



5th International Conference on
Vision Science & Optometry

April 24-25, 2026 | Tokyo, Japan

Venue: Hotel Mystays Premier Narita

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(GMT+9)

Day 1 - April 24, 2026 (Friday)

Meeting Hall: Skry Room 1 (11th Floor)

09:00 - 14:00 Registrations and Badge Collection

09:50 - 10:00 Moderator Introduction & Inviting Keynotes

Keynote Forum

10:00 - 10:25 **Title: Ultrasound-Based Assessment of Early Normal and Abnormal Fetal Eye Development**

Dr. Reuven Achiron, Ron Institute, Israel

10:25 - 10:50 **Title: Little Eyes, Big Impact: Redefining Paediatric Precision Fitting in Infant & toddler Aphakic Contact Lens Rehabilitation - Case discussion**

Mrs. Devakani Suresh Kumar, Sheikh Khalifa Medical City, UAE

10:50 - 11:15 **Title: Results of a Research Study on Retinal Semiology and Pathology**

Dr. B. Ouazzani Chahdi, University Mohammed V Rabat, Morocco

Networking & Refreshment Break 11:15 - 11:30

Plenary Session

11:30 - 11:50 **Title: Prevalence and Gender Distribution of Convergence Insufficiency Among Adolescents with Refractive Errors: A Cross-Sectional Study from an Educational Institution in Lucknow, India**

Dr. Ragni Kumari, Uttar Pradesh University of Medical Sciences, India

11:50 - 12:10 **Title: Efficacy and Safety of Methods in the Control of Pre-Myopia: A Systematic Review**

Ms. Huong Tran Ha, ViVision Kid, Vietnam

12:10 - 12:30 **Title: Effect of Topical Citicoline on Retinal Neurodegeneration and Disease Progression in Mild to Moderate Non-Proliferative Diabetic Retinopathy: A Prospective Randomized Controlled Study**

Dr. Rhizlane Abdi, Regional Hospital of Beni Mellal, Morocco

12:30 - 12:50 **Title: Efficacy and Safety of Low-Level Red Light Therapy in Myopia Control: A Systematic Review**

Ms. Nguyen Nguyet Anh, ViVision Kid, Vietnam

12:50 - 13:10 **Title: An Innovative Technique to Diagnose the Symbblepharon**

Prof. Raj Kumar, School of Allied & Health Sciences, Galgotias University, India

Lunch Break @13:10 - 14:00

14:00 - 14:20 **Title: Congenital Superior Oblique Palsy**

Dr. Simone Volpi, Helios Medica, Mentana, Italy

14:20 - 14:40 **Title: Microvascular Mapping: OCTA in Type 1 Diabetes Mellitus Retinal Assessment**

Dr. Chaitra MC, Sri Devaraj Urs Medical College, Kolar, India

14:40 - 15:00 **Title: AI-Driven Early Detection of Optic-Nerve Damage from Fundus Imaging**

Dr. Mathilda Mandel, HawkVi, Israel

Student Presentations

15:00 - 15:15 **Title: First Dynamic Measurement of the AC/A Relationship During Continuous Vergence Stimulation Using Rotational Prisms**

Ms. Yu-Jung Chen, Program of Electrical and Communications Engineering, Feng Chia University, Taiwan

15:15 - 15:30 **Title: Topographic Analysis of Local OCT Biomarkers Which Predict Progression to Atrophy in Age-Related Macular Degeneration**

Dr. Navid Manafi, South Texas Health System, United States of America

15:30 - 15:45 **Title: Effects of Dynamic Visual Training on Visual Function and Reaction Time in Athletes**

Ms. Yungchi Chuang, Program of Electrical and Communications Engineering, Feng Chia University, Taiwan

Networking & Refreshment Break 15:45 - 16:00

16:00 - 16:20
Title: Three Different Approaches to SFIOL in Penetrating Keratoplasty: Managing Complex Anterior Segment Cases
Dr. Mazaya Mahmud, Universiti Putra, Malaysia

16:20 - 16:45 **Poster Presentations**

Title: Postoperative efficacy of bilateral Tecnis Eyhance IOL implantation on visual acuity outcomes at all visual distances - Clinical series

Dr. Nejra Hodzic, Blue (Plava) Medical Group, Tuzla, Bosnia and Herzegovina

Title: Streamlining Cataract Surgery: Functional and Safety Outcomes of Supracapsular Versus Vertical Chop in a High-Frequency Operating Environment

Dr. Melita Adilovic, Polyclinic with Day Hospital Dobojski jug, Bosnia and Herzegovina

16:45 - 17:00 **Certificate Presentations & End of Day 1**



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Keynote Forum

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Dr. Reuven Achiron
Tel Aviv University, Israel

Ultrasound-Based Assessment of Early Normal and Abnormal Fetal Eye Development

Background: Early identification of structural ocular abnormalities is essential for understanding congenital eye disorders and guiding perinatal management. Advances in prenatal imaging now allow detailed visualization of fetal orbital structures.

Methods: High-resolution prenatal ultrasound was used to capture axial fetal head views with clear delineation of the globes, lenses, and periorbital region. Imaging findings were compared with standard ocular anatomy references to assess symmetry, size, and positioning of ocular structures. Parameters including globe diameter, lens echogenicity, and orbital spacing were evaluated to detect potential deviations from expected developmental patterns.

Results: Ultrasound imaging provided consistent visualisation of both fetal globes, demonstrating normal symmetry and well-defined lens structures. No structural asymmetry, abnormal echogenicity, or disproportionate orbital spacing was observed. Integration with anatomical schematics enabled reliable cross-validation of key ocular components such as the cornea, sclera, and optic nerve entry point.

Conclusion: Prenatal ultrasound allows accurate, non-invasive assessment of early fetal ocular development. Standardized comparison with anatomical benchmarks supports early detection of congenital anomalies and enhances the clinical confidence of perinatal ophthalmic evaluation. This approach may serve as a foundation for future AI-assisted fetal eye screening tools.

Biography:

Previous Head of the Diagnostic Ultrasound Unit at the Division of Obstetrics and Gynaecology, Sheba Medical Centre, Israel. He is also a full Professor of Ob/Gyn at Tel Aviv University School of Medicine. Prof. Achiron is the author of more than 300 original articles in the field of ultrasound imaging in Ob/Gyn. He is a pioneer in the diagnosis of fetal anomalies in early gestation and particularly those related to cardiovascular malformations. He lectures at national and international scientific meetings/congresses. He is one of the founders of the International Society of Ultrasound in Obstetrics and Gynaecology. His research interests are very early diagnosis at the first trimester, the application of EXOM technology to daily practice, and the introduction of Ultrasound in delivery.

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Mrs. Devakani Suresh Kumar
Sheikh Khalifa Medical City, UAE

Little Eyes, Big Impact: Redefining Paediatric Precision Fitting in Infant & Toddler Aphakic Contact Lens Rehabilitation - Case discussion

Background/objectives: Infantile aphakia is the absence of the eye's natural lens in a baby, either present at birth or following surgery for a cloudy lens. This condition poses a significant challenge during the critical period of visual development, where timely optical correction is essential to prevent amblyopia and support normal visual maturation. This abstract highlights the clinical rationale, fitting strategies, and outcomes of using contact lenses as the primary modality for visual rehabilitation in infants with aphakia, along with case discussion.

Design and methods: Review the importance of fitting children in contact lenses. Understand the indications for pediatric contact lens fitting. Learn various contact lens options for medically indicated pediatric contact lenses. A narrative overview of current evidence, clinical protocols, and practical considerations will be discussed, focusing on lens selection, materials, fitting techniques, follow-up care, and the role of parental involvement. Case discussion of a 4-month-old unilateral Aphakia. Getting it right – Lens, Age and Need

Results: Studies consistently demonstrate that contact lenses provide superior optical clarity, improved visual outcomes, and greater neurovisual stimulation during the critical period of visual development compared to spectacle correction. Advances in lens materials have enhanced oxygen transmissibility, reduced complications, and improved long-term tolerance. Early intervention combined with structured follow-up significantly reduces the risk of deprivation amblyopia and supports more predictable visual outcomes.

Conclusion: Contact lenses remain the gold standard for managing aphakia in infants, offering a safe, effective, and adaptable solution for restoring early visual function. Successful outcomes depend heavily on precise fitting, vigilant monitoring, and strong caregiver engagement. As technology evolves, emerging lens designs and customization options promise even better stability, comfort, and developmental benefits for this vulnerable population.

Biography:

Mrs. Devakani Suresh is a Clinical Optometrist at Sheikh Khalifa Medical City, Abu Dhabi, with over two decades of experience in clinical and academic optometry. Her clinical interests include speciality contact lenses, low vision rehabilitation, and vision care for People of Determination across all age groups. She develops individualized treatment plans tailored to each patient's specific needs, with a special focus on those who are severely visually impaired, ultimately enhancing their functional vision and overall quality of life. She is an active speaker at national and international conferences and has specialized training in assessing students with Cerebral Visual Impairment (CVI). Passionate about community eye care, she leads vision screening initiatives, facilitates free spectacles, and coordinates referrals for subsidized eye surgeries for underprivileged patients, while also teaching and training ophthalmology residents. She is currently pursuing a PhD and a Fellowship in Vision Therapy (ASCO, UK). She is an active member of the Emirates Society of Ophthalmology, the World Society of Pediatric Ophthalmology and Strabismus, the World Council of Optometry, and SPECS 2030. She also serves as Secretary of the United Optometrists Forum, UAE.

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B. Ouazzani Chahdi
Professor of Ophthalmology, University
Mohammed V, Rabat, Morocco

Results of a research study on retinal semiology and pathology

Introduction: Analysis of the various retinal structures enables a clinical diagnosis to be made before resorting to paraclinical investigations.

Purpose: The objective of the study is to analyse the epidemiological profile of the Moroccan ophthalmological pathology, to reveal the new clinical signs in ocular and general diseases, and to extend the field of interest of ophthalmoscopy in internal medicine using an algorithmic diagnostic tree in the medical examination.

Material and methods: This is a prospective study of 500 patients divided into 3 cohorts: Cohort A, 115 patients recruited through the ophthalmic consultation. Cohort B consisted of 122 patients referred by other medico-surgical specialities for a fundus examination. Cohort C, 263 healthy volunteers. Each patient was entitled to a clinical record card including his group type, identity, history, risk factors, and findings of the ophthalmologic examination. Finally, retinal photography is taken for a detailed analytical study. All data collected was entered into a computer operating grid from the Access database software.

Results: The results were analyzed using a computerised database to compare Moroccan ophthalmological pathology with data from the international literature for cohort A, to search for new retinal signs of ocular and general diseases added to the basal nucleus for cohort B, and to identify unknown retinal signs for cohort C.

Comments: The information collected in the three groups is to be appreciated as an enrichment of ophthalmologic semiology. The analytical study has resulted in the fact that the new clinical signs found in the fundus for patients allocated to cohort B have the same pathogenesis as the primary disease. Concerning patients in cohort C, certain vascular anomalies are considered physiological variants of unknown causes, but the search for a quiescent vascular pathology is imperative.

Conclusion: This research study insists on highlighting the semiology of fundus lesions exams to help clinical diagnosis. The fundus examination offers a direct visualization of the various elements of the retina, thus allowing the search for retinal clinical signs that help in the diagnosis of ocular or general diseases.

Biography:

Dr Bahia Ouazzani Chahdi is an ophthalmologist with 37 years of experience. She graduated as a medical doctor from the Faculty of Medicine in Rabat in 1986 and became a professor of higher education at Mohammed V University in 1999. She was head of the Ophthalmology Department at Sheikh Zayed Hospital (1999-2012) before returning to the Ophthalmology Department at the Hospital of Specialities. Currently, Dr. Ouazzani is focused on research and serves as the director of a university diploma program at the International University of Rabat.

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Plenary Sessions

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Dr. Ragni Kumari, Uttar Pradesh University of Medical Sciences, India

Title: Efficacy and Safety of Methods in the Control of Pre-Myopia: A Systematic Review

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Prevalence and Gender Distribution of Convergence Insufficiency Among Adolescents with Refractive Errors: A Cross-Sectional Study from an Educational Institution in Lucknow, India

Dr. Ragni Kumari

Assistant Professor & Convenor, Department of Optometry UPUMS, India

Background: Adolescents are increasingly exposed to prolonged near-vision demands due to academic activities and digital device use, which may exacerbate binocular vision anomalies. Convergence insufficiency (CI) is a common non-strabismic binocular vision disorder in this age group and can significantly impair reading efficiency, visual comfort, and academic performance. Identifying CI among adolescents with refractive errors is essential for early diagnosis and targeted intervention.

Methods: A cross-sectional institutional study was conducted among 1,570 adolescents aged 11–17 years at a single educational institution in Lucknow, India. Comprehensive visual examinations included distance and near visual acuity, objective and subjective refraction, cover test at distance and near, near point of convergence (NPC), and near positive fusional vergence (PFV). CI was diagnosed when all three criteria were present: receded NPC (>10 cm), reduced PFV at near (<15 prism diopters base-out), and greater exophoria at near than at distance. Associations between CI, gender, and refractive error type were analyzed using the chi-square test, with effect size assessed using Cramer's V.

Outcomes: The overall prevalence of CI was 55.0% (864/1,570). Females showed a higher prevalence (59.5%) compared to males (49.4%). CI prevalence was highest among myopic adolescents (59.4%), followed by hyperopic (52.1%) and astigmatic (51.9%) participants. The association between refractive error type and CI was not statistically significant ($\chi^2 = 5.13$, $p = 0.077$), with a very weak effect size (Cramer's V = 0.04).

Conclusion: A high prevalence of convergence insufficiency was observed in this institutional adolescent population, with a greater burden among females. Although CI appeared more frequent in myopic students, refractive error type was not significantly associated with CI. These findings highlight the importance of incorporating binocular vision assessment into routine adolescent vision screening programs, particularly in educational settings.

Biography:

Dr. Ragni Kumari is an Assistant Professor and Head of the Department of Optometry at Uttar Pradesh University of Medical Sciences (UPUMS), with over 17 years of experience in the fields of optometry, public health, clinical education, and community outreach. She holds a Ph.D. in Public Health and is a Certified Professional in Medical Health Professions Education. Dr. Kumari has authored more than 135 research papers and serves as a reviewer and editorial board member for several prestigious journals, including PLOS Global Public Health, Cureus, Asian Journal of Pediatric Research, as well as publications under BPI, RPC, and Science Domain International. In addition to her academic roles, she is the Managing Director of Diya Foundation, where she leads initiatives aimed at providing eye care services to underserved communities. Her tireless work in public health has earned her numerous accolades, including the International Women Researcher Award (2021) and the Most Determined Researcher Award (2025). She was also honored with the Best Faculty Award on the foundation day of UPUMS and the Best Speaker Award at a conference focused on underprivileged children. Dr. Kumari's research and professional focus lie in bridging clinical practice with academic excellence and advancing public health initiatives, particularly in the field of eye care, within India.

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Efficacy and Safety of Methods in the Control of Pre-Myopia: A Systematic Review

Dr. Huong Tran Ha

VIVISION KID - Pediatric Eye Centre, Vietnam

Background: Pre-myopia has become an increasingly important target for early intervention as global myopia prevalence continues to rise and younger children are now entering the onset trajectory earlier than ever. Several strategies—including low-dose atropine, myopia control spectacles, and low-level red-light therapy (LLRL)—have recently been explored for their potential to prevent or delay the transition from pre-myopia to myopia. However, evidence on their comparative efficacy and safety remains limited.

Methods: A systematic review was conducted following PRISMA 2020 guidelines. Comprehensive searches of PubMed, Scopus, Web of Science, and EBSCO were performed for articles published from 2020 to June 2025. Eligible studies included children aged 4–12 years classified as pre-myopic according to the IMI definition (spherical equivalent +0.75D to –0.50D). Randomized controlled trials evaluating low-dose atropine (0.01–0.05%), myopia control spectacle lenses (HAL/DIMS), or low-level red-light therapy were included. Data extracted comprised spherical equivalent refraction (SER), axial length (AL), incidence of myopia, follow-up duration, sample size, and safety outcomes. Risk of bias was assessed using Cochrane RoB 2.

Results: Of 1,921 records screened, 6 randomized controlled trials met inclusion criteria ($n > 350$; follow-up 12–24 months). All three interventions: low-dose atropine, highly aspherical lenses, and LLRL demonstrated meaningful reductions in axial elongation (+0.12 to +0.30 mm vs. +0.21 to +0.48 mm in controls) and myopic shift (–0.60D to +0.13D vs. –1.75D to +0.43D in controls). The strongest protective effect was observed in the LLRL trial, which reported up to a 54.1% reduction in incident myopia within 12 months among children with pre-myopia. No persistent or major adverse events were reported across all studies.

Conclusions: Current evidence indicates that low-dose atropine, myopia control spectacle lenses, and low-level red-light therapy are all effective and safe interventions for delaying the onset of myopia in pre-myopic children. While results are encouraging, larger double-masked randomized controlled trials with longer follow-up periods are needed to confirm long-term efficacy, evaluate comparative effectiveness, and establish optimized intervention strategies.

Biography:

Dr. Huong Tran Ha graduated in Optometry from Hanoi Medical University in 2024 and has been working as a Pediatric Optometry and Myopia Management Specialist at ViVision Kid Eye Clinic (2024–Present). She has been a Clinic Manager at ViVision Kid Eye Clinic since 2024. Member of the Asia Optometric Congress (AOC) and the International Myopia Institute (IMI).

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Effect of Topical Citicoline on Retinal Neurodegeneration and Disease Progression in Mild to Moderate Non-Proliferative Diabetic Retinopathy: A Prospective Randomized Controlled Study

Dr. Rhizlane Abdi

Department of Ophthalmology, Regional Hospital of Beni Mellal, Morocco

Diabetic retinopathy (DR) is increasingly recognized as a neurovascular disease in which retinal neurodegeneration precedes and contributes to microvascular damage. Despite optimal metabolic control, early non-proliferative diabetic retinopathy (NPDR) may continue to progress, and current treatments are mainly reserved for advanced stages. This highlights the need for safe, non-invasive strategies targeting early neuroretinal damage. This prospective, randomized, controlled study evaluated the effect of topical citicoline 2% on retinal neurodegeneration and disease progression in patients with mild to moderate NPDR. A total of 200 eyes from 100 diabetic patients were randomized into two groups: a citicoline group (one drop three times daily for 12 months) and a control group without treatment. All patients underwent best-corrected visual acuity (ETDRS), dilated fundus examination, and spectral-domain OCT assessment of ganglion cell complex (GCC), retinal nerve fiber layer (RNFL), and central macular thickness (CMT) at baseline, 6 months, and 12 months. At 12 months, visual acuity remained stable in both groups. However, GCC and RNFL thinning were significantly reduced in the citicoline group compared with controls ($p < 0.001$). NPDR progression occurred in 7% of treated eyes versus 29% of controls ($p = 0.002$). The neuroprotective effect remained significant after adjustment for age, diabetes duration, HbA1c, and baseline disease stage. No serious adverse events were reported. Topical citicoline significantly slowed neuroretinal thinning and reduced early NPDR progression, supporting its role as a promising adjunctive neuroprotective therapy in early diabetic retinopathy.

Biography:

Dr. Rhizlane Abdi is an assistant professor based in Morocco at the Medical University of Benimellal. Her work focuses on diabetic retinopathy, retinal neurodegeneration, and innovative therapeutic strategies aimed at early disease intervention. She has participated in several national and international scientific meetings and is actively involved in clinical research projects exploring neuroprotective approaches in retinal disorders. Dr. Abdi is committed to advancing evidence-based ophthalmology and improving visual outcomes in patients with chronic retinal diseases.

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Efficacy and Safety of Low-Level Red-Light Therapy in Myopia Control: A Systematic Review

Ms. Khac Quy Nguyen

VIVISION KID-Pediatric Eye Center, Vietnam

Abstract Background: Myopia prevalence is increasing globally, especially among children, and current control strategies such as low-dose atropine, orthokeratology, and myopia control spectacles have notable limitations. Low-level red light therapy (LLRL) has recently emerged as a potential non-invasive intervention.

Methods: A systematic review was conducted following PRISMA 2020 guidelines. Comprehensive searches of PubMed, CINAHL, Scopus, and ScienceDirect were performed up to June 2025. Eligible studies included children aged 6–18 years with myopia $\leq -0.50D$ receiving LLRL (650 nm, 3 min/session, twice daily) compared with single-vision spectacle controls. Data on spherical equivalent refraction (SER), axial length (AXL), study design, sample size, and safety were extracted. Risk of bias was assessed using Cochrane RoB 2.

Results: Of 2,624 records screened, 10 randomized controlled trials met inclusion criteria ($n > 1,400$ participants, follow-up 6–24 months). Across studies, LLRL consistently slowed axial elongation (-0.12 to $+0.16$ mm vs. $+0.22$ to $+0.64$ mm in controls) and reduced myopia progression ($-0.31D$ to $+0.26D$ vs. $-0.22D$ to $-1.24D$ in controls). No significant adverse events were reported.

Conclusions: Current evidence suggests that LLRL is a promising, safe, and non-invasive intervention for slowing myopia progression in children and adolescents. While preliminary results are encouraging, larger and longer-term double-masked RCTs are needed to confirm its long-term efficacy, safety, and comparative effectiveness relative to established myopia control strategies.

Biography:

Ms. Khac Quy Nguyen graduated in Optometry from Hanoi Medical University in 2021. She has been working as a Pediatric Optometry and Myopia Management Specialist at ViVision Kid Eye Clinic (2021–Present). Clinic Manager at ViVision Kid Eye Clinic since 2024. She is a Member of the Asia Optometric Congress (AOC), the World Society of Paediatric Ophthalmology and Strabismus (WSPOS), and the International Myopia Institute (IMI).

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An Innovative Technique to Diagnose the Symblepharon

Prof. Raj Kumar

School of Allied & Health Sciences, Galgotias University, India

An important prerequisite for evaluating the efficacy of anti-scarring treatments is the impartial calculation of scarring, knowledge of regular fornix structure, impartial calculation of the worsening of conjunctival cicatrization, and information on average conjunctival fornix depth standards. Now that we have the basic scarring complaint, ocular mucous membrane pemphigoid, we need to be aware of the circumstances that can lead to the growth of scarring even when inflammation appears to be under clinical control. A non-invasive procedure was designed to quantify the degree of symblepharon in various locations and identify the symblepharon in the ophthalmic eye using an eye drop of radiopaque contrast dye. The radiograph clearly shows the limits of the fornix, which are created by the contrast (radiopaque topical dye) eye drop. When using a CT scan to identify symblepharon, the radiographic image will aid in the diagnosis. An impartial amount of conjunctival fornix depth, by knowledge of the estimated usual range of ideals, allows early documentation of conjunctival fornix reduction (Foster stage II), preferably earlier than the expansion of the symblepharon (Foster stage III). This is a unique essential pursuit in clinical settings for improved conjunctival shrinkage or the development of symblepharon. However, this invention presents a revolutionary technique for measuring the depth of the fornix in the ophthalmic eye. It does this by using a computed tomography (CT) scan to take a radiographic image of the fornix after an eye drop containing contrast (radiopaque topical dye) is applied. In addition to measuring the fornix depth on radiographs, it helps assess Symblepharon.

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Case Report: Congenital Superior Oblique Palsy

Dr. Simone Volpi

Orthoptist, Italy

Congenital paralysis of the superior oblique muscle, also known as congenital paralysis of the fourth cranial nerve or trochlear nerve, is a rare condition present from birth, caused by dysfunction of the superior oblique muscle of the eye. Typical symptoms include diplopia (double vision), especially when looking down and toward the nose, and a characteristic tilt of the head (stiff neck) on the opposite side of the affected eye to compensate for the misalignment. Early diagnosis is essential and can lead to treatments such as eye exercises, prismatic lenses or surgery. In the clinical case reported here, a 50-year-old female patient was evaluated with a history of ocular torticollis for about 2 years associated with diplopia and occasional asthenopia. The patient was in good general health, was not taking any medication, and had no abnormalities in the fundus. Binocular visual acuity was 10/10 with her lenses (mild hyperopia). The patient in question had never undergone orthoptic assessments during childhood and had never had visual disturbances of this type during adolescence. The orthoptic assessment revealed the presence of an abnormal head position, associated with marked hypofunction of the superior oblique muscle of the right eye. The patient presented a primary deviation angle greater than 20 prismatic diopters and a positive Head Tilt Test on the right shoulder, with a consequent increase in deviation of approximately 35 prismatic diopters. Both motor and fusional convergence were good, and she had no difficulty reading or writing. A subsequent Hess test was performed to assess the degree of hypofunction of the superior oblique muscle and to confirm ocular paralysis (attached*). Given the large angle of deviation, it was not possible to proceed with correction using prismatic lenses, and the patient was advised to undergo surgical treatment to reduce the abnormal head position.

Biography:

Orthoptist in the Province of Rome, 31 years old, specialising in the assessment and rehabilitation of binocular vision disorders and ocular motility. I deal with visual prevention in children, treatment, and rehabilitation of strabismus, amblyopia, and other binocular vision disorders (convergence insufficiency, diplopia, asthenopia). Orthoptic visuomotor training and visual enhancement in children with specific learning disorder, dyspraxia, ADHD, and genetic syndromes. Extensive experience in the assessment of adult patients with diplopia and CNS disorders (hemianopia, Parkinson's disease, Parkinsonism, stroke, and multiple sclerosis). Excellent knowledge and practical skills in ophthalmological semeiotics: OCT, Hess screen, manual and computerised perimetry, corneal topography, pachymetry, in vivo confocal microscopy, fluorescein angiography, microperimetry. Collaboration with the ophthalmologist in performing instrumental ophthalmological diagnostic tests and preoperative assessments for strabismus and diplopia surgery

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Microvascular Mapping: OCTA in Type 1 Diabetes Mellitus Retinal Assessment

Dr. Chaitra MC

Department of Ophthalmology, Sri Devaraj Urs Medical College, Kolar

Purpose: To assess early microvascular changes in the macula and optic disc using OCTA in children with Type 1 Diabetes Mellitus (T1DM) without clinical signs of Diabetic Retinopathy (DR), and to compare findings with age-matched healthy controls.

Methods: Each participant will undergo a comprehensive ophthalmic evaluation and OCTA imaging using CIRRUS HD OCT 5000. Parameters assessed will include superficial and deep capillary plexus vessel density, foveal avascular zone (FAZ) size, and radial peripapillary capillary density.

Results: OCTA revealed a significant reduction in superficial vascular density (SVD) in the parafoveal region among T1DM subjects (mean SVD: $48.6\% \pm 2.3$) compared to controls (mean SVD: $51.2\% \pm 2.8$, $p < 0.01$). The foveal avascular zone (FAZ) area was enlarged in the T1DM group (mean FAZ: 0.35 mm^2 vs. 0.29 mm^2 , $p = 0.02$). Additionally, peripapillary capillary density and RNFL thickness were found to be slightly reduced in T1DM children. These microvascular changes showed a significant correlation with duration of diabetes, higher HbA1c levels, and pubertal status.

Conclusion: OCTA can detect early, subclinical retinal and optic disc vascular changes in pediatric T1DM patients. These findings may facilitate early screening and risk stratification before clinical signs of diabetic retinopathy appear.

Biography:

Dr. Chaitra M. C, Professor in the Department of Ophthalmology at SDUMC, Kolar, with over 14 years of distinguished experience in comprehensive ophthalmic care, teaching, and research. I have completed an MS in Ophthalmology and further enhanced my academic portfolio with a Postgraduate Diploma in Medico-Legal Systems (PGDMLS) and a PGDQMHHO in Quality Management of Hospital and Healthcare Organizations from Symbiosis University, Pune. I am also a Member of the National Academy of Medical Sciences (MNAMS). I have contributed extensively to scientific literature, with 45+ publications in indexed journals, and is actively involved in academic, clinical, and administrative responsibilities. My areas of interest include cataract, cornea, ocular trauma, and medical education.

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AI-Driven Early Detection of Optic-Nerve Damage from Fundus Imaging

Dr. Mathilda Mandel

HawkVi, Israel

Background: Early detection of optic-nerve damage remains a major global challenge in primary-care and optometry settings where access to OCT is limited. HawkVi is a novel cloud-based artificial intelligence (AI) platform designed to analyse standard fundus photographs and provide automated detection of early optic-nerve damage.

Methods: We trained a convolutional neural network on a large dataset of fundus images representing normal eyes with various patterns of optic nerve damage. Cloud-based inference was applied to enable image upload in community optometry and eye clinic. Validation was performed on an independent dataset. Metrics included AUC, sensitivity, specificity, and processing time.

Results: HawkVi demonstrated high diagnostic performance for early optic-nerve damage, with strong sensitivity and specificity across all validation sets. The model remained stable and reliable across various fundus-camera systems. Image processing was rapid, enabling automated optic-disc segmentation and real-time analysis.

Conclusions: HawkVi delivers fast, accurate, device-agnostic AI interpretation of fundus images, supporting scalable early detection of optic-nerve damage in optometry.

Biography:

Mandel Benado Mathilda, MD, MHA, is a specialist in paediatrics, pediatric hematology–oncology, and adult haematology, with extensive experience in clinical leadership and health-system management. She has served as a lecturer at a medical school. Dr. Mandel previously directed the Blood Bank and Laboratory Division at Sheba Medical Centre and participated in developing an AI-based information system for computerised blood-bank operations. She also served as Chair of the Institutional Tender Committee for Construction, Procurement, and Computing at Sheba, where she led strategic institutional decisions and ensured regulatory and professional standards. Dr. Mandel is one of the founders of an AI-driven medical startup focused on imaging-based diagnostic innovation.

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April 24-25, 2026 | Tokyo, Japan

First Dynamic Measurement of the AC/A Relationship During Continuous Vergence Stimulation Using Rotational Prisms

Ms. Yu-Jung Chen

Feng Chia University, Taiwan

This study presents the first dynamic measurement of the AC/A relationship using high-temporal resolution photorefraction during continuous vergence stimulation. We employed a dynamic photorefraction system to investigate accommodation-vergence coordination under rotational prism visual stimulation, aiming to characterize real-time binocular responses during continuous disparity loading. While accommodation and vergence are classically described by static AC/A and CA/C ratios, these conventional endpoint measures fail to capture the temporal dynamics and stability of binocular coupling under rapidly changing visual demands. To address this limitation, Automatic Dual Rotational Risley Prisms (ADRRPs) were integrated with the PowerRef 3 system (50–100 Hz) to provide continuous, velocity-controlled disparity stimulation, enabling real-time tracking of dynamic AC/A behaviour. This approach allows direct observation of gain modulation, response latency, coupling stability, speed sensitivity, and coupling breakdown—features that have not been accessible with traditional static testing paradigms. Sixty healthy young adults (18–30 years) will be recruited and stratified into two groups based on near phoria ($\leq 4 \Delta$ exophoria vs. $> 4 \Delta$ exophoria). Participants will undergo dynamic rotational prism testing at three stimulus velocities (0.5, 1.0, and 2.0 Δ /sec) before and after a short-term visual training session to examine group differences and immediate training effects on dynamic accommodation-vergence coordination. Time-series analysis will include signal preprocessing, extraction of refractive and ocular alignment responses, computation of dynamic metrics, and identification of breakdown points. Statistical evaluation will be performed using repeated-measures ANOVA and linear mixed-effects models. By introducing dynamic AC/A assessment, this study advances the understanding of binocular control beyond static clinical indices such as NPC and PFV. The findings may inform individualized rehabilitation strategies for convergence and accommodative insufficiency, enhance evaluation of dynamic visual training, and improve visual comfort assessment in VR/AR environments.

Biography:

Yu-Jung Cheng is a fifth-year PhD student in the Ph.D. Program of Electrical and Communications Engineering at Feng Chia University, Taichung, Taiwan. She also serves as a faculty member at Jen-Teh Junior College of Medicine, Nursing, and Management, where she is involved in optometry education and clinical instruction. Her primary areas of expertise include optometry, contact lenses, and binocular vision, with a particular focus on the application of quantitative and engineering-based approaches to visual function assessment. She is a licensed optometrist with clinical experience in comprehensive eye examinations, refractive evaluation, contact lens fitting, and binocular vision assessment. Her interdisciplinary background integrates optical engineering and clinical optometry, supporting both applied research and evidence-based teaching in vision science.

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Topographic Analysis of Local OCT Biomarkers that Predict Progression to Atrophy in Age-Related Macular Degeneration

Dr. Navid Manafi

South Texas Health System, USA

Purpose: To define optical coherence tomography (OCT) biomarkers that precede the development of complete retinal pigment epithelium and outer retinal atrophy (cRORA) at that location in eyes with age-related macular degeneration (AMD).

Methods: In this retrospective case-control study, patients with dry AMD who had evidence of cRORA and OCT data available for 4 years (48 ± 4 months) before the first visit with evidence of cRORA were included. The visit 4 years before the development of cRORA was defined as the baseline visit, and the region on the OCT B-scans of future cRORA development was termed the case region. A region in the same eye at the same distance from the foveal centre as the case region that did not progress to cRORA was selected as the control region. OCT B-scans at the baseline visit through both the case and control regions were evaluated for the presence of soft and cuticular drusen, drusen with hyporeflective cores (hcD), drusenoid pigment epithelial detachments (PED), subretinal drusenoid deposits (SDD), thick and thin double-layer signs (DLS), intraretinal hyperreflective foci (IHRF), and acquired vitelliform lesions (AVL).

Results: A total of 57 eyes of 41 patients with dry AMD and evidence of cRORA were included. Mean time from the baseline visit to the first visit with cRORA was 44.7, 6.5 months. The presence of soft drusen, drusenoid PED, AVL, thin DLS, and IHRF at the baseline visit was associated with a significantly increased risk of cRORA at that location. Multivariable logistic regression revealed that IHRF (OR, 8.559; $p < 0.001$), drusenoid PED (OR, 7.148; $p = 0.001$), and a thin DLS (OR, 3.483; $p = 0.021$) were independent predictors of the development of cRORA at that location.

Conclusions: IHRF, drusenoid PED, and thin DLS are all local risk factors for the development of cRORA at that same location. These findings would support the inclusion of these features within a more granular staging system, defining specific steps in the progression from early AMD to atrophy.

Biography:

Navid Manafi, MD, is a physician-scientist and Transitional Year resident at South Texas Health System (McAllen, Texas) with a primary career focus in ophthalmology. He is an accomplished retina researcher with more than 70 peer-reviewed publications covering retinitis pigmentosa, age-related macular degeneration, diabetic retinopathy, and ocular imaging biomarkers. His work has been widely cited by international organisations and national health agencies, reflecting a strong track record of high-impact, clinically relevant research. Dr. Manafi completed postdoctoral research training at the Doheny Eye Institute (UCLA) under the mentorship of Dr. Srinivas Sadda, where he contributed to advanced retinal imaging and disease-progression studies and initiated multiple ongoing projects in inherited retinal diseases and multimodal OCT/FAF analysis.

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Effects of Dynamic Visual Training on Visual Function and Reaction Time in Athletes

Ms. Yung-Chi Chuang

Feng Chia University, Taiwan

Athletes in high-speed sports must rapidly process visual information to support accurate spatial judgment and timely motor responses. Such performance relies on multiple visual functions, including accommodation, vergence, binocular fusion, stereopsis, dynamic tracking, and visual reaction speed. Despite their importance, visual functions are seldom integrated into systematic athletic training, and evidence regarding their long-term trainability and functional transfer remains limited. Preliminary observations indicate that a single session of dynamic disparity stimulation using Automatic Dual Rotational Risley Prisms (ADRRPs) can immediately enhance vergence and accommodative facility and reduce visual reaction time, reflecting the high responsiveness of the visual system to dynamic visual input. However, deeper oculomotor functions—such as near point of convergence, positive fusional vergence, and accommodative amplitude—exhibit minimal short-term change, suggesting that sustained training may be required to induce meaningful adaptation. This study employs a randomized, three-arm parallel design involving 60 trained athletes from fast-paced sports. Participants are assigned to a dynamic disparity visual training group, a traditional convergence training group, or a regular-training control group, and complete a 12-week intervention. Comprehensive assessments of binocular visual function, visual reaction speed, and dynamic visual performance are conducted before and after training. Data are analyzed using repeated-measures ANOVA, ANCOVA, and regression modeling to evaluate training effects and explore relationships between visual function improvements and reaction-time performance. This work aims to clarify the long-term plasticity of binocular visual functions following dynamic visual training and to elucidate how enhanced visual control may contribute to faster perceptual-motor responses in athletes. The findings are expected to support evidence-based visual training strategies and promote the integration of advanced visual training technologies into athletic performance optimization.

Biography:

Yung-Chi Chuang is a first-year Ph.D. student in the Ph.D. Program of Electrical and Communications Engineering at Feng Chia University, Taichung, Taiwan. Her primary academic focus is optometry, with particular interests in binocular vision assessment and clinical visual function evaluation. She has participated in Taiwan's first large-scale school-based screening study on convergence insufficiency, contributing to data collection, visual function assessment, and epidemiological analysis. Her research interests lie in the integration of optometric principles with quantitative and technology-assisted approaches to visual assessment. Through her involvement in population-based vision screening and early-stage doctoral training, she is developing a strong foundation in evidence-based optometry and vision science research.

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Three Different Approaches to SFIOL in Penetrating Keratoplasty: Managing Complex Anterior Segment Cases

Dr. Mazaya Mahmud
Universiti Putra Malaysia

Lam Chenshen
Mae-Lynn Bastion, Wan Haslina Wan Abdul Halim

This talk highlights three distinct surgical approaches to scleral-fixated intraocular lens (SFIOL) implantation in combination with penetrating keratoplasty (PK), tailored to complex anterior segment scenarios. Rather than focusing solely on a video presentation, this session emphasises surgical decision-making, planning, and adaptation based on individual pathology, with intraoperative video clips used to support key learning points. The first approach demonstrates SFIOL implantation under a temporary keratoprosthesis in a single functional eye with prior trauma, requiring precise coordination during combined vitreoretinal and anterior segment surgery. The second approach addresses implantation through a hazy cornea in the presence of a glaucoma drainage device, combined with ocular surface reconstruction. The third approach illustrates an open-sky SFIOL technique during PK in a relatively controlled setting. These cases underscore the versatility of SFIOL techniques and the importance of individualised strategies to achieve stable IOL positioning and favourable graft outcomes in challenging clinical situations.

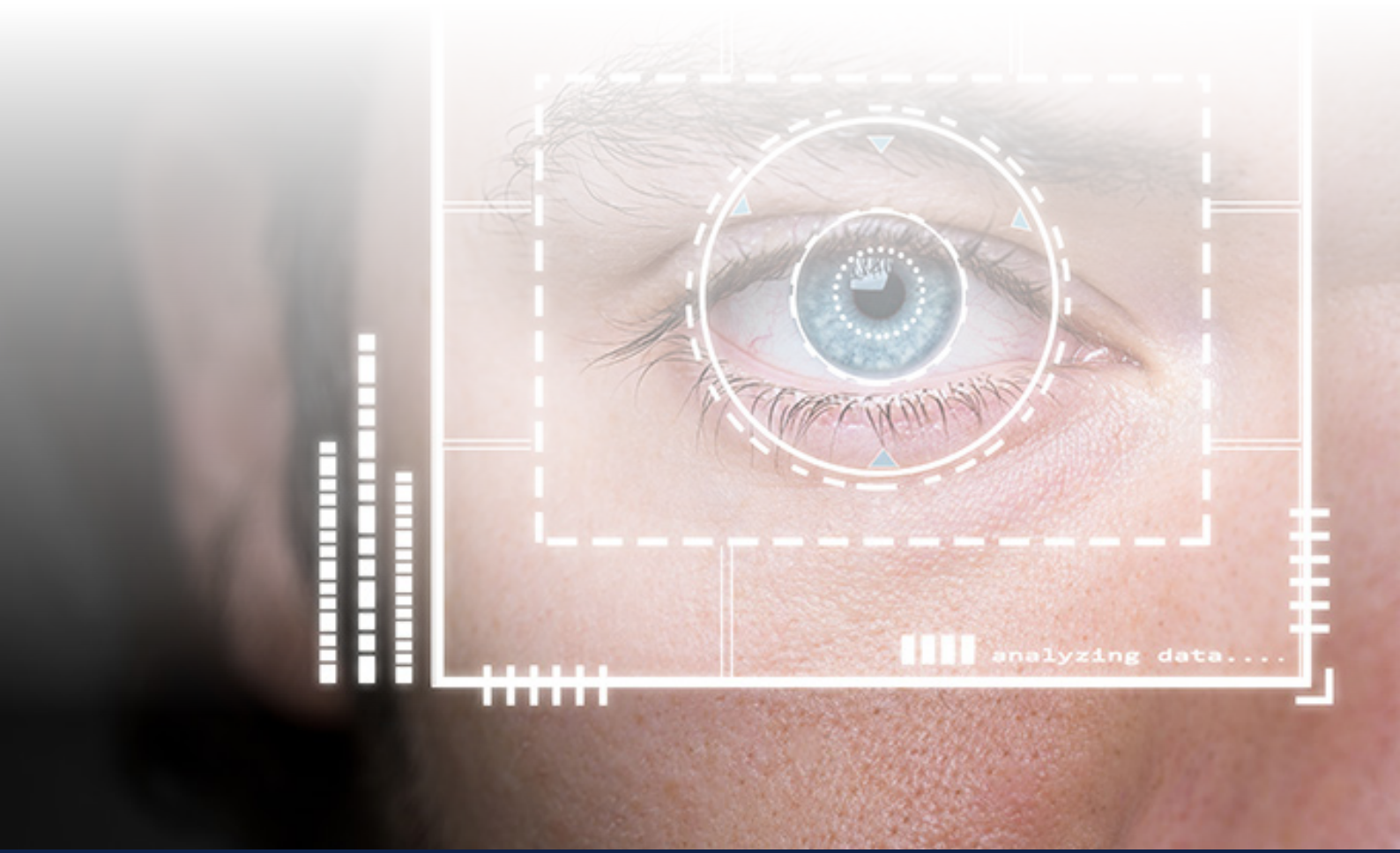
Biography:

Dr. Mazaya Mahmud is an Ophthalmologist and Medical Lecturer at Universiti Putra Malaysia. She completed her specialist training in Ophthalmology at Universiti Kebangsaan Malaysia in 2016 and followed by a Cornea and Anterior Segment Fellowship at UKM. Her clinical practice focuses on corneal diseases, ocular surface disorders, anterior segment surgery, and corneal transplantation. She has a growing research interest, with ongoing work in microbial keratitis, corneal graft outcomes, and recurrent pterygium management. Dr. Mazaya is actively involved in undergraduate teaching, contributing to clinical training and examination preparation for medical students. She also serves as the postgraduate coordinator at Universiti Putra Malaysia, participating in the development of a Master's programme curriculum in Ophthalmology. She is a member of the Malaysian Ophthalmological Society and the Asia Cornea Society, and is committed to continuous learning and delivering compassionate, patient-centred care.



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Poster

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Postoperative Efficacy of Bilateral Tecnis Eyhance IOL Implantation on Visual Acuity Outcomes at all Visual Distances - Clinical Series

Dr. Nejra Hodžić

MD, PhD, Department of Ophthalmology at Blue (Plava) Medical Group, Bosnia and Herzegovina

Zlatko Mušanović

Adilović Melita, Čabrić Arnes, Emir Čabrić

Introduction: Intraocular lens (IOL) technology has grown in recent years, along with patients' expectations, which implies that cataract surgery is increasingly progressing into refractive surgery. The TECNIS Eyhance IOL is a monofocal intraocular lens designed to improve vision, particularly at intermediate distances, beyond what standard monofocal lenses offer. It achieves this extended depth of focus through a unique anterior aspheric surface that gradually increases refractive power from the lens periphery to the centre.

Objective: To present the outcome of bilateral TECNIS Eyhance IOL implantation at all three visual distances.

Materials and Methods: Retrospective analysis of visual acuity findings at all three visual distances: distance, intermediate and near vision in 25 patients after TECNIS Eyhance IOL implantation in both eyes at the Ophthalmology Department of the Special Hospital Blue (Plava) Medical Group, Tuzla. Among 25 patients included in the study, both eye cataract in 11 patients, while the remaining 14 patients wanted to "get rid of glasses". In the data analysis, lens opacity was not taken as a separate variable. Exclusion criteria were keratometric cylinder >1.0 and any anterior or posterior eye segment pathologies that impair visual acuity.

Results: The mean age of the patients was 58.96 years (SD±9.63). Visual acuity was recorded preoperatively on the day of surgery and postoperatively one month after surgery in the other eye. A statistically significant improvement in visual acuity after implantation of the TECNIS Eyhance IOL was demonstrated for the right eye from 0.2808±0.25 to 0.93 ± 0.12 (p<0.001) and for the left eye from 0.3372±0.24 to 0.954 ± 0.08 (p<0.001). Only two patients (8%) needed correction of visual acuity at an intermediate distance, while 92% of patients had clear vision without correction at an intermediate distance (66 cm). Near visual acuity was analyzed bilaterally, and showed a statistically significant improvement (decrease in diopters) from 2.3±1.73 to 1.09 ± 0.26 (p=0.003) expressed in diopters for patients who needed reading correction postoperatively (44% of patients). As many as 56% of patients did not need glasses for near vision (35 cm) after surgery in both eyes.

Conclusion: TECNIS Eyhance IOL proved to be effective for distance vision in all patients (100%), intermediate vision in 92%, but also for near vision in 56% of patients. The average value of distance visual acuity in the right eye of 0.94 postoperatively and in the left of 0.96, suggests that mild myopization (up to -0.5D) in the IOL calculation, with a postoperative average keratometric value of -0.85 ± 0.25 can achieve satisfactory intermediate vision, but also near vision in hypermetropia and low myopia after binocular IOL implantation with an extended depth of focus. Considering the side effects of a multifocal IOL, and the great need to use computers, tablets and phones in daily activities, intermediate vision has even become more important than distance vision for a large number of working-age population. Therefore, the monofocal IOL with increased depth of focus can be considered as the IOL of the future that will supplant the use of traditional monofocal lenses

Biography:

Dr. Nejra Hodžić is a specialist in ophthalmology and optometry, currently serving as an ophthalmologist in the following fields: general ophthalmology, medical retina and cataract surgery at the Department of Ophthalmology at Blue (Plava) Medical Group. In 2024, she completed her doctoral thesis on the topic "The influence of omega-3 fatty acids supplementation on tear film quality in celiac disease patients- a randomised clinical trial".

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Streamlining Cataract Surgery: Functional and Safety Outcomes of Supracapsular Versus Vertical Chop in a High-Frequency Operating Environment

Dr. Adilović Melita, MD, PhD

Polyclinic with Day Hospital, Doboj Jug, Bosnia and Herzegovina

Introduction: The supracapsular chop technique in phacoemulsification cataract surgery represents an innovative approach that enables precise and efficient nucleus fragmentation, reducing the need for high ultrasound energy levels. This technique has demonstrated improvements in safety, fewer complications, and shorter operative time compared to traditional methods. Objective: To compare the safety, efficiency, and functionality of the supracapsular chop (SCC) technique with the vertical chop (VC) technique in phacoemulsification cataract surgery within a high-volume surgical centre.

Materials and Methods: A prospective study was conducted on 100 patients operated over four surgical days at the Doboj Jug Polyclinic with Day Hospital. Patients were randomly assigned to two groups: SCC (n=50) and VC (n=50). Inclusion criteria consisted of patients over 50 years with senile cataract, while exclusion criteria were mature and incipient cataracts, traumatic cataracts, and patients requiring surgery under analgesia or general anaesthesia. Preoperative parameters were comparable between groups: mean age was 63.15 ± 4.92 years (SCC) vs. 62.41 ± 5.24 years (VC); gender ratio was 28:22 (F:M) in SCC and 21:29 (F:M) in VC; lens opacity grades were matched (G2 + G2/3 + G3); preoperative best corrected visual acuity (BCVA) was 0.234 ± 0.04 (SCC) vs. 0.226 ± 0.02 (VC); and preoperative central corneal thickness was 519.66 ± 19.66 μ m (SCC) vs. 519.5 ± 25.1 μ m (VC). Follow-up assessments were performed on postoperative days 1, 7, and 30. All surgeries were performed using the Bausch and Lomb Stellaris Elite phacoemulsification system with settings: pulse mode with a duty cycle (DC) of 40%, pulses per second (PPS) at 60, bottle height of 85 cm, phacoemulsification power set at 40%, and vacuum level at 500 mmHg.

Statistical Analysis: Kolmogorov-Smirnov and Shapiro-Wilk tests assessed normality. The Mann-Whitney U test compared groups, and the Wilcoxon signed-rank test analysed paired data. Data are presented as median \pm IQR. Analysis was done using R (v4.4.2).

Results: The SCC technique demonstrated significantly enhanced intraoperative efficiency compared to the VC group. Phacoemulsification time was markedly shorter in the SCC group (95.5 ± 20.4 seconds) than in the VC group (143.5 ± 13.8 seconds), resulting in a total phaco time difference of 2,112 seconds (35 minutes and 12 seconds) across 50 surgeries — equivalent to the cumulative phaco time of 22 SCC procedures. Effective phacoemulsification time was substantially reduced in the SCC group (23.6 ± 1.1 seconds) versus the VC group (44.7 ± 2.7 seconds). Consequently, the total effective phaco time for 50 surgeries was 19.62 minutes for SCC and 36.76 minutes for VC, demonstrating a time savings of over 17 minutes of ultrasound energy activation. Phaco power usage was also significantly lower in the SCC group ($35.5\% \pm 1.0$) compared to the VC group ($39.5\% \pm 0.9$), suggesting reduced energy delivery to the ocular tissues. Lower phaco power correlates with decreased endothelial cell damage and reduced postoperative corneal oedema, without prolonging surgical duration. Total surgery duration was significantly shorter for SCC patients (9.99 ± 0.48 minutes) than for VC patients (14.20 ± 1.41 minutes). Across 50 surgeries, this represents a time saving of approximately 3 hours and 30 minutes, potentially enabling an additional 21 cataract procedures per surgical day under SCC technique conditions. Postoperative assessments revealed no statistically or clinically significant differences in BCVA improvement between groups at days 7 and 30. Pachymetry showed a transient increase in central corneal thickness on postoperative day 1 in the SCC group (530.64 ± 18.76 μ m) compared to VC (523.3 ± 21.3 μ m), but these differences normalised by days 7 and 30, consistent with corneal recovery patterns reported in larger cohorts.

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Conclusion: The supracapsular chop technique offers a safer and more efficient alternative to the vertical chop method in phacoemulsification cataract surgery. It significantly reduces phacoemulsification time, effective ultrasound energy exposure, and total surgical duration without compromising visual outcomes or corneal integrity. These efficiencies have critical implications for high-volume surgical centres by increasing throughput, reducing patient waiting times, and optimising resource utilisation, thus enhancing overall clinical and economic outcomes.

Biography:

Dr. Melita Adilović is a specialist in ophthalmology and optometry, currently serving as Head of the Glaucoma and Intraocular Hypertension Unit at the Polyclinic with Day Hospital in Doboju. In addition, she is a member of the surgical team at the Royal Ophthalmology Specialty Hospital in Doboju, actively participating in anterior segment surgeries. She is a PhD candidate in Clinical Medicine, with professional and research interests focused on glaucoma management and cataract surgery. Her work combines clinical leadership with surgical practice in a high-frequency operating environment, with a strong emphasis on efficiency and patient safety.

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