve growth factor (NGF) treatments in a rabbit model of corneal alkali burn.
Methods: After establishment of an alkali burn model, 24 rabbits were divided equally into three groups: control group, KGF-2 group, and NGF group. Clinical parameters including epithelial healing, opacification, neovascularization and central corneal thickness were evaluated on the first (D1), seventh (D7) and fourteenth (D14) days after injury. Histological parameters were examined in hematoxylin/eosin (H&E) and Masson trichrome-stained corneal sections. Immunohistochemical staining for matrix metalloproteinase-2 (MMP-2), MMP-9 and transforming growth factor-β (TGF-β) was performed.
Results: On D14, the percentage of epithelial defect and opacity were significantly less in the KGF-2 and NGF groups compared to the control group ($p<0.05$). In the evaluation of neovascularization on D14, the NGF group was significantly less vascularized than the control group ($p=0.011$). Histological examination showed a significant increase in stromal edema and inflammation in the control group compared to both treatment groups ($p<0.05$). There was also a significant difference between the NGF and control groups in histological evaluation of epithelial repair and vascularization ($p<0.05$). When immunoreactivity of MMP-2, MMP-9 and TGF-β was examined, there was a significant increase in the control group compared to the NGF group ($p<0.05$).
Conclusion: Both NGF and KGF-2 treatments were effective for early re-epithelialization and decrease in inflammation, opacity and neovascularization after corneal alkali burn. The inhibitory effect of NGF treatment on chemical-induced neovascularization was found to be superior to KGF-2 treatment.

38 - Exploring the impact of residency, income, and education status on the prevalence of contact lens usage among Iranian adults

Maryam Mohammadzadeh [1]
Fateme Alipour [1], Mehdi Yaseri [2], Fateme Jafari [1], Nazgol MotamedGorji [3], Alireza Lashay [1], Mahmoud Jabbarvand Behrouz [1], Hassan Hashemi [4]
1) Translational Ophthalmology Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran. 2) Tehran University of Medical Sciences, Tehran, Iran. 3) Tehran University of Medical Sciences Digestive Disease Research Center, Tehran, Iran. 4) Noor Ophthalmology Research Center, Noor Eye Hospital, Tehran, Iran.
maryam.mohzd@gmail.com

Overview: This study originates from the Persian Eye Cohort Study and aims to explore the factors affecting the desire for contact lens (corrective and cosmetic) usage among Iranian adults, specifically focusing on their residential location, educational background, and wealth score index (WSI). Additionally, we wish to provide insights into the preferred sources for purchasing these lenses within the population. The demographic characteristics and past medical history of participants were gathered through the interview. Considering the cluster sampling, the logistic regression on the multilevel analysis was used.
In total, 218 subjects (0.44%, 95% CI:0.38-0.5) reported a history of contact lens use. Higher education was associated with corrective and cosmetic lens usage (Adjusted OR: 7.94 and 5.49, respectively). Residents in rural areas showed a reduced likelihood of using either form of contact lenses compared to those living in urban areas (Adjusted OR: 0.61 and 0.71, respectively). Moreover, a correlation was observed between WSI and the usage of both cosmetic and corrective lenses (Adjusted OR: 3.64 and 1.46, respectively). Corrective lens users primarily obtained their lenses from professional prescriptions, while cosmetic lens users mainly relied on other unidentified sources.
Our results suggest that contact lens wearing and the awareness of this alternative tool are influenced by socioeconomic and educational status within the population. These results indicate a significant deficiency in public and professional attitudes toward lens use and a potential in training a greater number of optometrists with expertise in this area in the future.

39 – The inter-examiner reproducibility and intra-examiner repeatability of the Myopia Master

Abdullah Zengin
S. Karaman Erdur, F. Dikkaya ÇiçekK*Istanbul*
Medipol University, Istanbul, Turkey.
drabdullahzengin@gmail.com

Objective: This study aimed to test the inter-examiner and intra-examiner reliability of the Myopia Master.
Background: The Myopia Master is a new biometer based on partial coherence interferometry especially dedicated to the follow-up of myopic patients. The precision of biometric instruments holds significant clinical importance during both the detection of at-risk eyes and the ongoing management of individuals receiving myopia control interventions.
Methods: Thirty-four school children were prospectively recruited. Measurements of axial length (AL), keratometry, and autorefraction were obtained thrice by two examiners (one senior technician and one senior ophthalmology resident) using the Myopia Master. The coefficient of variation (COV), intraclass correlation coefficient (ICC), and Bland-Altman plots were used to evaluate the repeatability and reproducibility. Results: The two examiners measured approximately the same value in both measurements. The inter-examiner reproducibility and intra-examiner repeatability of AL, keratometry, and autorefraction were excellent (COV=1.00-6.10%; ICC=0.856-0.950).
Conclusions: In a pediatric population, the Myopia Master showed clinically acceptable inter-examiner and intra-examiner reliability in myopic children.

40 – Evaluation of scleral thickness in keratoconus patients

Mukaddes Damla Ciftci
C. Degirmenci, M. Palamar
Ege University, Department of Ophthalmology, Izmir, Turkey.
mdamlac@gmail.com

Objective: To evaluate scleral thickness of keratoconus patients by anterior segment optical coherence tomography (AS-OCT).
Methods: Fifty-two eyes of 42 keratoconus patients (Group 1) and 42 right eyes of 42 healthy individuals (Group 2) were included. Scleral thickness measurements were taken with AS-OCT 6 mm, 4 mm and 2 mm behind the scleral spur in 4 gaze positions, superior, inferior, temporal and nasal. The data including central corneal thickness (CCT) by Pentacam from keratoconus patients was also analyzed and its relationship with scleral thickness was evaluated.
Results: In Group 1, mean scleral thickness from 6 mm posterior to scleral spur in superior, inferior, temporal and nasal quadrants were 397±35.3 (320-482), 408±29.5 (341-467), 393±40.8 (297-469) and 403±35.8 (310-482) µm, respectively. In Group 2, mean scleral thickness from 6 mm posterior to scleral spur in superior, inferior, temporal, and nasal quadrants were 440±42.2 (346-552), 461±33.9 (390-563), 451±46.6 (340-549) and 448±34.3 (350-521) µm, respectively. The mean scleral thickness in Group 1 was significantly lower in all quadrants compared to Group 2 ($p<0.001$). The mean CCT in Group 1 was 478.22±87.55 (306-632) µm. Positive correlation was found between scleral thickness measurements taken at 4 mm ($\varrho=0.312$, $p=0.037$), 2 mm ($\varrho=0.308$, $p=0.039$) posterior from the scleral spur in the inferior quadrant and CCT.
Conclusion: Scleral thickness was significantly lower in keratoconus patients. Scleral thickness and CCT were positively correlated in inferior quadrant. Considering that the cornea and sclera are mostly made up of collagen, the sclera can also be affected by this progressive process.

41 – Accuracy of Myopia Master in children with myopia

Munise Altınbaş
S. Karaman Erdur, F. Dikkaya Çiçek
Istanbul Medipol University, Department of Ophthalmology, Istanbul, Turkey.
mnsalt4@gmail.com

Objective: To assess the reproducibility of the biometers Topcon MYAH, Oculus Myopia Master with the Carl Zeiss IOLMaster 700 to measure axial length for myopia management. Background: The precision of biometric instruments is very important in myopia control.
Methods: Forty-five myopic children with a spherical equivalent of -1.53±1.35 D were examined with each of the biometers to assess axial length (AL) and corneal parameters (steepK, flatK, meanK). Reproducibility of the first measurements between the IOLMaster and every other biometer was assessed employing a Bland-Altman approach and paired Student's t-test.
Results: The axial lengths (ALs) measured using Myopia Master, Topcon MYAH, and IOLMaster 700 were 23.67±1.26, 23.68±1.26, and 23.70±1.25, respectively. Mean values and standard deviations for AL and keratometry readings from these devices exhibited similarity ($p \geq 0.059$). ICC analysis indicated high consistency among the measurements (ICC≥0.943), and correlation coefficients were relatively high ($r > 0.9$, $p < 0.001$). Although the refraction results obtained with the Myopia Master were slightly higher than those from manifest refraction ($p \leq 0.024$), the agreement between the two measurements was excellent (ICC≥0.858). Bland-Altman plots for all analyses demonstrated that the percentage of points outside the limits of agreements was <5.22%.
Conclusion: Generally good agreement was observed between all the biometers.

42 - Evaluating the ocular impact of 0.01% atropine

Nisa Karaaslan
S. Karaman Erdur, F. Dikkaya Çiçek
Istanbul Medipol University, Department of Ophthalmology, Istanbul, Turkey.
nisakrsln@gmail.com

Objective: To evaluate changes in ocular biometrics in myopic children receiving 0.01% atropine.
Background: The lingering question revolves around whether the antimyopic effect of low-concentration atropine is attributed to the reduction of axial elongation or other associated biometric alterations.
Methods: Cycloplegic spherical equivalent (SE), axial length (AL), corneal curvature (K), and anterior chamber depth (ACD) were measured by IOLMaster. Corneal astigmatism and lens power were calculated. The ocular biometric parameter changes were compared among groups.
Results: Over the course of one year, alterations in axial length (AL) were 0.36±0.29 mm and 0.41±0.22 mm in the study and control groups, respectively ($p < 0.001$). Corneal power and anterior chamber depth (ACD) measurements remained consistent ($p = 0.41$). When adjusting for age and gender, the contributions to spherical equivalent (SE) progression from ocular biometric changes were found to be similar in both groups ($p > 0.05$).
Conclusions: A dosage of 0.01% atropine demonstrates no discernible clinical impact on corneal or lens power. The antimyopic effects associated with low-concentration atropine primarily focus on mitigating axial elongation, potentially diminishing the risk of subsequent complications related to myopia.

43 - Do soft contact lenses have an impact on corneal epithelial mapping?

Zeynep Soysarac Nergizal
A.S. Dogan, B. Kesimal, O. Celikay
Medical Sciences University, Diskapi Yildirim Beyazit Training and Research Hospital, Ankara, Turkey.
zeynepsoysarac@gmail.com

Objective: To investigate corneal epithelial thickness and sectoral variations in soft contact lens (SCL) wearers via OCT corneal epithelium mapping.
Background: Although, the epithelial thickness (ET) changes in orthokeratology lenses are well demonstrated, the effect of SCL on ET is controversial.
Methods: A retrospective case control observational study was conducted. OCT (RTVue, Optovue Inc., Fremont,CA) corneal epithelium mappings of right eyes of 84 participants (47 SCL wearers and 37 control (non-wearers)) were compared.
Results: SCL wearers and control groups were similar regarding age(22 (15-53) vs 21 (14-41) years, p=0.497) and gender distribution(M/F: 11/36 vs 13/24, p=0.237). The average central ET in SCL wearers was 52.89±3.64 and 54.59±4.53 µm in control group (p=0.141). Average ET in all paracentral zones (2-5 mm and 5-6 mm zones) were similar (p>0.05). There was no statistical difference regarding none of ET parameters between myopic and hypermetropic SCL wearers and controls. The superior paracentral ET were significantly thinner than inferior paracentral ET within all individual groups but similar between groups. The ET parameters of long-term (>5 year) wearers were not significantly different from controls.
Conclusions: Our results reveal that SCL wearing does not have a significant impact on corneal epithelial mapping.
Discussion: The indifference between SCL wearers and control groups may be attributed to morning examination of the patients and the relatively small number of long-term wearers in our cohort. In order to evaluate the epithelial remodelling in daily SCL practice, we propose to make measurements in a larger group comprising more long-term wearers with examinations after 10-hour SCL wear.

44 - Secondary acanthamoeba keratitis in a case with peripheral ulcerative keratitis due to Wegener's granulomatosis

Büşra Karadağ [1]
Altınkurt Emre [2]
1) Midyat Public Hospital, Midyat, Turkey. 2) Istanbul University, Istanbul Faculty of Medicine, Department of Ophthalmology, Istanbul, Turkey.
busrakaradg@gmail.com

Introduction and objective: The aim is to describe the clinical course of secondary Acanthamoeba keratitis in a case with necrotizing scleritis and peripheral ulcerative keratitis (PUK) due to Wegener's granulomatosis (WG).
Method: The records of the case were retrospectively examined.
Results: Four months ago, a 23-year-old patient was hospitalized with purulent discharge and fistula in front of the right ear, right otitis media, right facial paralysis, and an unknown cause of cavitary lesion in the lung. The patient presented with a complaint of eye irritation, redness, and sensitivity for the past two months. The right eye had a vision of 0.15,with a ptotic upper eyelid, necrotizing scleritis in the upper nasal area, and PUK in the nasal cornea. Acanthamoeba and Hartmannella cysts and trophozoites were observed in the direct examination of the corneal surface sample, and they were cultured successfully. Treatment with 0.04% chlorhexidine digluconate and 0.1% propamidine isethionate every hour was initiated. With a positive C-ANCA result, the patient was diagnosed with WG. Due to advanced thinning of the cornea during follow-up, the cornea was covered with a triple layer of amniotic membrane and fibrin tissue adhesive. One month after surgery, the patient developed Pseudomonas keratitis sensitive to ceftazidime, leading to corneal perforation. Consequently, tectonic keratoplasty was performed. Two weeks after keratoplasty, the patient's vision decreased from 0.1 to hand motion level. Topical and systemic steroid therapy was initiated due to graft rejection. As the control of WG was achieved, it was decided to perform another penetrating keratoplasty due to graft failure.
Discussion: The coexistence of Acanthamoeba keratitis with WG secondary to PUK has not been reported in the literature before. The treatment of Acanthamoeba in conjunction with WG requires a multidisciplinary approach.

45 - Brittle cornea

Fateme Alipour
Kosar Esmaili
Eye Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran.
alipour@tums.ac.ir

Purpose: Two report 2 cases of Brittle cornea syndrome.
Case 1: A 15 yr. old Afghan girl referred for scleral lens fitting for her right eye, lost her left eye due to minor trauma UCVA: OD: FC 1 m, OS: NLP, R efraction: OU poor red reflex Slit exam: OD: steep thin cornea with central scar, OS: Repaired corneal laceration, corneal scar Corneal imaging- Pentacam and AS- OCT: Globally thin and steep cornea (Thinnest point138 micrometer, Kmax: 76.8 Diopter) MSD parameter: SAG: 5.0, Mid-peripheral profile: Standard, Edge: 2+ flat, Power: -11.0; CCVA: 3/10 Family history: consanguine parents, one bilaterally blind brother (due to minor trauma).
Case 2: A 19 yr. old Afghan boy referred for scleral lens fitting for her left eye (repaired corneal laceration and posterior deep vitrectomy due to corneal laceration and RRD secondary to minor trauma), lost her right eye due to minor trauma UCVA: OD: NLP, OS: FC 1 m, Refraction: OD: poor red reflex, OS: +6.0 BSCVA: 1/10 Slit exam: OD: Phthisic eye, opaque cornea, OS: steep thin cornea with temporal scar, Aphakic Systemic findings: Arachnodactyly MSD parameter: SAG: 5.2, Mid-peripheral profile: Standard, Edge: Posterior surface toric 1+Flat/ 2+ flat, Power: -12.0, CCVA: 5/10 Family history: consanguine parents, one bilaterally blind brother (due to minor trauma), High myopic mother and a sister (AL > 30 mm OU).
Brittle cornea syndrome is a rare autosomal recessive multisystem connective tissue disorder, characterized by the very high risk of corneal rupture. Various ocular and systemic findings have been reported. Scleral contact lens may protect cornea from rupture due to minor trauma while providing optical correction.

ELECTRONIC POSTERS ONLY

46 – Improving vision with scleral lens after adenoviral keratitis

Reyhan Hazal Kaplan Koruk [1]
A. Ozpinar [2]
1) Istanbul Training and Research Hospital, Istanbul, Turkey.
2) Istanbul Medipol University Hospital, Istanbul, Turkey.
reyhanhazalkaplan@gmail.com

Case: A 16-year-old healthy female patient was admitted due to bilateral conjunctivitis. Based on the clinical findings of conjunctival hyperemia, chemosis, and pseudomembrane formation, the patient was diagnosed with adenoviral conjunctivitis, and treatment was initiated. During the patient's follow-up, subepithelial corneal infiltrates and an irregular corneal profile in the central visual axis were detected, especially in the right eye (Figure 1). It was observed that the best-corrected visual acuity increased to +0.70 logarithm of the minimum angle of resolution, and in pinhole vision, it increased to +0.20 logarithm of the minimum angle of resolution. The patient was fitted with a 15 mm scleral lens and attended numerous follow-up appointments. After the application, the patient's functional vision and quality of life improved. The scleral lens effectively masked corneal sequelae, and visual acuity reached +0.05 logarithm of the minimum angle of resolution. Scleral lenses may be a viable option for patients with corneal scars and opacities due to microbial keratitis. They improve vision, comfort, and ocular surface function by correcting surface irregularities caused by scarring (1,2). Various studies conducted with this application method have demonstrated that scleral lenses are the preferred treatment option for certain corneal diseases. Additionally, they have been shown to significantly reduce the need for corneal transplant surgeries (3).

47 – The quadrant-specific scleral lens: An effective strategy after a Baerveldt implant in keratoplasty

Henny Otten [1]
E.S. Visser [1], C.A. Eggink [2]
1) Visser Contact Lens Practice, Nijmegen, The Netherlands.
2) Radboud UMC University Medical Centre, Nijmegen, The Netherlands.
hon@vissercontactlenzen.nl

Objective: To present a patient who was fitted with a quadrant-specific tangential scleral lens to correct his irregular astigmatism after keratoplasty. The challenge to fit a scleral lens was the elevated scleral/conjunctival tissue due to a Baerveldt implant for his secondary glaucoma.
Background: Patients with a penetrating keratoplasty are commonly dependent on a scleral lens to correct the irregular astigmatism. Secondary glaucoma occurs regularly after a keratoplasty, therefore glaucoma surgery such as Baerveldt implants or a trabeculectomy may be necessary. The treated tissue induces raised areas on the sclera, leading to local scleral height differences. A standard scleral lens is unable to correct these height differences properly.
Methods: In a quadrant-specific tangential scleral lens, the specific area can be adjusted independently of the peripheral shape of the lens (which is often toric). With a quadrant- specific scleral lens a height difference of 100 to 900 microns can be bridged. In this case, a quadrant-specific lens was fitted using the Visser fitting philosophy in a structured and predictable way with independent variable parameters.
Results: This patient was successfully fitted with this quadrant-specific scleral lens, which resulted in comfortable lens wear, long wearing time, and a satisfied visual acuity of 20/30.
Conclusion: A quadrant-specific scleral lens may offer a well -balanced fit in local scleral height differences as caused by Baerveldt implants, without pressure on the scleral and conjunctival tissue.

ELECTRONIC POSTERS ONLY

48 – An innovative optics lab design for residency training in ophthalmology

Fateme Alipour
Parisa Abdi, Katayoon Samavati, Mandana Shirazi, Mohammad Taghi Tavassoly
Translational Eye Research Center, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran.
alipour@tums.ac.ir

Overview: Proper understanding of the optical function of the eye is the foundation of clinical understanding of ophthalmologists. Although teaching principals of optics has always been a part of ophthalmology residency curriculum, it seems that successful strategies other than lecture–based methods are needed to engage students and facilitate the understanding of optical principals. A collaborative team of physicists (optics Ph.D.), ophthalmologists and medical education experts designed an optics lab for ophthalmology residents to help them practically simulate different optical phenomena.
The educational course consisted of 4 sessions of 90 min to practice the optical tests using the lab instruments. Each class consisted of 6–9 residents, divided into 3 groups with a fully equipped unit, and two mentors (an optics Ph.D. professor and an ophthalmology professor). A quasi-experimental design with pre-post test was used to evaluate the effectiveness of the training workshop in changing the ophthalmology residents' optical knowledge and attitude. Thirty-five residents participated in the study. The average score of residents' performance before the workshop was 5.21 (out of 100), which increased significantly to 66.1 after the workshop. Also, the average knowledge of residents, which was measured as self-reported, increased significantly from 28.85 to 71.09. The average score of students' attitudes and interest was increased from 40.49 to 74.81. It seems that training workshops and labs are effective to bring about change in knowledge and attitude of ophthalmology residents toward optics as a new teaching strategy that would be implemented in their curriculum.

49 – Short-term comparison of myopia control: 0.01% atropine vs. defocus incorporated multiple segment lenses in Turkish children

Sevil Karaman Erdur
F. Dikkaya Çiçek, G. Demirci
Istanbul Medipol University, Department of Ophthalmology, Istanbul, Turkey.
karamansevil@gmail.com

Objective: To compare 0.01% atropine with DIMS spectacle lenses in the prevention of myopia progression in Turkish children.
Background: Myopia management can be done with several ways.
Methods: This was a retrospective study including data from myopic Turkish patients with myopia. Before April 2023 only 0.01% atropine was prescribed because DIMS lenses were not available in Turkey. After April 2023, DIMS spectacle lenses were prescribed due to patients' parents' preference. Myopia progression endpoints were axial length (AL) and spherical equivalent (SE) differences between before and 6 months after treatment.
Results: The study comprised 81 patients, with 50 assigned to the atropine group and 31 to DIMS group. At 6 months, the mean AL elongation was 0.057 mm in the atropine group (SD=0.118) and 0.002 mm in the DIMS group (SD=0.077). SE progression was -0.098 D (SD=0.232) in the atropine group and -0.039 D (SD=0.105) in the DIMS group. Notably, AL elongation was significantly lower in the DIMS lens group (p=0.038, partial Eta2=0.045), while there was no significant difference in SE progression between the two groups (p=0.302, partial Eta2=0.011).
Conclusion: The comparison between 0.01% atropine eyedrops and DIMS spectacle lenses for slowing the progression of myopia favored DIMS lenses, particularly in terms of AL elongation. However, no significant difference was observed between the two groups in terms of SE progression.

50 - Intracorneal ring segment implantation and corneal collagen crosslinking in the treatment of keratoconus

Tuna Celik Buyuktepe [1]
Orkhan Abbasli [2], Omur Ucakhan-Gunduz [1]
1) Department of Ophthalmology, Unye State Hospital, Ordu, Turkey. 2) Department of Ophthalmology, Ankara University School of Medicine, Ankara, Turkey.
tuna_clk@yahoo.co.uk

Objective: To comparatively evaluate the long-term visual, refractive, tomographic and aberrometric outcomes of intracorneal ring segment (ICRS) (INTACS; Addition Technology, Sunnyvale, CA; formerly KeraVision, Fremont, CA) implantation with or without corneal collagen crosslinking (CXL) in keratoconus.
Methods: Charts of consecutive keratoconus patients who underwent ICRS implantation and completed 3-years follow-up were reviewed retrospectively. Uncorrected visual acuity (UDVA), best spectacle-corrected distance visual acuity (CDVA), manifest refraction (MR), slit lamp biomicroscopy, corneal tomography, corneal aberrometry and endothelial cell counts were evaluated. The outcomes were analyzed by dividing the patient's eyes into 2 groups; group 1 (ICRS implantation only) versus group 2 (ICRS implantation combined with corneal CXL using Dresden protocol).
Results: Overall, 34 eyes in group 1 and 26 eyes in group 2 were included in this study. Compared to baseline, the mean UDVA, CDVA, MR spherical equivalent, and vertical coma improved statistically significantly in both groups at postoperative year-3, without any between-group differences. The maximum keratometry (Kmax) remained stable in group 1 (p=0.273), whereas Kmax was statistically significantly flattened at postoperative years-2 and -3 (p=0.002, and p=0.001, respectively) in group 2. Improvements of keratoconus indices were statistically significant only in group 2 (p<0.005). No significant haze, endothelial cell loss or any other clinically significant adverse event was encountered in any patient eye.
Conclusion: At 3 years follow-up, corneal CXL combined with ICRS implantation seems to provide statistically significant improvements in keratometric and tomographic indices in keratoconic eyes, as compared to ICRS implantation alone.

ELECTRONIC POSTERS ONLY

51 – Understanding ChatGPT's capabilities in providing information on keratoconus and contact lenses

Yavuz Kemal Arıbaş [1]
A.B. Aribas [2]
1) Hacettepe University Medical School, Department. of Ophthalmology, Ankara, Turkey. 2) Bilkent City Hospital, Department. of Ophthalmology, Ankara, Turkey.
ykemal89@hotmail.com

Background: This study aims to assess the accuracy and completeness of responses provided by Chat Generative Pre-trained Transformer (ChatGPT) (OpenAI OpCo, LLC, San Francisco, CA) to the most common queries regarding contact lens (CL) use for keratoconus.
Methods: Two experts formulated the four most frequently asked questions across eight different categories. A total of 32 questions, distributed evenly among the categories, were posed to ChatGPT. The answers were evaluated by ophthalmology experts using two different Likert scales. The accuracy of the responses was scored on a scale from one to six, and their completeness on a scale from one to three.
Results: The overall median score for accuracy and completeness of the responses were six and two, respectively. The study highlighted strong internal consistency with Cronbach's alpha values of 0.87 for accuracy and 0.74 for completeness, indicating reliable measures and substantial inter-observer agreement. No difference was found between question groups when mean accuracy and completeness values were compared (p:0.541, p:0.267, respectively) It was found that ChatGPT's answers to patient queries for informational purposes for contact lenses and keratoconus were at least "almost entirely correct" in terms of correctness and adequate in terms of completeness.
Conclusion: The growing use of large language models in various sectors, including healthcare, highlights their potential as informational tools for patients. Although ChatGPT may not guarantee perfect precision or exhaustive answers without expert oversight, it demonstrates potential as a valuable informational resource in keratoconus and contact lenses with an acknowledgment of possible inaccuracies.

52 – Can multifocal contact lenses provide visual performance beyond the progressive addition spectacles?

Busra Yorulmaz [1]
Mehmet Fatih Kocamaz [2], Gamze Dereli Can [3]
1) Bursa City Hospital, Bursa, Turkey. 2) Ankara Training and Research Hospital, Ankara, Turkey. 3) Retina Eye Hospital, Bursa, Turkey.
yorulmaz-busra@hotmail.com

Purpose: To compare vision quality at all distances, contrast sensitivity, tear quantity and quality, satisfaction levels and preferences, topographic and aberrometric changes in the cornea among subjects when wearing multifocal contact lenses (MCL) to the same subject when wearing progressive -addition spectacles (PAS).
Materials and methods: A total of 25 presbyopic subjects were conducted in the search for a refractive correction except for PAS. Patients were fitted into MCL and followed up for at least one month. Measurements included refraction, tear film break-up time (TBUT), binocular visual acuity (VA) at all distances (0.3, 2, 5m), contrast sensitivity at 0.3 m, corneal topography and visual comfort and ability using validated questionnaires as OSDI, CLIQ and CLDEQ-8 in the follow-up visit.
Results: Although PAS was significantly better than MCL (p=,001) for near distance, there were slightly greater LogMAR values for PAS than MCL for intermediate and far distances. (p=0,005 and 0,12, respectively). As expected, contrast sensitivity was worse without any refractive correction compared to PAS and MCL. However, there was no difference between PAS and MCL. The average value of spherical aberration was -0,0275 ± 0,0041 µm after 1 month of using MCL, the average value was 0,0031±0,0359 µm (p=0,037) while using PAS. Despite that, there were no statistically significant differences between other higher-order aberrations. Additionally, the results showed that no difference was detected between the use of Pas and MCL in terms of TBUT and OSDI scores (p=0.125 and 0.741, respectively).
Conclusions: MCLs offered significant levels of VA, contrast sensitivity and patient satisfaction with comparable near vision, especially those seeking an alternative method to PAS.

53 – A comparison of myopia control with myopia control spectacles (Myopi-X), atropine, and combined Myopi-X/atropine

Yunus Emre Budak
S. Karaman Erdur , F. Dikkaya Çiçek
Istanbul Medipol University, Department of Ophthalmology, Istanbul, Turkey.
emrebudak.md@gmail.com

Objective: To evaluate the efficacy of a myopia control spectacle lens (Miyopi-X) in comparison with 0.01% atropine and combined Miyopi-X and atropine.
Background: Myopia management can be done with several ways.
Methods: Participants were assigned, based on the preference of the patient or parent, to one of the following groups: 0.01% atropine eyedrops, Miyopi-X spectacles, a combination of atropine and Miyopi-X, or single vision spectacle lenses. The major outcome variables, cycloplegic autorefraction spherical equivalent refraction (SER) and axial length (AL), were measured at baseline and after three, six, and 12 months.
Results: Among the 152 participants, 60 were administered atropine, 25 received Miyopi-X spectacles, 32 were subjected to a combination of atropine and Miyopi-X, and 50 were provided with single vision. Analysis using a generalized linear mixed model, with adjustments for age and baseline spherical equivalent refraction (SER), demonstrated that at each stage, all treatment groups exhibited a significantly reduced progression in SER compared to the control group ($p<0.001$). Regarding axial length (AL), and after accounting for baseline age and AL, both at 6 and 12 months, all treatment groups demonstrated significantly less progression than the control group ($p<0.005$). In pairwise comparisons at the 12-month mark, the atropine+Miyopi-X group exhibited significantly reduced progression in both AL and SER compared to the Miyopi-X only and Atropine-only groups($p<0.001$).
Conclusion: Both Miyopi-X and atropine have proven effective in mitigating the progression of myopia and axial elongation. The combined use of Miyopi-X and atropine has shown to be particularly successful in minimizing myopia progression.

ELECTRONIC POSTERS ONLY

54 – Indications for bandage contact lens use in a tertiary referral center

Ömer Özer
Niğde Ömer Halisdemir University, Nigde Omer, Turkey.
omerozer92@gmail.com

Objective: The aim of this presentation is to report the indication distribution of bandage contact lenses in a tertiary care center in Turkey.
Methods: A total of 188 patients who applied bandage contact lenses in our clinic between April 01, 2023 and November 01, 2023 were included in the study.
Results: The mean age of the patients was 42.3±16.6 years. The eyes were 50.5% (n=95) right and 49.5% (n=93) left. Total duration of use was 4.4±2.6 days. One hundred and fifteen (61.2%) of the patients were male and 73 (38.8%) were female. Seventeen patients (9%) had entropion and/or trichiasis, 64 (34%) had traumatic corneal epithelial defects, 9 (4.8%) after epi-off CXL, 36 (19.2%) persistent epithelial defects, 3 (1.6%) neurotrophic keratitis, 53 (28.2%) after pterygium surgery and 6 (3.2%) after corneal penetration repair.
Conclusion: The bandage contact lenses we use today are mainly used to relieve pain and increase comfort, protect the cornea, and accelerate corneal healing. The therapeutic effects of bandage lenses in terms of protection, pain reduction and wound healing make them very versatile. Soft bandage contact lenses are an important component in improving patient care and comfort in the postoperative period.

55 – Efficacy of DRL othokeratology lenses in myopia control, retrospective 24-month study

Mihaela Petrescu
A. Barrucand, Z. Bouhier
Institut Ophtalmologique de l'Ouest Jules Verne, Nantes, France.

Introduction: Prevalence of myopia is increasing all over the world and represents a major issue of public health. Axial length evolution varies considerably from one child to another and its prediction seams very difficult. We attempted an evaluation of the results of our patients who had an orthokeratology fitting with DRL Precilens lenses.
Methods: It is a retrospective monocenter non comparative study including all patients having had an orthokeratology fitting with DLR (Precilens) at Institut Ophtalmologique de l'Ouest Jules Verne, Nantes, France. Study purpose is to evaluate at 12, 18 and 24 months the effect of orthokeratology on the axial length growth. We used a mixed linear model adjusting factors like age at the moment of fitting, gender, axial length, lens power.
Results: 78 eyes of 39 patients, mean age 13±3 years were included between January 8th 2020 and July 5th 2022. 65.4% of eyes had an axial length elongation less than 0.1mm the first year and 70.4% less than 0.1mm the second year. 50% of eyes grew less than 0.1mm in two years. Axial length elongation was statistically correlated with the child's age (p=0.00098***). It had increased of more than 0.1mm over a year in 68.2% of children younger than 12 years and only in 31% between 12 and 15 years. Conversely, 90% of children older than 15 years hadn't any axial elongation in one year.
In conclusion: Our study shows that DRL lenses are efficient in myopia control.

ELECTRONIC POSTERS ONLY

56 – The effect of different contact lens designs on quality of life in keratoconus

Seda Duran Guler
G. Varan, B. Nurozler Tabakci, Y. Yildirim
University of Health Sciences Başakşehir Çam ve Sakura City Hospital, Istanbul, Turkey.
duransedaa@gmail.com

Purpose: The aim of our study is to report the results of the Contact Lens Impact on Quality of Life (CLIQ) questionnaire in keratoconus contact lens (CL) users.
Methods: The study included patients aged between 18 and 35, diagnosed with keratoconus for over a year, with corrected visual acuity with contact lenses (CLVA) of 0.1 logMAR or less, and a history of CL use for at least 3 months. Age, gender, visual acuity, biomicroscopic examination findings, autorefractokeratometry values, corneal tomography measurements, the type of CL used, and CLIQ scores were recorded for all patients.
Results: A total of 65 eyes of 65 patients with a mean age of 29.4±5.8 years were included in the study. Patients were divided into 4 groups: soft keratoconus lens (SKL), rigid gas-permeable (RGP), hybrid (HCL), and scleral lens (SCL).The CLIQ score was 33.42±1.91, 37.80±2.06, 34.03±2.45, and 41.20±5.73 in all groups, respectively. When compared with the SCL group, the CLIQ score was significantly higher in the RGP and SCL groups (p=0.001, p<0.001, respectively), while there was no significant difference in the HCL group (p=0.790).When compared with the HCL group, the CLIQ score was significantly higher in the RGP and SCL groups (p=0.007, p<0.001), with no statistically significant difference between the RGP and SCL groups (p=0.081).
Conclusion: In our study, CLIQ scores were significantly higher in the RGP and SCL groups compared to other groups. We believe this is attributed to the significant improving effect of RGP and SCL on contrast sensitivity and corneal aberrations in the visual rehabilitation of keratoconus.

57 – Special contact lens fitting after corneal transplantation in the last 12 years

Tamás Tönköl
Oasis Studio, Budapest, Hungary.
tonkolmd@hotmail.com

Introduction: After corneal transplantation, a degree of irregular corneal astigmatism often remains that requires the use of specialty contact lenses. This name refers to hard and soft lenses that can be personalized individually. In this presentation, we present our own results from the past 12 years.

Patients and method: from 01/01/2012 to 20/03/2023, specialty contact lenses were fitted to 58 eyes of 38 (18 women, 20 men) patients who had previously undergone corneal transplantation. Corneal transplantation was perforating in 55 cases and lamellar in 3 cases. An average of 7.9 years passed between the surgery and lens fitting. In 52 cases, contact lens fitting had already taken place in another institution. We documented best-corrected visual acuity before lens fitting (BCVA), 1 month (mean 37.17 days; BCVA-1) and 1 year (mean 12.37 months; BCVA-12) after lens fitting. The following lens types were fitted: custom-made soft (CM-L) 6 cases, hybrid lens (H) 6 cases, corneal hard lens (C-RGP) 3 cases (of which piggyback 2 cases), corneoscleral (CSCL-RGP)) 8 cases, scleral (S-RGP) 35 cases. Before lens fitting, the following BCVA values were recorded according to contact lens groups: CM-L:0.33±0.19, H:0.24±0.14, C-RGP:0.5±0.10, CSCL-RGP= 0.92±0.27 and SCL-RGP: 0.21±0.34.

Results: After contact lens fitting, the following BCVA-1 and BCVA-12 values were obtained: CM-L: 0.8±0.14 and 0.75±0.18; H: 0.85±0.17 and 0.83±0.16; C-RGP: 0.86±0.05 and 0.86±0.05; CSCL-RGP=0.92±0.21 and 0.87±0.31 and SCL-RGP: 0.86±0.30 and 0.89 ± 0.09. Out of 38 patients, 5 patients stopped wearing contact lenses (6 eyes), lens wear has been continuous and documented ever since.

Conclusion: Special contact lens fitting after corneal transplantation is one of the most difficult areas of contactology. Lens fitting can be successfully performed using different types of lenses. All special lens types are suitable for effective lens fitting after corneal transplantation. Among the lens types, the scleral contact lens stands out in number. The visual acuity corrected with contact lenses increased significantly in all cases.

ELECTRONIC POSTERS ONLY

58 – Scleral lens wear while deep-sea (SCUBA) diving - A questionnaire-based study

Esther-Simone Visser [1]
K.H. Elving [1], P. Germonpré [2], M.A.V. Sas-Meertens[1]
1) Visser Contact Lens Practice, Nijmegen, The Netherlands. 2) Centre for Hyperbaric Oxygen Therapy, Military Hospital Brussels, Belgium.
esvisser@vissercontactlenzen.nl

Objective: To evaluate the experiences of scleral lens wearers while SCUBA diving.

Methods: An online survey for scleral lens wearers worldwide was conducted on the websites of Divers Alert Network (DAN) Europe and Visser Contact Lens Practice. The survey included participants age, SCUBA diving related questions and scleral lens wear related questions such as condition/loss during the dive and handling specifics, as well as eye related symptoms.

Results: Sixty-seven scleral lens wearers (63% males) answered the questionnaire. Participants were mostly experienced SCUBA divers (median of 525 dives (interquartile range (IQR): 115,1000) were performed) and a median of 150 dives (IQR: 3,375) were performed while wearing scleral lenses, in a median time frame of 60 months (IQR: 12,120). The median dive duration was 50 minutes (IQR: 45,60) and 84% were within the no-decompression limit of their dive computers. In 4 (6%) of subjects the vision was more blurry and in total, 7 (11%) scleral lenses were lost during the dive. Ten divers (15%) reported that the scleral lenses were tighter to remove and in 3 (5%) subjects experienced more deposits on their scleral lenses. Seven (10%) cases experienced more redness and 5 (8%) had less clear vision after the dive. In 2 (3%) cases, adverse events were reported of which 1 corneal ulcer after a dive in a swimming pool.

Conclusions: Scleral lens wear while deep sea diving appears to create few complications and seems relatively safe. However precautions need to be taken to prevent scleral lens loss and adverse events.

59 – Improvement of RGPCL surface properties by MPDS containing a novel hyaluronic acid derivative

Katsuhide Yamasaki
Haruki Nakagawa, Chika Motohiro, Eriko Tai, Cristina Schnider
Ophtecs Corporation Kobe Research Center, Kobe, Japan.
yamasaki0477@ophtecs.co.jp

Purpose: To evaluate the hydrophilicity of Aquity 200 lens with and without Hydra-PEG (HP) coating using a MPDS for RGPCL containing a low molecular weight hyaluronic acid derivative (HAD).

Method:

a) HP-coated lenses were repeatedly immersed in MPDS A with fluorescent labelled hyaluronic acid (FL-HA) and with FL -HAD for 8 hours, followed by 16 hours in ISO-PBS. Fluorescence intensity of the lenses was measured by fluorescence microscopy.

b) Non-coated lenses were immersed in artificial tear solution (ATS) for 16 hours, and repeatedly immersed in MPDS A with or without HAD for 8 hours. Contact angle (CA) was measured over time.

c) HP-coated lenses were immersed in ATS for 16 hours and repeatedly immersed in MPDS A with HAD or commercial MPDS B for 8 hours, and the CA was measured.

Results:

a) After 13 cycles, HAD significantly adsorbed on the lens compared to HA and plateaued ($p<0.05$).

b) The CA of lenses treated with MPDS A with HAD became equivalent to HP-coated lenses (43°) after 30 cycles. No change was observed for CA of lenses treated with MPDS A without HAD.

c) From 21cycles in MPDS B, the CA increased significantly ($p<0.05$) and was not significantly different from CA (62°) of non-coated lenses at 90 cycles. The CA of lenses treated with MPDS A with HAD was significantly lower ($p<0.05$, 38° at 180 cycles).

Conclusions: HAD binds to RGPCL surfaces and continues to provide the same level of hydrophilicity as HP-coated lenses despite deposition of tear fluid-derived components.

ELECTRONIC POSTERS ONLY

60 – Satisfaction with a spherical silicone hydrogel daily disposable contact lens among new contact lens wearers and their eyecare professionals

Ertugrul Akbas
T. Karaoglan, M. Rah, W. Reindel
Bausch + Lomb, Istanbul, Turkey
Ertugrul.Akbas@bausch.com

Overview: This study assessed the satisfaction of patients and their eyecare professionals (ECPs) following a trial of silicone hydrogel spherical (ULTRA OneDay; UOD) contact lenses (CLs). Here we present results for patients new to wearing CLs.

Patients from 11 European countries were newly fitted with UOD CLs. A standardized questionnaire was used to gather patient information and then to assess satisfaction – from both patient and ECP – after the trial period. A total of 9577 patients were assessed by a pool of 1308 ECPs. 4730 patients (49%) were new wearers of CLs. In terms of quality of vision, 90% were satisfied with the clear vision provided by UOD throughout the day; while 83% were satisfied with clear vision even at night. Regarding comfort, 88% were satisfied with overall comfort throughout the day and 83% were satisfied with comfort at the end of the day compared with the beginning. 82% of patients agreed that UOD was an easy-to-handle CL, with 96% of ECPs confirming that UOD is an easy-to-fit lens. In terms of overall new-wearer satisfaction, 87% of patients were satisfied and the same total percentage of patients (87%) expressed a desire to continue with UOD following the trial. These assessments confirm that the UOD daily disposable lens represents a valuable option to provide comfortable, clear vision throughout the day to the satisfaction of the majority of patients and their ECPs.

61 – Patient and eyecare professional satisfaction with a spherical silicone hydrogel daily disposable contact lens

Ertugrul Akbas
T. Karaoglan, M. Rah, W. Reindel.
Bausch + Lomb, Istanbul, Turkey
Ertugrul.Akbas@bausch.com

Overview: This study assessed the satisfaction of patients and their eyecare professionals (ECPs) following a trial of silicone hydrogel spherical (ULTRA OneDay; UOD) contact lenses (CLs). Patients from 11 European countries were newly fitted with UOD CLs. A standardized questionnaire was used to gather patient information and then to assess satisfaction – from both patient and ECP – after the trial period. A total of 9577 patients trialling UOD CLs were assessed by a pool of 1308 ECPs. Among them, 49% were new wearers of CLs and 51% were existing wearers (but new to UOD). After their trial, 85% of patients declared that, overall, they were satisfied. Across the three key domains assessed, the majority of patients were satisfied: overall comfort throughout the day, 87%; clear vision throughout the day, 89%; easiness to handle, 86%. For existing CL wearers, 68% agreed with the statement that they could wear the trial lens comfortably for more hours in the day than their previous CLs. Among the participating ECPs, 92% of were satisfied with the results obtained with UOD for their patients. 96% of ECPs consider that UOD is a CL that is easy to fit and 88% of ECPs are likely to consider UOD as the first option to offer a customer who needs daily disposable spherical CLs in the future. These assessments confirm that among both new and experienced CL wearers, UOD CLs provide options for comfortable, clear vision to the satisfaction of both patients and ECPs.

62 – Patient and eyecare professional satisfaction with a toric Samfilcon A contact lens

Tuzun Karaoglan
M. Rah, W. Reindel
Bausch + Lomb, Istanbul, Turkey
Tuzun.Karaoglan@bausch.com

Overview: This study assessed the satisfaction of patients and their eyecare professionals (ECPs) following a trial of toric Samfilcon A (ULTRA Multifocal for Astigmatism; UMFfA) contact lenses (CLs).
Patients from 11 European countries were newly fitted with UMFfA. A standardized questionnaire was used to gather patient information and then to assess satisfaction - from both patient and ECP - after the trial period.
A total of 2914 patients (mean age 51.3 years) trialling UMFfA CLs were assessed by a pool of 565 ECPs. 48% of patients were new wearers of CLs and most existing wearers (87%) had been using CLs for â‰¥4 years.
In terms of overall satisfaction, 81% of patients were satisfied; 89% were satisfied with overall comfort throughout the day; and 83% declared they would continue to wear UMFfA after the trial. 79% of patients were satisfied with ease of transition between visual distances. Across all domains, satisfaction levels were similar for existing wearers and new users.
Among ECPs, 90% were satisfied with the results of UMFfA for their patients, 94% agreed that UMFfA CLs were easy to fit, 91% were likely to consider UMFfA as a first option for presbyopic patients with astigmatism, and 90% were likely to recommend UMFfA to other ECPs.
These results confirm that among both new and experienced CL wearers, UMFfA CLs provide a comfortable wearing experience, and clear vision with easy transitions for presbyopia patients with astigmatism as well as a satisfying and straightforward fitting process for ECPs.

63 – Withdrawn

64 – The association between corneal topographic changes and cross-sectional areas of extraocular muscles in patients with thyroid eye disease: A retrospective cross-sectional study

Yu-Min Chang
Department of Ophthalmology, Tri-Service General Hospital and School of Medicine, National Defense Medical Center, Taipei, Taiwan, Republic of China.
m7886916@gmail.com

Purpose: This study aimed to evaluate the association between corneal topographic changes in patients with thyroid eye disease (TED) using a Galilei camera and cross-sectional areas of extraocular muscles.
Methods: This retrospective cross-sectional study included 52 eyes of 26 patients with TED (study group) and 40 eyes of 20 controls treated at a tertiary medical center in Taiwan between January and December 2022. All participants underwent basic ophthalmological examinations, corneal topography examination using a Galilei dual Scheimpflug camera, thyroid function examination, and orbital computed tomography. The corneal topographic parameters and cross-sectional area of the extraocular muscles were recorded in TED patients.
Results: After evaluating the association between corneal parameters and cross-sectional areas of extraocular muscles, the Opposite Sector Index had the highest correlation and the simulated keratometry had the lowest correlation. We have included the comparisons of anterior instantaneous astigmatism between TED and control groups on single-angle polar plots in accordance with Alpins method. The mean anterior instantaneous astigmatism was 0.74 D at an axis of 84° in the TED group and 1.34 D at an axis of 94° in the control group.
Conclusions: The hypertrophy of extraocular muscles can influence the corneal topographic parameters in TED patients. Furthermore, using Alpins method can evaluate the axis of corneal astigmatism accurately.

65 – The changes in corneal epithelial thickness and higher-order aberrations treated with newly designed orthokeratology: A randomized prospective trial

Yu-Min Chang
Tzu-Heng Weng, Ming-Cheng Ta, Yi-Hao Chen

Department of Ophthalmology, Tri-Service General Hospital and School of Medicine, National Defense Medical Center, Taipei, Taiwan, Republic of China.
m7886916@gmail.com

Purpose: This study aimed to evaluate the impact of newly designed Orthokeratology (OrthoK) on corneal epithelial thickness and higher-order aberrations (HOAs).
Methods: The study is a three-arm prospective, randomly assigned, crossover design study. Participants were randomly assigned to three different treatment methods (control, myOK standard peripheral defocus [myOK SPD] and myOK high peripheral defocus [myOK HPD]). All participants underwent a basic ophthalmological examinations, corneal topography, corneal epithelial thickness and measurement of HOA at each visit.
Results: The spherical equivalent (SE) in both the myOK SPD and myOK HPD groups was significantly lower than that in the control group whether on the 7th, or 28th day of wearing ($P < 0.001$). The corneal curvature in the myOK group was noticeably flatter compared to the control group. There were no differences in corneal epithelial thickness of base curve (BC) among these three groups after wearing OrthoK lenses. However, after wearing OrthoK lenses for 28 days, the corneal epithelial thickness of reverse curve (RC) in myOK groups was significantly higher compared to the control group ($P<0.05$). After wearing OrthoK lenses for 1 and 7 days, there was a significant difference in HOA among three groups ($p<0.01$). Moreover, myOK HPD also demonstrated higher levels of HOA compared to the other two groups.
Conclusions: This new design of OrthoK can increase the corneal epithelial thickness of RC, stabilize the flattening of the central cornea, achieving a better correction for myopia. Simultaneously, it may induce some HOA, but it does not significantly impact visual acuity.

ELECTRONIC POSTERS ONLY

66 – The changes in corneal epithelial thickness and higher-order aberrations treated with newly designed orthokeratology: A randomized prospective trial

Yu-Min Chang [1]
Wen-Pin Li [2,3], Tzu-Wen Lai [3], Ting-Yi Lin [1], Ming-Cheng Tai [1], Yi-Hao Chen [1], Heng Weng [1]
1) Department of Ophthalmology, Tri-Service General Hospital and School of Medicine, National Defense Medical Center, Taipei, Taiwan, Republic of China. 2) Department of Optometry, University of Kang Ning, Taipei, Taiwan, Republic of China. 3) Brighten Optix Corporation Research and Development Center, Taipei, Taiwan, Republic of China.
m7886916@gmail.com

Purpose: This study aimed to evaluate the impact of newly designed Orthokeratology (OrthoK) on corneal epithelial thickness and higher-order aberrations (HOAs).
Methods: The study is a three-arm prospective, randomly assigned, crossover design study. Participants were randomly assigned to three different treatment methods (control, myOK standard peripheral defocus [myOK SPD] and myOK high peripheral defocus [myOK HPD]). All participants underwent a basic ophthalmological examinations, corneal topography, corneal epithelial thickness and measurement of HOA at each visit.
Results: The spherical equivalent (SE) in both the myOK SPD and myOK HPD groups was significantly lower than that in the control group whether on the 7th, or 28th day of wearing ($P < 0.001$). The corneal curvature in the myOK group was noticeably flatter compared to the control group. There were no differences in corneal epithelial thickness of base curve (BC) among these three groups after wearing OrthoK lenses. However, after wearing OrthoK lenses for 28 days, the corneal epithelial thickness of reverse curve (RC) in myOK groups was significantly higher compared to the control group ($P<0.05$). After wearing OrthoK lenses for 1 and 7 days, there was a significant difference in HOA among three groups ($P<0.01$). Moreover, myOK HPD also demonstrated higher levels of HOA compared to the other two groups.
Conclusions: This new design of OrthoK can increase the corneal epithelial thickness of RC, stabilize the flattening of the central cornea, achieving a better correction for myopia. Simultaneously, it may induce some HOA, but it does not significantly impact visual acuity.

67 – Detection of virulence factors genes of exoU and exoS in ocular isolates of *Pseudomonas aeruginosa*

Tanzina Akter
Fiona Stapleton, Mark Wilcox
School of Optometry and Vision Science, Faculty of Medicine and Health, University of New South Wales, Sydney, Australia.
t.akter@unsw.edu.au

Overview: *Pseudomonas aeruginosa* possessing exoU (cytotoxic strains) have been reported to be more frequently associated with more severe forms in contact lens-related keratitis than exoS (invasive strains). This might be attributed to exoU strains possessing unique genes encoding virulence factors that affect pathogenesis. The aim of the present study was to determine which virulence factors genes are different in the two lineages of P. aeruginosa from keratitis. The whole genome sequence data of 20 exoU strains and 19 exoS strains were analysed using the Virulence Factors Database (VFDB). To validate the VFDB findings, a separate set of isolates consisting of 152 P. aeruginosa were screened for the presence of genes using PCR. The VFDB analysis revealed differences in four virulence factor genes, pilA (0 vs 47%, p=0.0004), pldA (85% vs 16%, p=<0.0001), algP (90% vs 58%, p=0.031), and flaG (100% vs 79%, p=0.0471) between the exoU and exoS groups, respectively. Based on the PCR data, the overall prevalence of exoS and exoU was 74.3% and 22.4% respectively. Upon PCR, the frequency of pldA was found more common in exoU group, which correlated with VFDB analyses. Therefore, pldA might be a crucial virulence factor for the exoU group, potentially associated with the severity of keratitis.

ELECTRONIC POSTERS ONLY

68 – The effect of bacteria adhesion to RGPCL with protein and lipid depositions and disinfectant efficacy of povidone-iodine based care system

Eriko Tai
Katsuhide Yamasaki, Cristina Schnider
Ophtecs Corporation Kobe Research Center, Kobe, Japan.
tai0954@ophtecs.co.jp

Purpose: To evaluate the relationship between protein and lipid deposition on RGPCL materials and bacterial adhesion and biofilm (BF) formation, and also the disinfectant efficacy of povidone-iodine based system (PI) for RGPCL.

Method:
1) Fluorosilicone acrylate (FSA) lenses deposited denatured protein + lipid were immersed in 5 x 10 cfu/mL of P. aeruginosa (Pa) suspension, and the number of bacteria attached to the lens was compared to that of lenses without deposits.
2) Cover slips with the above-mentioned deposits were immersed in 5×10 cfu/mL of Pa suspension for 48 hours, and after staining with concanavalin A, fluorescence intensity was observed to confirm BF formation.
3) FSA lenses immersed in artificial tear solution containing proteins, lipids and inorganic salts for 24 hours were immersed in 5×10 cfu/mL of Pa or S. aureus (Sa) suspension for 48 hours to form BF. These lenses were treated with PI, two types of MPS and hydrogen peroxide system (catalase tablet), and incubated by burial in SCD agar medium after neutralizing.

Result:
1) Pa adhesion was significantly increased 2.8-fold in lenses with deposits compared to lenses without deposits ($p<0.05$).
2) The Biofilm formation of Pa on cover slips also increased 6-folds compared to without deposits ($p<0.01$).
3) PI showed higher disinfectant efficacy against both Pa and Sa than the other solution.

Conclusion: Deposition of tear fluid-derived components on the lens increases bacterial adhesion and biofilm formation. The use of care products with high cleaning and disinfectant efficacy is recommended.

69 – Repair effect of low molecular weight hyaluronic acid derivatives on silicone hydrogel lens surfaces

Shoko Yano
Haruki Nakagawa, Chika Motohiro, Eriko Tai, Katsuhide Yamasaki, Cristina Schnider
Ophtecs Corporation Kobe Research Center, Kobe, Japan.
yano1243@ophtecs.co.jp

Purpose: To evaluate the impact of multi-purpose disinfecting solution (MPDS) on silicone hydrogel lens (SiHy SCL) surface properties and the repair effect of a novel low molecular weight hyaluronic acid derivative (HAD).

Methods:
a) Two SiHy SCLs (comfilcon A, lotrafilcon B) were treated with two MPDSs (MPDS-1, MPDS-2 containing HAD) according to their usage (rubbing + soaking) for 13 cycles and the friction coefficient (CoF) was measured by slope method over time.
b) Surface roughness and Si elemental ratio of lotrafilcon B lenses treated with each care solution were measured using scanning probe microscopy and X-ray photoelectron spectroscopy analyser, respectively.

Results:
a) The CoF of comfilcon A and lotrafilcon B treated with MPDS-1 increased significantly after 3 and 7 cycles, respectively, compared to the initial values ($p<0.01$). While, the CoF of both lenses treated with MPDS-2 (HAD) did not differ significantly from the initial values.
b) Scratches were observed on the surface of lotrafilcon B lenses treated with MPDS-1 and the Si ratio a few nm below the lens surface increased significantly ($p<0.01$) compared to the initial values, whereas MPDS-2 (HAD) treated lens surfaces showed no scratches and the Si ratio significantly decreased ($p<0.01$).

Conclusions: It was suggested that rubbing worsens the CoF of SiHy SCLs, but HAD maintain the CoF by coating and repairing the lens surface deteriorated by rubbing. Although rubbing is effective in physically removing micro-organisms, the use of MPDS containing HAD is recommended as it increases the CoF and may worsen the wearing comfort.

70 – Statistical analysis of refraction in a large city in Brazil

Victor Pansani
Millena Pacheco, Vitor Jacobucci, Vinicius Ignachiti, Marina Denobi
Pontifical Catholic University of Campinas Hospital, Campinas,Brazil.
victor.fpansani@gmail.com

Objective: Study the epidemiological profile of refractive errors in a large city in Brazil´s countryside and the impact of the global myopia epidemic in Brazil.

Methods: Brazilian, male and female, aging from 4 to 49 years old, underwent refraction test in 4 different ophthalmological services in the city of Campinas, Brazil in an annual campaign carried out in October of 2021, 2022 and 2023. Static and dynamic retinoscopy in addition to subjective refraction was performed. After refraction, patients were classified according to diagnosis.

Results: It was found that of the 570 eyes submitted to refraction, 52 (9,12 %) of them had simple myopia, 87 eyes (15,26%) had a diagnosis of simple myopic astigmatism and 117 (20,52%) eyes had a diagnosis of compound myopic astigmatism, with a total of 256 eyes with some type of myopia, which corresponds to 44,91% of the total analyzed.

Conclusion: Myopia is a medical condition that greatly impairs the quality of life and learning of children. A correct refraction with proper spectacles prescription is essential. The prevalence of myopia has profoundly increased over the last decades globally, especially in the younger generations. The prevalence of myopia globally is around 28%, and there are projections that approximately half of the world's population, will have some degree of myopia by 2050, with 10% of then being high myopes.

ELECTRONIC POSTERS ONLY

71 – Contact lens associated microbial keratitis (CLAMK): A case series

Ömer Özer
Niğde Ömer Halisdemir University, Nigde Omer, Turkey.
omerozer92@gmail.com

Background: Although bacteria are the most common cause of contact lens associated microbial keratitis (CLAMK), fungi and Acanthamoeba species may also be responsible. In this present study, demographic data, risk factors and prognosis of 5 patients with CLAMK will be reported.
Methods: The contact lens material, age, gender, duration of contact lens wear and type of contact lens wear were noted in all patients. Visual acuity was assessed before treatment and in the first month after discontinuation of treatment.
Results: Four patients (80%) were female and one (20%) was male. The mean age was 27.2±4.8 years (20-34 years). Three (60%) of the patients were wearing senofilcon A, one (20%) was wearing lotrafilcon B and one (20%) was wearing comfilcon A. The mean duration of lens wear was 24.8±7.3 months (14-42 months). The biggest risk factor was extended wear, which was found in all patients. This was followed by swimming in the pool and/or sea, which was observed in 3 (60%) patients. The median time to presentation was 3 (1-6) days. The distribution of the results of the swab and scrape cultures was Staphylococcus in 3 (60%) patients and Pseudomonas aeruginosa in 1 (20%) patient. In 1 patient, no pathogen was detected. The median visual acuity level at presentation was 0.3 (0.1-0.6). At the first month after discontinuation of treatment, the median visual acuity (20/20) was 1.0 (0.7-1).
Conclusion: CLAMK is an important and alarming complication of contact lens wear. The risks of contact lens wear, proper care and storage conditions should be explained in great detail to those who will wear or wear contact lenses. Improved and consistent patient education is thought to help reduce the incidence of CLAMK.

NOTES:

NOTES:

BAUSCH + LOMB

FRIDAY: 12:10 - 12:30

Go Beyond Comfort with Bausch + Lomb ULTRA® One Day

Prof. Dr. **Zeynep Özbek**, Izmir, Turkey

HOYA
FOR THE VISIONARIES

FRIDAY: 15:45 - 16:05

Confidence through evidence – MiYOSMART in daily practice

Moderator: Pascal Blaser - Global Professional Affairs Manager HOYA

Introducing MiYOSMART spectacle lens with Confidence through Evidence

Ms **Marianne Goldwaser**

Global Professional Affairs Manager HOYA

Treatment goal in Myopia Management. Can we reach a 100% treatment effect?

Prof. **Hakan Kaymak,**

Düsseldorf, Germany

FRIDAY: 16:35 - 16:50 RAPID FIRE ON INNOVATIONS

PRESENTING COMPANIES:

COOPERVISION

JOHNSON & JOHNSON

Navigating the Future: Cutting-Edge Tools for Eye Care Professionals' Education

Stephanie Grimaud, Senior Manager, Digital Professional Education & Development, Johnson & Johnson Vision EMEA

Alcon

SATURDAY: 10:00 - 10:20

Contact Lens Discomfort: Inevitable or Manageable?

Prof. **Lyndon Jones**, Waterloo, Canada

A major impediment to the growth of the contact lens market remains the fact that contact lenses induce end-of-day dryness symptoms in some 50% of wearers. This results in poor comfort for the last 2-3 hours of the day in a substantial number of people and is a major driving force behind contact lens dropout, which occurs in some 20-25% of all patients who commence lens wear.

Historically, practitioners have advised patients who develop end-of-day dryness to either remove their lenses earlier or to instill wetting agents directly into the eye when the lenses feel dry. Contact lens manufacturers have long recognized the limitations associated with these approaches and the last few years have seen a number of novel approaches to attempt to improve end-of-day comfort.

This presentation will review an array of modern methods to manage contact lens discomfort and will describe the science behind these approaches.

Johnson&Johnson

SATURDAY: 12:30 - 13:00

From Insight to Innovation: Eye-Inspired Contact Lens Technologies

Ms **Lenni Copper**

Sr. Director, Research & Development, Johnson & Johnson Vision

SATURDAY: 15:20 - 15:35 RAPID FIRE ON INNOVATIONS

PRESENTING COMPANIES:

ALCON See Brilliantly	**Vânia Figueiredo**, Dir. Professional Education and Development Europe, Alcon
BAUSCH & LOMB Understanding Chat GPT's Capabilities in Providing Information on Keratoconus and Contact Lenses	**Yavuz Kemal Arıbaş**, Ankara, Turkey

ECLSO SUPPORTERS

ECLSO thanks all our sponsors for their support at the 2024 congress.

PLATINUM LEVEL

Alcon

BAUSCH + LOMB

HOYA
FOR THE VISIONARIES

Johnson&Johnson

GOLD LEVEL

CooperVision®
Live Brightly®

DEVA

SILVER LEVEL

LCS

Pie International Medical

Zepa Kontaktlens
San.ve Tic.Ltd.Şti.

EUROPEAN CONTACT LENS SOCIETY
OF OPHTHALMOLOGISTS (ECLSO)

www.eclso.eu