



Program Book



ALUMNI OF L V PRASAD EYE INSTITUTE OPTOMETRISTS

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Welcome Note From ALO President



It gives me immense pleasure to invite all to the 6th annual meeting of the Alumni of LVPEI Optometrists (ALO) themed “CONVERGE 2020” that is to be held on 4th & 5th January, 2020. This year, we intend to engage Optometrists from across the country to establish and deepen our mutual relationships, grow as a community and stand strong in solidarity. Thus the conference is open to all optometrists from India.

The highlights of this meeting will be short rapid-fire presentations, Optometry sub-speciality workshops, exciting group activities, career counselling sessions (example: setting up your own clinic, embarking on to a research or public health career), Optometry Quiz along with the usual research and clinical case discussions. Last but not the least, cultural events with dinner will be held on the Saturday evening.

The venue “Katriya Hotel and Towers” located in the heart of Hyderabad city was strategically chosen to ensure that we all can happily attend the brilliant event. I am confident that you will find the conference and your stay in Hyderabad both valuable and enjoyable. Let us all converge to capture (new knowledge), connect (with old and new friends) and celebrate (optometry + everything else).

Looking forward to seeing you all at the meeting in January 2020.

Dr Pavan K Verkicharla - President ALO

Program Schedule

Day 1: Saturday – 4th January 2020

9:00 onwards	Registration + Setting up posters	Ms Shiva Vaishnavi Kurakula Ms Navya Rekha Barrenkala Ms Navaneetha Ampolu
Session 1: 10:00 – 12:00 (parallel sessions)		
Pre-Conference Workshop 1: Orthokeratology - <i>Be confident to say okay to OK</i> Venue: Vijayanagara hall 1		Mr Srikanth Dumpati Dr Nagaraju Konda Dr Ruby Kala Prakasam Ms Kavitha Venkat
Pre-Conference Workshop 2: Dispensing - <i>F2T Fun and Frustration with Troubleshooting</i> Venue: Viayanagara hall 2		Mr Srikanth Maseedupalli Mr Haresh Potluri Mr Sandeep Reddy
Lunch 12.01 – 13.00		
Session 2: 13:01 – 15:00 (parallel sessions)		
Pre-Conference Workshop 1: Orthokeratology - <i>Be confident to say okay to OK</i> Venue: Vijayanagara hall 1		Mr Srikanth Dumpati Dr Nagaraju Konda Dr Ruby Kala
Pre-Conference Workshop 2: Dispensing - <i>F2T Fun and Frustration with troubleshooting</i> Venue: Viayanagara hall 2		Mr Srikanth Maseedupalli Mr Hareesh Potluri Mr Sandeep Reddy
Session 3: 15:01 – 16:00		
Pre-Conference Workshop 3: Low Vision - <i>Seeing through the assistive technology</i> Venue: Viayanagara hall 1		Ms Rebecca Sumalini Ms Aishwarya Pillai
16:01 – 16:30		
Opening Ceremony Guest of Honour: Dr Gullapalli Nageswara Rao		Dr Pavan Verkicharla
Session 4: 16:31 – 17:30		
Speciality Clinical Case Discussions - Cases managed by optometrists independently Venue: Vijayanagara hall 1		Ms Lakshmi Shinde Mr Yashwant Saoji Mr Mohan Ram LS Mr Jayanta Bhattacharjee Mr Oliullah Abdal
17:31 – 18:00	Optometry Trivia Quiz (Round 1) Venue: Vijayanagara hall 1	Ms Jyoti Mundra Mr Sandeep Reddy Mr Rohit Dhakal
18:01 – 18:30	High tea + Surprise	

Cultural Evening + Dinner (Venue: Vijayanagara hall 1)

19:01 – 19:30	Open Mic	All
19:31 – 20:30	Dance + Photography contest	
20:31 – 21:00	Life beyond optometry	
21:01 Onwards	Connect & Celebrate	All

Program Schedule

Day 2: Sunday – 5th January 2020

(Venue: Vijayanagara hall 1)

07:30 – 08:30	Special Focus Group Discussion - How to get into higher degree research? - Tips on developing your CV	Dr Vinod Maseedupally Dr Amithavikram Hathibelagal
08:31 – 09:00	Registration + Breakfast	
09:11 – 09:20	Welcome address	Mr Vijay Yelagondula
Session – 1: Okay to OK		
09:21 – 09:50	Invited Talk 1: Factors affecting orthokeratology lens decentration	Dr Vinod Maseedupally
09:51 – 10:10	The short-sightedness in the “myopia world”!	Dr Pavan Verkicharla
Session – 2: Scientific Session		
10:11 – 11:10	Free paper session	Scientific Committee
11:11 – 11:40	Tea break + Poster presentation	
11:41 – 12:40	Free paper session	Scientific Committee
Session – 3: Hofstetter’s Dynamics		
12:41 – 13:05	Invited Talk 2: You get presbyopic by the time you really understand accommodation!	Dr Shrikant Bharadwaj
13:06 – 13:30	Clinical Talk: Orthoptics evaluation Being a “dynamic” optometrist: <i>Dynamic retinoscopy and Borish delayed technique</i>	Dr PremNandhini Satgunam
13:31 – 14:30	Lunch + Poster session	
Session – 4: The Convergent		
14:31 – 15:00	Panel discussion 1: The Indian optometrists want to know...	Moderator: Dr Vinod Maseedupally
15:01 – 15:30	Panel discussion 2: Become a rock star entrepreneur	Moderator: Mr Nagesh Vuppala Ms Lakshmi Shinde
15:31 – 16:00	Panel discussion 3: Role of optometrists in community eye health	Moderator: Dr Srinivas Marmamula
16:01 – 16:30	Panel discussion 4: Role of optometrists in corporate	Moderator: Mr Shajan Adolph
Session – 5: The Quizmaster		
16:31 – 17:30	Optometry Trivia Quiz	Ms Jyoti Mundra Mr Sandeep Reddy Mr Rohit Dhakal
17:31	Concluding remarks + Prize distribution + Vote of thanks	Mr Yogesh Picha Mr Vijay Yelagondula
High Tea, Connect, Capture & Celebrate		

Selected Abstracts List

Paper Presentations			
Sunday- 5th January 2020, Session – 2: Scientific Session			
Time	Abstract ID	Abstract Title	First Author
10:10 - 10:18	C20AB20	Near Phoria and Near Point of Convergence parameters in children with hearing and speech Impairment	Ashwin Badrinath PP
10:20 - 10:28	C20AB32	Video watching, reading text in smart-phone vs reading from hard-copy: Which one is truly myopiogenic?	Swapnil Thakur
10:30 - 10:38	C20AB14	To study effect of experimentally induced astigmatism and anisometropia on various visual parameters	Ridhima Naik
10:40 - 10:48	C20AB3	Efficacy of Blink software in improving the blink rate and dry eye symptoms in Visual Display Terminal users: A single blinded Randomized control trial	Ashwini D L
10:50 - 10:58	C20AB25	Morphological changes in lacrimal gland of Anophthalmic socket eye in relation to contralateral normal eye in male Wistar rats -A histopathology study	Dantapuram Shashidhar
11:00 - 11:08	C20AB26	Contact lens disposal a threat to the environment: Are optometrists aware??	Supriya Patil
11:40 - 11:48	C20AB6	Efficacy of two types of silicone hydrogel bandage contact lenses after trans-epithelial photorefractive keratectomy (T-PRK)	Zalak Shah
11:50 - 11:58	C20AB30	Characterization of scotoma following anti-VEGF treatment in wet Age Related Macular Degeneration	Deepali Totawar
12:00 - 12:08	C20AB15	Evaluate the choroidal Thickness of the fellow eyes of Central Serous Chorioretinopathy	Sujoy Mukherjee
12:10 - 12:18	C20AB23	Ocular changes and safety awareness among workers in a stone crushing unit	Suharsha Paidimarri
12:20 - 12:28	C20AB31	Intelligent Indian currency recognition system assisting visually impaired in financial inclusion	Bhavna Sulagodu

List of Selected Abstracts

Poster Presentations Sunday- 5th January 2020, Session – 2: Scientific Session

Time	Abstract ID	Abstract title	First Author
Authors must present at their posters between 11:10 to 11:40 and 13:30 to 14:30	C20AB27	m-Health (Mobile health) in Eye care: Analysis on validation of the android apps by concerned regulatory panels	B Kalyan Srinivas
	C20AB16	Spectrum of common eye disorders among coastal region of Tamilnadu	Mohamed Althaf Basha
	C20AB8	Cost-effective smartphone technology for visual screening in primary eye care	Satish Kumar Gupta
	C20AB24	Ocular surface changes with topical antiglaucoma medications	Suharsha Paidimarri
	C20AB21	A comparison of full field flash Electroretinogram (ERG) from Metrovision and LKC machine by Burian Allen electrode	Sujoy Mukherjee
	C20AB13	Awareness of refractive error in Goa	Ketan Alias Vishal Naik
	C20AB12	To study the Awareness and Knowledge about contact lens in Goa	Nehal Naik
	C20AB22	Comparison of accommodative facility and assessment of tear film before and after 6-7 hours of usage of digital screen	Nishad Begum A P
	C20AB5	A comprehensive ocular profile using multimodal imaging systems and surgical outcome in a patient with Alport syndrome	Soumen Sadhu
	C20AB28	Long term wear of the PMMA contact lens and keratoconus: a case report	Zalak Shah

Guest of Honour



Dr Gullapalli N Rao
Founder - Chairman
L V Prasad Eye Institute

Speakers

Orthokeratology Workshop



Mr Srikanth Dumpati
Consultant Optometrist
L V Prasad Eye Institute



Dr Ruby Kala Prakasam
Scientist
L V Prasad Eye Institute



Dr Nagaraju Konda
Assistant Professor
University of Hyderabad

Dispensing Workshop



Mr Srikanth Maseedupalli
Optometrist and Faculty
L V Prasad Eye Institute



Mr Sandeep Reddy
Training - Opticals Division
L V Prasad Eye Institute



Mr Hareesh Potluri
Assistant Manager
Essilor, India

Speciality Clinical Case Discussions



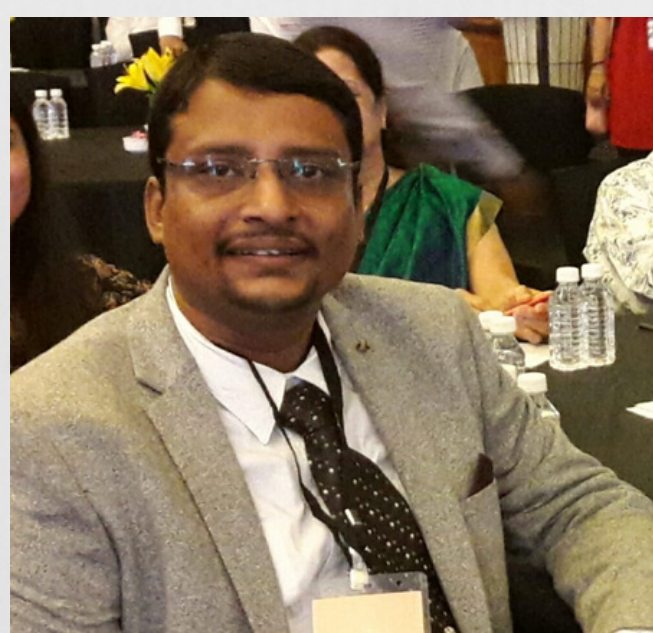
Mr Yeshwant Saoji
Senior faculty - The vision care
institute of Johnson & Johnson



Ms Lakshmi Shinde
CEO
Optometry Council of India



Mr Mohan Ram
Ophth investigation specialist
Singapore National Eye Center



Mr Jayanta Bhattacharjee
Assistant Prof
Vidyasagar College of Optometry



Mr Oliullah Abdal
Founder director
Bynocs Vision Therapy software

Low Vision Workshop



Mr Deepak K. Bagga
Consultant Optometrist
L V Prasad Eye Institute



Ms Aishwarya T V
Rehabilitation Counselor
L V Prasad Eye Institute

Special Focus Group Discussion - Higher Degree Research



Dr Amitha Vikram R Hathibelagal
Post Doctoral Research Associate
L V Prasad Eye Institute



Dr Vinod Maseedupally
Lecturer
University of New South Wales

Speakers for Scientific Session



Dr Vinod Maseedupally
Lecturer
University of New South Wales



Dr Pavan K Verkicharla
Scientist
L V Prasad Eye Institute



Dr Shrikant R. Bharadwaj
Scientist
L V Prasad Eye Institute



Dr PremNandhini Satgunam
Scientist
L V Prasad Eye Institute

Moderators for Panel Discussions



Dr Vinod Maseedupally

Lecturer

University of New South Wales



Mr Nagesh Vuppala

Chief Optometrist

Neo Retina Eye care Institute



Ms Lakshmi Shinde

CEO

Optometry Council of India



Dr Srinivas Marmamula

Optometrist & Public Eye Health Specialist

L V Prasad Eye Institute



Mr Shajan Adolph

***Head - Education and professional
services Essilor, India***

About ALO

The Alumni of LVPEI Optometrists (ALO) the alumni community established in November 2014. The main objective of the Alumni is to foster professional networking among alumni and also encourage solidarity to ensure continuous engagement within alumni and with parent organisations.

ALO broadly consists of two chapters. Fellows Chapter, comprising former optometry fellows of LV Prasad Eye Institute (LVPEI) and BLSO Chapter comprising graduates from Bausch and Lomb School of Optometry (BLSO).

ALO is governed by an elected governing body, and functions predominantly on membership fees, donations from ALO members and generous support from philanthropists. To know more about how ALO works click [here](https://www.aloptom.com/howaloworks) (<https://www.aloptom.com/howaloworks>).

The purpose of this platform is to create a gateway to rekindle friendship, build professional networks and share alumni news and optometry knowledge. For the new alumni members, this is an amazing platform to connect with the former alumni members who have excelled in various fields of optometry and to obtain a clear guidance on optometry career.

ALO Founding Governing Body (2014-2017)



Dr Nagaraju Konda



Dr Vinod Maseedupally



Ms Snigdha



Mr Vijay Kumar Y

ALO Incumbent Governing Body (2018-2021)



Dr Pavan K. Verkicharla
President



Mr Yogesh Picha
Vice President



Ms Ritika Kataria
General Secretary



Mr Vijay Kumar Y
Treasurer

ALO Executive Committee

The Executive Committee forms the important pillar of ALO and are the ones who implements the decisions made by the governing Board. Here we have new executive members with lot of power with certain set of responsibilities/authorities (as below) apart from the regular contribution.

Executive members for networking and fund raising:

Ms Shiva Vaishnavi Kurakula

Mr Shajan Adolph

Executive members for membership:

Mr Abhilash Goud Marupally

Mr Sai Chaitanya Tumati

Executive members for media management:

Ms Ravali Modepu and

Ms Subhashini Bonkuri

Executive members for technology (website and mobile application):

Mr Shashank Yellapragada

Mr Lalith Kumar Reddy V

Mr Mir Amir Ali

Executive members for designing:

Ms Jyothi Mundhra

Ms Neha Chaurasia

Executive members for online education:

Mr Vinay Nilagiri

Ms Deepika Kommanapalli

Executive members for vision screening camps: Mr. Vinod Maddur

Liaison Officer: Ms. Deepika Kommanapalli & Ms. Ampolu Navaneeta

Title: Near Phoria and Near Point of Convergence parameters in children with Hearing and speech Impairment

Purpose:

The aim of this study was to estimate near point of convergence (NPC) and near phoria measurements objectively in children who have hearing and speech impairment (HI) and compare the results with age matched controls without any hearing & speech impairment. This study intended to understand the differences in binocular vision impairments and propose guidelines for future screenings and studies.

Methods:

A total of 279 subjects in the age of 6 to 15 years participated in this study. Children having large uncorrected refractive errors, visual acuity lower than 20/30, N6 and ocular abnormalities other than non-strabismic binocular vision abnormalities, were excluded from the study. For Near Phoria measurement, a prism based cover test was used to neutralize the deviation in children with hearing impairment and modified Thorington method was used in the age matched controls. NPC measurement was done objectively with an accommodative target.

Results:

Statistical analyses between the two groups showed that children with HI had a higher median (\pm IQR) value of near Phoria ($-3 \pm 3 \Delta$) and Receded NPC (10 ± 5 cm) compared to age matched controls (Near phoria: $-1 \pm 3 \Delta$, NPC: 6 ± 5). This difference was statistically significant (Mann Whitney U test, Near Phoria $p < 0.005$, NPC < 0.05). The prevalence of Convergence Insufficiency (CI) was 33.33% in the hearing impaired group when compared to 20.43% among age matched controls (Z-test, p -value < 0.05).

Conclusion:

This study shows a higher prevalence of NSBVA among Children with HI. Since 95% of informational processing is from vision and hearing, impairment of both the sense takes a toll on the normal intellectual and social development of the children.

This study strengthens the evidences by providing quantitative values for diagnosing NSBVA among children with HI which can be applied for screening protocols. Further studies can be conducted to establish the relation between visual and auditory processing by involving multi-disciplinary approaches to counter these problems.

Title: *Video watching, reading text in smart-phone vs. reading from hard-copy: Which one is truly myopiogenic?*

Background and aim:

Increased use of smart-phones by children and the recent steep increase in the prevalence of myopia fires a debate about the role of increased screen time in myopiogenesis. This study aimed to investigate the impact of performing short-term near task on a smartphone (reading and watching a video) and book (reading) on biometry.

Methods:

Ocular biometry (axial length, lens thickness - LT and anterior chamber depth - ACD) and optics (accommodative response and ocular refraction) were recorded (pre- and post-near task) using a non-contact biometer (Haag Streit Lenstar LS 900) and an open field auto refractor (Shin-Nippon K-Vision 500), respectively. A total 42 young adults (22 emmetropes and 20 myopes) participated in this study whose task was to read the text on a hardcopy, on a smart-phone and watch a video of their choice (in a randomized order), each for a period of 15 minutes that are placed at a fixed distance of 20 centimetres from the eye (stimulating accommodative demand of 5D). Text on both hard copy and mobile phone was taken from a storybook and are of same magnification, font style, and size (N6). for each of them with the right eye only (left eye occluded).

Results:

Axial length significantly ($p < 0.05$) increased after reading on a hard copy (mean \pm standard error: $10 \pm 2 \mu\text{m}$) and on smart-phone ($5 \pm 2 \mu\text{m}$), but not after watching a video ($0 \pm 1 \mu\text{m}$). ACD decreased by $77 \pm 8 \mu\text{m}$ after reading printed material, $57 \pm 7 \mu\text{m}$ after reading on smart-phone and $52 \pm 8 \mu\text{m}$ after watching a video; corresponding values for the increased lens thickness were $54 \pm 10 \mu\text{m}$, $29 \pm 6 \mu\text{m}$ and $33 \pm 7 \mu\text{m}$, respectively. Lag of accommodation was significantly high while watching a video ($0.92 \pm 0.10 \text{ D}$), followed by reading on a smart-phone ($0.59 \pm 0.08 \text{ D}$) and the least while reading from a printed text on hard-copy ($0.24 \pm 0.09 \text{ D}$). Post the near task, there was a trend for refraction to change in negative direction (near-work induced transient myopia) with significant shift noted after reading from a hard-copy ($-0.29 \pm 0.07 \text{ D}$) compared to reading on a smart-phone ($-0.15 \text{ D} \pm 0.06 \text{ D}$) or watching a video ($-0.15 \pm 0.06 \text{ D}$).

Conclusion:

Performing short-term near-task, i.e. reading printed text on hard-copy leads to significant changes in ocular biometry in spite of corresponding low lag of accommodation. Watching a video (low- resolution task) on a mobile or reading on a mobile (illuminated background) although lead to greater lag, may take more time than performing a reading task in hard copy to induce axial length changes. The findings indicate the potential role of “active” accommodation and support the ciliary muscle theory in causing transient changes in axial elongation and rather than the hyperopic defocus (or Lag theory).

Title: *To study effect of experimentally induced astigmatism and anisometropia on various visual parameters*

Purpose:

To observe the impact of simulated astigmatism & anisometropia refractive blur on distance & near Visual acuity, reading speed, contrast sensitivity [CS], stereopsis, NPC, WFDT..

Material & methods:

Experimental study was conducted to find impact of induced anisometropia and astigmatism among emetropic subject aged between 18 to 22 years with visual acuity of 6/6, N6 and no binocular Vision anomaly. Subjects with High refractive error, Squint, Suppression, Ocular pathology were excluded .Astigmatism was induced monocularly with cylindrical lenses in the ranging from ± 1 to ± 3 D (in increments of 1.00D) at four different axes that includes 450, 900, 1350 & 1800 in left/right eye selected randomly for each subject. Anisometropia was induced monocularly with spherical trial lenses in the trial frame ranging from ± 4 to ± 7 in left/right eye selected randomly for each subject.

Result:

Study (1): Anisometropia

The total of 15 emmetropes were included with a mean age of 20 SD 2. NPC break and CS was affected more with increase in positive powers. WFDT showed suppression among 66.67% of subjects for ± 4 to ± 6 and 73.33% for ± 7 . Reading speed for English & local language didn't show much difference from baseline values.

Study(2): astigmatism: Overall reduction in mean values for each parameter was seen after inducing astigmatism at different axis with positive power being more affected than negative and oblique axes showing greater deviation from baseline values.

Conclusion:

Anisometropia - In our study we found that all visual parameters included showed overall decrease with increasing powers being more affected for positive powers. With increasing astigmatism all visual parameters tested suffered a prominent decrease as compared to baseline data and showed a marked decline for positive cylinders. Induced astigmatism at oblique axes was affected more than at horizontal axis.

Title: Efficacy of Blink software in improving the blink rate and dry eye symptoms in Visual Display Terminal users: A single blinded Randomized control trial

Background:

Dry eye disease (DED) is a multifactorial disease, more prevalent among Visual Display Terminal (VDT) users. Reduced blink rate is risk factor to DED, innovative means to remind to blink while using computers can be helpful. To evaluate the efficacy of “Blink Blink” animated software in improving the blink rate and dry eye symptoms in VDT users.

Methods:

Single-blinded RCT enrolled computer users with dry eye. Allocation concealment was done using opaque envelope and principle investigator was blinded. After baseline examination eligible participants were randomized to intervention group (8 times/minute) and control group (1 times/minute). Participants from both groups used the software for 15 days, came for first follow up and did not use the software for next 15 days until second followup examination. During each visit detailed eye examination was done including blink rate, TBUT , OSDI score.

Results:

46 participants (women n=31; men n=15) with a mean age of 28.02(\pm 6.295) years completed the study. In the intervention group (n=23) and control group (n=23) participants were allocated. At the end of first phase, there was statistically significant difference in OSDI score ($p=0.049$). Statistically significant difference was noticed in OSDI ($p= 0.021$) and blink rate ($p=0.008$) as baseline and final visit data were compared.

Conclusions:

“Blink-Blink” software with 8 reminders per minute improved DED related symptoms and blink rate. In both the groups, effect of the software in improving blink rate was maintained after 1 month.

Title: Morphological changes in the lacrimal gland of Anophthalmic socket eye in relation to the contralateral normal eye in male Wistar rats - A histopathology study

Purpose:

The purpose of the study is to establish the structural and functional status of lacrimal gland and its tear secretion post-enucleation in wistar rats. Since the complaints such as dry eye, watering are commonly expressed by the patients only in the enucleated eye.

Methods:

Adult male Wistar rats (n=15) of eight weeks old were randomly assigned into three groups viz. control, sham and experimental group (n=5). Rats of the experimental group were subjected to enucleation of right eye. In rats of sham group, with the help of sterilized forceps, canthus of the eye was pressed until the entire eye ball is exposed out of the socket and optic nerve is reachable, without enucleation. Quantity of tears (Basal and reflex) secreted in both eyes in rats of all groups were measured by using Schirmer's strip, pre and post 3 weeks of enucleation. Lacrimal gland was harvested to analyse histopathological (structural) alterations by H&E staining.

Results:

Schirmer scores (Basal+Reflex) shows there is no significant difference in the tear volume of left eye and right eye in all groups pre and post enucleation. Histopathology of lacrimal glands from all groups showed preserved lobular architecture with serous acini arranged in lobules, intralobular and interlobular ducts, interstitial fibro collagenous tissue, no glandular distortion, and atrophy.

Conclusion:

Surgical procedures like enucleation does not co-relate or effect the tear volume function and lacrimal gland acinar microstructural changes in anophthalmic socket eye relating to contralateral normal functional eye.

Ethical Statement:

The experimental protocol was reviewed and approved by Institutional Animal Ethics Committee of Manipal Academy of Higher Education. Animal handling, surgical procedure (JOVE). and post-operative care were according to the prescribed guidelines of the Committee for the Purpose of Control and Supervision of Experimental Animals (CPCSEA), Govt. of India.

Title: Contact lens disposal a threat to the environment: Are optometrists aware??

Purpose:

Awareness about disposal of soft contact lenses among optometrists and its effect on environment – An exploratory study

Methods:

A prospective self-administered questionnaire based study was carried out among 20 optometrists practicing contact lenses in urban areas for more than 2 years in optical as well as hospital based set up. Responses for 10 questions regarding type of lenses used, their materials, disposal methods and awareness about the environmental threat posed by contact lens disposal was recorded either through email or by personally handing over the questionnaire to the practitioners. Data was recorded and Chi Square test was performed.

Results:

For all questions p value ($p < 0.001$) was found to be highly significant except for instructing patients about disposal of contact lens were $p > 0.05$ and awareness about disposal methods actually adopted by patients were $p > 0.01$) wherein both showed statistically insignificant results . Optometrists aware of non-biodegradability of contact lenses were 75%. All optometrists (100%) selected in the study were unaware about the recycling process of contact lenses.

Conclusion:

Most of the optometrists are aware of the micro pollution caused by disposing contact lenses but either they are least concerned thinking that it wasn't in huge amount or they are not aware of the recent methods of disposal techniques. Looking forward to do similar study among contact lens users.

Title: Efficacy of two types of silicone hydrogel bandage contact lenses after trans epithelial photorefractive keretectomy (T-PRK)

Purpose:

To compare the efficacy of two silicone hydrogel bandage contact lenses (SiHy -BCL) with dk/t difference of 50, following trans- epithelial photorefractive keratectomy (T-PRK).

Methods:

Prospective double blinded observational study performed on Sixty eyes of 30 myopic patients with spherical equivalent range -0.50 D to -4.75D, with bilateral ablation depth difference <10 μ m, who underwent bilateral T-PRK were included in study. One eye of each patient was randomly fitted with BCL of Comfilcon A (dk/t= 160, Biofinity, Coopervision) and, the fellow eye with Fanfilcon A (dk/t= 110, Avaira Vitality, Coopervision). Postoperative assessment include distance visual acuity, epithelial defect size measurement, and subjective scoring of pain, photophobia, foreign body sensation and watering on scale of 0 to 3 on 1st , 2nd , and 4th day postoperatively. At 4th day corneal suture pattern were evaluated and compared.

Results:

The mean spherical equivalent and ablation depth in Comfilcon A and Fanfilcon A group was -2.13 ± 1.09 D, 71.27 ± 16.69 μ m and -2.22 ± 1.20 D , 73.30 ± 17.25 μ m respectively ($p=0.76$, $p=0.64$). Average epithelial defect size for Comfilcon A and Fanfilcon A was 17.62 ± 4.82 mm² vs. 16.79 ± 4.47 mm² at day 1 ($p = 0.489$) , 3.84 ± 2.61 mm² vs. 3.77 ± 3.07 at day 2 ($p = 0.928$), 0.04 ± 0.22 mm² vs. 0.02 ± 0.14 mm² ($p = 0.75$) at day 4 post operatively. At 4th postoperative day the 5/30 (16.6%) of re-epithelialized eye showed irregular suture with Comfilcon A compared to 9/30 (30%) eye with Fanfilcon A lenses ($p<0.05$) which was clinically significant. The mean subjective visual score in all days were similar in both groups ($p>0.05$).

Conclusion:

BCL with higher dk/t does compliment rate of epithelial healing. Study illustrates that both third generation SiHY (Comfilcon A, Fanfilcon A) material were clinically significant as BCL after T-PRK.

Title: Characterization of scotoma following anti-VEGF treatment in wet Age Related Macular Degeneration

Purpose:

To characterize the scotoma following anti-VEGF treatment in wet ARMD

Methods:

Eighteen eyes of 18 patients with wet ARMD requiring bevacizumab anti-VEGF injection were included in this prospective interventional study. Structural and scotoma characteristics were studied using Spectral Domain Optical Coherence Tomography and Microperimetry were studied before, 1 and 3 months after bevacizumab injection. Statistical analysis was performed using SPSS (Statistical Package for Social Sciences Ver 15) software. A paired t-test, chi square and one way ANOVA tests were used appropriately to compare the pre and post bevacizumab injection outcomes. A $p < 0.05$ was considered statistically significant in our study.

Results:

Mean retinal sensitivity had increased from 3.77 ± 3.13 dB at baseline to 4.93 ± 2.42 dB at month 3 ($p = 0.05$). Mean absolute scotoma in test point location had decreased significantly from 16 of 33 applied test point location measured at baseline to 10 test points (-6 test point locations; $p = 0.003$) at month 3 and mean relative scotoma in test point location had increased significantly from 10 out of 33 applied test point location measured at baseline to 15 test points (+ 5 test point locations; $p = 0.013$) at 3 month. We did not find significant improvement in logMAR visual acuity ($p = 0.40$). There was significant reduction in central foveal thickness ($p = 0.028$). Fixation properties had preserved in all patients 3 months after bevacizumab injection.

Conclusion:

Bevacizumab treatment induced a significant decrease in mean absolute scotoma size and increase in mean relative scotoma size with improvement in fixation characteristics 3 months after.

Title: Evaluate the Choroidal Thickness of the fellow eyes of Central Serous Chorioretinopathy

Purpose:

To evaluate the choroidal thickness of the clinically unaffected contralateral eyes of Central Serous Chorioretinopathy.

Methods:

It was a prospective cohort study conducted at L V Prasad Eye Institute, MTC Campus, Bhubaneswar in 10 months duration. The study included 40 patients, one arm was having 40 eyes with CSCR and another arm contains 40 eyes with unremarkable fundus. All patients had gone through a thorough meticulous history and underwent comprehensive eye examination. Based on the clinical findings patients were sent for further investigations that include OCT, Fundus photography or Fundus Fluorescein Angiography. Patients were recruited if they fulfilled inclusion criteria. FT, MT and CSI were followed up in both affected and unaffected eyes in Swept Source OCT.

Results:

Mean age of the patients was 38.8 years (SD +6.52). Measurement of FT, MT and CSI was taken in both eyes while one eye was having acute CSCR and was reviewed once the CSCR was resolved. There was significant difference between the FT, MT and CSI in the affected eye group ($p < 0.00001$). FT and MT in the unaffected eye did not show any change in thickness, CSI was thickened in the acute stage of CSCR in the other eye (mean 544.83 micron, SD +77.05) and remained almost same after the resolution (mean 541.93 micron, SD +86.02), $p = 0.45$.

Conclusion:

Affected eyes showed significant reduction of thickness in all aspects however did not come to the normal range after resolution of fluid. Unaffected eyes showed almost no change in thickness of CSI even after CSCR was resolved in the affected eye. This hints change in auto regulation of choroidal flow partially due to bilateral choroidal dysfunction theory.

Title: Ocular changes and safety awareness among workers in a stone crushing unit.

Introduction:

The raw materials such as granite, quartz, silica, limestone etc. are obtained from the quarry/mines by using various tools such as jaw crushers, belt conveyors, explosives, and handling material equipment. The risk for ocular surface changes is more among the people working in stone crushing units. Systemic health is given priority over ocular health in these workers.

Purpose:

To assess the ocular surface changes, symptomatology, and compliance towards the usage of personal protective equipment (PPE) among workers in a stone crushing unit.

Methods:

A cross-sectional, prospective, case-control study was conducted on 60 workers in stone crushing unit at Sultanpur village of Sangareddy district, Telangana State, India. An ocular surface examination was performed, including Torch light examination, Non-Invasive Tear Break-up Time (NITBUT), and Schirmers test, type-1. Demographics, general/ocular history, ocular symptoms, awareness, compliance to the use of PPE and other relevant data was obtained using a questionnaire. Ocular surface examination and ocular symptoms assessment was done in 60 age and gender matched normal population for comparison.

Results:

Conjunctival pigmentation was found in 36.06% and congestion was in 31.2%.NITBUT OD in normal is 11s and OS is 12.8s which is lower than workers (32s and 33.7s)($P<0.05$) with SD of 14.8 and 15.2 .Schirmers is lower in normal (19.5mm) than workers(25.1%) ($P<0.05$) with SD of 6.57. Among workers, headache was complained by 44% and watering in 48.3% .Only 4% of workers undergo periodic eye checkup. 33% are willing to use PPE.

Conclusion:

Ocular surface changes among workers are significant in terms of pigmentation and congestion. Since the normal population were students from University of Hyderabad who are being involved in the usage of VDUs, the schirmers and NITBUT values are lower. Awareness among the usage of PPE can improve the ocular conditions among workers. Further studies can aim at better sample size and appropriate controls.

Title: Intelligent Indian Currency Recognition System Assisting Persons with Visual Impairment in Financial Inclusion

Introduction:

Financial inclusion or independence of the visually impaired population in India has become a matter of concern today. To prioritize the need for recognition of currency for the visually impaired community is crucial at this point as the number of new Indian currency notes is increasing by the day in India. This study is done to develop, evaluate, and find out the effectiveness of a novel device that can be used in recognition of the Indian paper currency.

Methods:

The prospective experimental study included the development of the currency recognition device, which uses an RGB (red, green, blue) sensor for identification of currency notes. The device was assessed for accuracy levels and evaluated for its effectiveness. The QUEST 2.0 questionnaire was used to evaluate the effectiveness, ease in adjustment, ease in use, dimensions, comfort, etc. of the device among the visually impaired population. Descriptive statistics were done using SPSS statistical analysis software.

Results:

The study included 50 participants with a mean age of 42 years and 29 (58.0%) were males. The device showed 96% accuracy in detecting currency notes, in 1 to 2 seconds/per note. A total of 42 (84%) participants were dependent on others for currency identification. Majority 32 (64%) of participants had retinal abnormalities. The QUEST scores for the device were also given by patients as "Quiet to Very Satisfactory" and had an overall QUEST score of 4.7 on a Likert scale of 5.

Conclusion:

In India, especially after the introduction of new currency notes, this novel device may prove to be helpful in independence, gainful employment, and financial inclusion of the visually impaired population.

Implications for practitioners: Given the findings of satisfaction rates of the device, the device would be helpful in the identification of the currency notes and, in turn, help in attaining gainful employment for the visually impaired.

Title: m-Health (Mobile health) in Eye care: Analysis on validation of the android apps by concerned regulatory panels

Introduction:

The exposure of m-health is a new way of health care assessment. All the health care apps can be considered either as a medical device or a wellness device. There are large number of eye care apps available online but only some of the app developers are concerned about their validation. There are regulatory bodies to validate these apps and also practitioners need to attain knowledge on these apps.

Purpose:

The main hold of the study is to analyze the proportion and spread awareness on the availability of android eye care apps which are validated by the concerned regulatory bodies and also to know the involvement of eyecare professionals in app development.

Methods:

A substantial search was done at play store for the apps related to eye care by using key words like eye, vision, optometry and other relevant terms. Apps related to screening tests, diagnostics and marketing were considered for Inclusive criteria. Apps like photo editors, illusions were excluded. On the basis of literature and their primary function these apps are classified as medical professional apps, common people apps & apps used by both. A questionnaire has been designed on demographic details of app developers, its validation, eyecare professional involvement in app making. After selection of sample size, the questionnaire has been sent via e-mail to the app developers/organizations.

Results:

Initially 372 eye care apps were collected, 121 were excluded as per criteria. Out of the selected 251 apps, 86 are for medical professionals (34%), 74 are for common people (29%) and 91 are for both (36%). Criteria includes Clinical apps, Vision therapy apps, IOL Calculators and Blue light filters. Illusions and few more were excluded. After primary classification 227 apps (61%) were further excluded from total sample as they have no role in validation. Remaining 145 apps (38%) were subjected to the questionnaire and responses are only 5.5%. Out of given responses, apps were classified based on their function, validation status and type of a device. Majority of them are wellness devices followed by Medical devices. The apps which comes under medical device should be ideally validated but only 25% in given responses are validated.

Conclusion:

Eye care apps existing on android are high in number. Eye care professionals should be involved during the development of these apps for accurate content. Certifications are necessary for m-Health apps but still a very new space.

Title: Spectrum of common eye disorders among coastal region of Tamilnadu

Purpose:

Aims:

This study aims to determine the prevalence, pattern, and time of presentation for the ocular disorders seen among adults and children attending Private Eye Care clinic in Coastal region of Tamilnadu. (Colochel, Kanyakumari district)

Objective:

The objective of the study is to assess the causes of visual impairment among the coastal population of Tamilnadu

Methods:

A retrospective chart review of all first-time patients at Private eye care clinic, from 2013–2015 will be carried out. Data on cohort demographics, duration of illness before the presentation, and types of ocular disorders were collected and analyzed. Statistical significance was indicated by $P < 0.05$ during the final analysis. Social Science software for Windows, version 16.0. Chicago USA SPSS Inc and presented in tables $P < 0.05\%$ was considered statistically significant

Results:

From the 621 subjects who underwent treatment from the Private Eye Care, there were 341 males and 282 females. In that, 267 were already wearing spectacles and 325 were not wearing spectacles. The chief complaint of all the subjects was analyzed and it showed that 294 subjects came for refractive error complaint and 213 subjects for other eye related problems and 52 subjects reported headache as a chief complaint. 49 subjects came for a general eye check-up. We have segregated the data according to the final diagnosis of the patient, it shows there were 259 patient diagnosed as refractive error, 36 patients with cataract, 49 with foreign body, 32 with the conjunctivitis, 10 with blepharitis and 8 with pterygium, 41 with pinguecula, 6 with SPKs, 7 with corneal ulcer, 17 with PCO, and 60 with other eye related problems. From the plan of action given in the Private eye care, we have distributed the data accordingly, from 623 total data, 323 were given spectacle prescription, 437 were given lubricants for ocular irritation, antibiotics are prescribed for 242 patients, antihistamines are prescribed for allergy for 18 patients NSAIDs are given for 2 patients, 11 patients are referred for cataract Surgery.

Title: Cost-effective smartphone technology for visual screening in primary eye care

Purpose:

Worldwide 285 million people are visually impaired, out of which 80% are preventable. Majority of them live in developing countries where visual acuity assessment is difficult in community outreach eye camps because of insufficient lightning on non-illuminated charts. An increasing trend of smartphone usage in medical practice encourages to incorporate an alternative vision assessment method with better-inbuilt illumination and optotype contrast. The aim of the study was to check the reliability of the smartphone-based visual acuity measurement for screening and clinical assessment.

Methods:

First, a review of available Snellen chart applications on ‘Google Play store’ was performed to determine the most accurate application based on the calibration of optotype size. Subsequently, a prospective comparative study was performed by measuring the visual acuities using the standard ETDRS chart and then the smartphone ‘Snellen chart’ application.

Results:

There were statistically insignificant differences between the unaided visual acuities, pin-hole visual acuities and best-corrected visual acuities measurements obtained with the ETDRS chart and smartphone-based Snellen chart app ($p > 0.05$ in each case). Also, there were insignificant differences between the best-corrected visual acuities in all the refractive conditions, i.e., emmetropia, myopia and hypermetropia ($p > 0.05$ in each case). In addition, there was a good positive correlation (overall Pearson Correlation Coefficient, $r \geq 0.90$), excellent reliability (Cronbach’s $\alpha \geq 0.90$) between the visual acuities measured with ETDRS chart and Snellen chart app in each of the cases.

Conclusion:

The smartphone-based visual acuities are reliable and comparable to the ETDRS chart. Hence it can be useful in rural areas especially in developing countries for vision screening purpose with an aim of early diagnosis of refractive error and referral of many vision- related diseased conditions on time. This may help control the preventable and curable blindness.

Title: Ocular surface changes with topical antiglaucoma medications

Introduction:

Ocular surface, an interface between the eye and the surrounding environment consisting of cornea conjunctiva and tear film provides a clear medium for the passage of light and also aid in the lubrication. Glaucoma, a complex disease relays on the effective control of intra ocular pressure which can be achieved with the topical medications and surgeries.

Purpose:

To comprehensively evaluate the ocular surface in patients on chronic anti-glaucoma medication use and compare it with age-matched normal population.

Methods:

Prospective, cross-sectional study; informed consent was obtained from all individuals and data handling was as per the tenets laid down by the Declaration of Helsinki. Clinical evaluation - Tear film break-up time (TBUT) and Schirmer's test (ST) was performed in patients who were on chronic anti-glaucoma medication/s (AGM) (>6 months) and normal population. The Ocular Surface Disease Index (OSDI) score was also administered for subjective evaluation and Tear film osmolarity was checked with the TearLab device, in both groups. Patients already on chronic lubricants or having symptoms suggestive of abnormal ocular surface, who had undergone refractive surgeries and who were contact lens users were excluded.

Results:

33 eyes were studied in the AGM group who were compared to 39 normal eyes and were recruited over 6 weeks. When compared to normals, TBUT and ST were significantly lower ($p=0.003\&0.01$) and Osmolarity and OSDI were statistically significantly higher ($p=0.007\&0.003$) in the AGM-group.

Conclusion:

This study highlights that chronic usage of antiglaucoma medications leads to symptomatic dry eye changes in the ocular surface.

Title: A comparison of full field flash Electroretinogram (ERG) from Metrovision and LKC machine by Burian Allen electrode

Purpose:

To compare the wave patterns of full field flash ERG in normal individuals from Metrovision (Monpack One) and LKC (RETeval) by Burian Allen electrode (B-A electrode).

Methods:

This was a comparative study conducted at L V Prasad Eye Institute, Bhubaneswar over past six months. We included patients with clear ocular media and unremarkable fundus. The study was approved by institutional review committee. Informed consents were taken before recruitment of patients. Pupil diameter was assessed before the initiation of the test. The tests were done as per ISCEV standards. Refractive error was considered up to +2.00Ds. All the tests were performed monocularly.

Results:

We had recruited 40 individuals. All of them underwent general comprehensive eye examination followed by electrophysiological tests. Mean age was 24.25 ± 3.46 years. Although there was not much difference between implicit time, yet mean difference between hand held LKC and table top Metrovision was over 120 uv ($p = 0.0003$). The difference was more obvious in scotopic phase. All the phases showed change in amplitudes while B-A electrode and Sensor Strip electrode were used separately ($p = 0.0023$).

Conclusion:

Both the table top and hand held machines showed good reproducible wave patterns. Metrovision takes little longer duration for patient management and height of the amplitudes are higher compared to LKC.

Title: Awareness of refractive errors in Goa

Background:

Uncorrected refractive error (43%) is one of the leading Causes of visual impairment and blindness. There are 153 million people worldwide living with visual impairment due to uncorrected refractive error as estimated by WHO.

Purpose:

To determine the awareness of refractive error in Goan population.

Methods:

A cross sectional descriptive type of study was conducted in Goa for a period of 6 months (from October 2018 to March 2019).Random sampling method was used. This study was carried out among 1139 subjects. Population included in the sample composed of subjects who are literates and are above 18 years of age from Goan population.

Results:

The study of sample size was 1139 out of which 405 were males and 734 were females. Around 65.7% and 62.1% the population was aware of myopia and hyperopia respectively where as 31.7% and 14.5% of the population had knowledge of astigmatism and amblyopia which is very poor.

Conclusion:

We observed that people are still unaware of different types of refractive errors and various facts related to it. So there is a need of creating awareness of refractive error among the people. Education and age has shown significance impact on the awareness of refractive error.

Title: To study the awareness and knowledge about contact lenes in Goa

Purpose:

- 1. To determine awareness and knowledge about contact lens in Goan population.*
- 2. To compare the awareness level between Medical and Non-Medical students.*
- 3. To compare awareness and knowledge based on Educational level.*

Methods:

A cross sectional study was conducted to assess the awareness and knowledge about contact lens in Goa, using a standard predesigned and pretested closed ended structured questionnaires. 1130 participants were included in our study. 704 were females while 426 participants were male. Of all participants 272 has refractive power. Students from high schools, colleges, MBBS, Nursing, Engineering and allied health science were included.

Results:

Out of 1130 participants in this study, only 60(5.3%) were contact lens user and remaining non-contact lens users 1070 (93.7%). Friends were the most common source of information 312 (29.2%). Among non- contact lens user majority of the Medical students were aware that contact lenses are used to correct refractive error 325(86.2%) and for cosmetic purpose 326(86.5%). 31 (8.2%) of the medical students believed that contact lenses can be stored or cleaned in drinking/tap water which is a wrong practice. 585 (85.3%) college students had the knowledge & awareness that one cannot wear contact lens and swim.

In contact lens users majority of the participants were using contact lenses for correcting refractive error & cosmetic purpose 28(46.7%) and only 12 (20%) of the participants were unaware about the contact lens complications. Majority of the contact lens users used soft contact lenses 57 (95%). Only 5 (8.3%) participants were sleeping without removing the contact lenses. A majority 55 (91.7%) of participants changed the storage solution daily in the contact lens case. 31 (51.7%) of the contact lens users didn't have the knowledge about the side effects of kajal use while wearing contact lenses. Majority of the participants 54 (90%) felt they would recommend contact lens to others.

Conclusion:

The result of this study, point out that majority of the medical participants had more knowledge and awareness, whereas non-contact lens users had a poor knowledge especially higher secondary school participants.

Title: Comparison of accommodative facility and assessment of tear film before and after 6-7 hours of usage of digital screen

Purpose:

To assess the binocular accommodative facility & assessment of Tear film before using computer and after using computer after 6-7 hrs of prolonged duration of time in the age group of 18-30 yrs of irrespective of genders.

Methods:

Duration: The study period was for 6 months.

Study design: Prospective study

Study area: The study was conducted in IT Company(Navinya Technologies)

Study population 57 Healthy individuals aged in range 18-30 yrs SD +/-3.44 yrs.(43 were male and 14 were female).

Exclusion criteria: Ocular pathology,any binocular anomalies & Contact lens users.

Study instruments & materials used: RAF Ruler,Flipper(+/-1.50D),Slit Lamp,Schirmers strips & Fluorescein strips. Drug used:Topical Anaesthetics(procaine 4%).

Questionnaire used:The Quantification of Asthenopia by P.A.Howarth(validated)

2 times employees were called for the study(morning before they start their duty & evening before they leave the Company). After filling the questionnaire from the participant,each would undergo thorough detail History taking,Visual acuity measurement & refraction,binocular balancing,amplitude of accommodation will be measured in push up method over full correction,average of 3 readings will be considered. Accommodative facility will be measured with Flippers,Tear break up test to check the tearfilm stability of the eye after instillation of fluorescein through strip and seen whether more than 8 sec of tearfilm stability is present or not.Tear film volume check by Schiermer 2 procedure,it poses no risk to the subject.

Results:

The Mean of Near point of accommodation(by RAF Ruler) is 9.72cm before the use of digital screen and after the usage of 6-7 hrs of computer is increased to 10.63cm that is with a difference of 0.91 cm and p value of 0.003183>0.005. Accommodative facility in the study was found to be 9.70cpm in morning and is decreased to 8.17cpm on average binocularly.In monocular estimation RE 11.17cpm is decreased with a mean value of 10.26cpm and LE 11.54cpm is decreased to 9.88cpm significantly. Value of tear secretion by schirmers tear test before and after computer usage is declined from 23.58mm to 18.41mm BE.

Conclusion:

To Conclude accommodative facility & tearfilm stability,volume are found to reduce after prolonged usage of digital screen.So it is important to take an account about these parameters when testing IT company employees & long term digital gadgets users.

Title: A comprehensive ocular profile using multimodal imaging systems and surgical outcome in a patient with alport syndrome

Purpose:

To report a comprehensive ocular profile using multimodal imaging systems and surgical outcome in a patient with Alport syndrome.

Case details:

A 22 year old male having Alport syndrome presented with complaints of progressive painless diminution of vision in both eyes for 8 years. Objective refraction showed -30.00DS myopia in both eyes. The best corrected visual acuity for distance was 3/60 in both eyes. Anterior segment evaluation showed a bilateral anterior protrusion of the lens without any cataractous change. Fundus evaluation and other ancillary tests were normal. The patient underwent Pentacam HR, Tracy wave-front aberrometry, optical coherence tomography in both eyes pre and post clear lens extraction and IOL implantation.

Results:

AS-OCT showed steep central anterior protrusion of the lens in both eyes. Wavefront analysis revealed significant internal higher order aberrations (high spherical aberration, coma and trefoil) in both eyes. Posterior Segment OCT revealed temporal thinning of the retina and nerve fiber layer (GCL+IPL) in multiple quadrants. Pentacam revealed a steep toric cornea with normal thickness and elevation in both eyes. Significant bilateral improvement in visual acuity (6/9) was observed post-surgery.

Conclusion:

Anterior lenticonus causes high myopic shift along with high lenticular higher-Order aberrations which is one of the major cause for decreased vision in Alport syndrome. Both anterior and posterior segment OCT along with aberrometry and pentacam are effective tools in evaluating a patient with Alport syndrome. Clear lens extraction and IOL implantation remains the main stay of management.

Title: Long term wear of the PMMA contact lens and keratoconus: a case report

Purpose:

To report a case of bilateral keratoconus presented with over use of single paired polymethyl methacrylate (PMMA) contact lenses (CL) for 28 years.

Methods:

The clinical history of a single patient is reviewed. Visual acuity, refraction, fitting of the lens, slit-lamp bio-microscopy (SLE), specular microscopy, corneal topography and tomography and detailed examination performed. Patient was evaluated at day one, three and six months of follow up.

Results:

*A single pair of PMMA CL worn over 28 years of period. The patient reported that gradual dimness of vision in her both the eyes, since 6 months with her using CL. She noticed that the visual acuity became more worsen after the removal of the CL. Fluorescein pattern shows central bearing and thin edge. Patient advised stop to wear the lenses. Corneal protrusion and thinning was visible on SLE, rest anterior segment was normal. In both eyes scissoring reflex was present on retinoscopy. Change in refraction and topometric parameters noticed up to 3month of follow-up. Specular microscopy showed reduced endothelium cell count of 1867cells/mm² in right eye and 1944 cells/mm² in left eye. At 3month follow-up spectacle corrected visual acuity was 20/50 with refractive result of -7.0/-3.5*60 in the right eye, and 20/40 with refractive result of -5.5/-3.5*150 in the left eye. The corneal apex curvature was 55.1D with 395 µm of pachymetry in right eye and 54.6D with 394µm in left eye, respectively. The anterior and posterior elevation versus normality were 39 µm and 113 µm in right eye, and 48 µm and 97 µm in left eye respectively. No topographical and refractive recovery found even after 6month of free contact lens period. We confirmed the diagnosis of keratoconus in the both eyes.*

Conclusion:

Hypothetically, long term use causes oxidative stress in species of corneal oxygen, apical clearance and the chronic rubbing mechanism of the lens on the cornea, which reduces the mechanical strength of cornea and collagen fibres. In these case, these multifactor may contributes to the development of keratoconus.

Directions to the venue



Click on the "Directions" text on the map to navigate to the venue

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Punjagutta Metro Station - 3.7 Km

Begumpet Metro Station - 3 Km

MMTS- Begumpet Railway Station - 3.1 Km

Khairatabad Railway Station - 1.7 Km

For any clarifications contact +91 9949085320

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