NCC2018 Paper Abstracts
Free paper sessions
Sunday, March 11, 2018 16:30 – 17:30
Netherlands, Veldhoven, de Koningshof, Baroniezaal
Organization Section: NCC/ BCLA
Moderator: Michel Guillon

Paper Number: 8
Presentation time: 16:30-16:38
Knowledge and care of dry eye disease (DED) in three primary healthcare professionals
MMA van Tilborg, PJ Murphy
Purpose: In seeking care, patients with dry eye disease (DED) may be examined by a number of different heathcare professionals (HCPs). For the benefit of the patient, these HCPs should co-operate in the delivery of their care. However, in the literature, there are only a few reports of studies looking at cooperation between HCPs for DED management. As a first step, this study assessed current knowledge in three HCPs of DED diagnosis and management.
Method: Participants from 3 HCPs in primary healthcare (GPs, optometrists and occupational healthcare physicians (OHPs)) were asked to answer 25 questions focused on knowledge of DED among HCPs, and on the appropriate form of healthcare system for DED management, using the Delphi method. The HCPs were grouped according to profession.Descriptive statistics were calculated for the set of questions using SPSS 24 for Mac (IBM Inc, USA).
Results: In total, 13 GPs, 20 optometrists, and 13 OHPs participated in the study. Each HCP group revealed an insecurity in the level of DED knowledge for each of the other HCP groups. The optometrists strongly believed that they should be the leading HCP in DED management, in primary healthcare, working interprofessional with GPs and ophthalmologists. The OHPs strongly believed that DED care should be diagnosed and managed in primary healthcare, optometrist could play a leading role. The GPs believed that there was no specific leading role for a professional in DED care in primary healthcare, the optometrist could play a role in the management of DED in collaboration with GPs.
Conclusions: Education of HCPs on DED knowledge and scope of practice of other HCPs is key to developing and maintaining cooperation in primary healthcare. All HCPs should be included in further investigations of responsibility for DED management and referral of DED patients to develop appropriate care management systems

Paper Number: 9
Presentation time: 16:38-16:46
Comparing the costs of commonly available dry eye treatments
Sarah L. Smith, Philip B. Morgan
Purpose: To report on the range of self-selection products available for the management of dry eye symptoms and the cost to the consumer for their on-going use.
Method: The eyecare product range from the self-selection aisle of a well-known UK pharmacy was sampled and product details noted. Excluded from analysis were pharmacy own-brand preparations and products indicated for ocular allergy, eye infection, "eye brighteners" and eyewash. Using a theoretical model, costs of using these products over the course of a month were estimated. It was assumed ocular lubricants were used three times a day in both eyes with lid hygiene and warm compresses used twice a day. Unless otherwise stated, each drop was assumed to have a volume of 0.05ml.
Results: Forty products were included in analysis. The majority (53%) were multi-dose eye drops. Unit-dose eye drops accounted for 8% of products, 13% were spray or mist formulations. Lid care products (lid wipes and eye masks) represented 25% of products. Using a

multi-dose ocular lubricant over a month, the average cost is £7.56 (approximately €9), although the cost could range from £2.78 to £13.33. For an eye spray the cost is £22.21 (€25), ranging from £7.58 to £26.01. The average price of a reusable warm compress is £14.97 (€17) and disposable lid wipes cost £27.02 (€31) over a month. If after a period of use, these management options are not adequate, non-preserved lubricants are typically recommended.   Fifteen lubricants in this sample were identifiable as preservative free; the cost per month being £9.09 to £31.82, averaging £15.49 (€18).

Conclusions: There are a large number of products available to purchase for the management of dry eye symptoms, and the cost can vary based on formulation, method of application and frequency of use.

Paper Number: 10
Presentation time: 16:46-16:54
Changes in relative peripheral refraction, HOAs and optical quality using a soft multifocal contact lens with different additions and optical zones.
Giancarlo Montani, Pascal Blaser
Purpose: The purpose of this study was to investigate the changes in relative peripheral refraction (RPR) and the effects on high order aberrations (HOAs) and objective optical quality induced by a CD soft multifocal CL, with different additions and central distant optical zones.
Method: Fifthteen myopic subjects (range refractive error -0.50/-4.00D) participated. In each RE non-cycloplegic axial (ARE) and peripheral refractive error (PRE) at 10, 20 and 30° temporally and nasally from the line of sight were measured and with the measurements transposed in vectors RPR were calculated. Ocular wavefront and the Strehl ratio (SR) for a pupillary diameter of 4 and 6mm were measured also. All measurement were repeated using custom made soft CLs with different CD diameter (CDD) (3.50/4.50/5.50mm) and different additions (+1.50/+2.50D).

Results: All uncorrected eyes presented an average hyperopic RPR for M across all eccentricities with the higher values at 30° (N+1.21±0.29D and T+1.06±0.38D). With CLs the RPR values presented a myopic defocus (MD), higher in the nasal field. The highest MD was associated to 2,5D adds with a reduction of this effect with the increase of CCD (3,5mm N+1.90±0.39D and T+1.32±0.46D, 5,5mm N+1.74±0.49D and T+0.98±0.42D). CLs use induced a reduction of SR and an increases of HOAs with an higher effect for 3,5mm CCD and 2,5D add CL (SR 0,027 and HOAs of: 0,40μm, h coma 0,38μm, v coma 0,32μm, SA 0,13μm and) and lower for 5,5mm CCD and 1,5D add CL (SR 0,40 and RMS of: HOAs 0,12μm, h coma -0,04μm, v coma 0,05μm, SA 0,03μm).

Conclusions: To consider the possible use of this CL design for myopia control to obtain the best balance between the higher MD with higher increase of positive SA we suggested the use of 2,50D addition with 4,5 mm CDD even though this could be associated to a mild reduction of optical quality of retinal image.

Paper Number: 11
Presentation time: 16:54-17:02
Evaluation of tear meniscus height using different methods
Britta Niedernolte, Lisa Trunk, James Wolffsohn, Stefan Bandlitz, Heiko Pult
Purpose: The height of the tear meniscus (TMH) is a generally accepted method to evaluate tear film volume, especially in dry eye diagnoses and management. This study evaluated the ability of different methods to measure tear meniscus height correctly. **Method**: Lower TMH of 20 voluntaries (mean age 26,8 ±5,6years) was measured by OCT as well as using a slit lamp microscope (illumination: tearscope) using a reticule at low (8x) and high (32x) magnification. Images were captured by video slit lamp. Lid margin

thickness was measured by Pentacam.This procedure was repeated by a second observer (OII), masked against OI (after >15 min. <60 min.). OI and OII were asked to value TMH of the photographs by comparing the height of the tear meniscus to the lid margin`s thickness (Lid-Ratio; TMH 1/3 lid margin thickness, 1/4; 1/5; 1/6) and to number of the lashes fitting in the tear meniscus (Eye Lashes Count).

Results: When comparing lid margin thickness to TMH or eye lashes count to TMH, in both methods it was not able to discriminate between different real tear menisci heights (p>0.05), defined by OCT measurements. Furthermore, there was no linearity between grades. Except of the Lid-Ratio approach all types of TMH evaluation were repeatable (intraclass coefficient (ICC) >0.67, p>0.05). However best repeatability in terms of absolute agreement was shown by OCT)ICC 0.88, p<0.001), followed by reticule using 32x magnification (ICC=0.70, p=0.004). While the use of a reticule resulted in good agreement (ICC>0.67, p<0.004), the Lid Ratio and Eye Lashes approach did significantly disagreed (p>0.43) with OCT measurements.

Conclusions: The most reliable method to measure TMH was OCT, followed by reticule using 32x magnification of the slit lamp microscope. TMH cannot be evaluated by comparing it against lid margin thickness or number of eye lashes.

Research funding received: N/A

Paper Number: 12
Presentation time: 17:02-17:10
The Development and Evaluation of the New Ocular Surface Disease Index-6
Heiko Pult, James Wolffsohn
Purpose: The Ocular Surface Disease Index (OSDI) is a well-known dry eye questionnaire, used in numerous clinical trials. However, some clinicians claim it being slightly to long and calculation of the final dry eye score may be time consuming. Furthermore some questions, as for example ‚blurry vision‘ and ‚poor

vision‘, sounds similar to many patients. This study investigated a shorter version of the OSDI with a simplified scoring system, named the OSDI-6.

Method: 264 completed OSDI (female: 174; mean age: 34.4 ±12.3yrs, mean OSDI score: 13.1 ±11.5) were evaluated by regression analyses to detect the most predictive 2 questions of each of the 3 sub-categories of the OSDI. The resulting 6 questions (Q) were combined to the new OSDI-6. The coefficients of the equation of the regression analyses were rounded. Based on this, the OSDI-6 total score was calculated by following formula: $OSDI-6 = 1 \times Q1 + 2 \times Q2 + 1 \times Q3 + 2 \times Q4 + 1 \times Q5 + 2 \times Q6$. The ability of the OSDI-6 to predict the OSDI diagnoses (cut-off value 13) was analysed by receiver operative characteristic curve (ROC). Infits and outfits of the single questionnaire were analysed by RASCH analyses. Correlation between OSDI and OSDI-6 were analysed by Pearson correlation.

Results: The OSDI-6 was significantly correlated to the OSDI (r=0.902, p<0.001). Area under the curve of the OSDI-6 was 0.958 (sensitivity=0.943, specificity=0.820, cut-off value 3.5). Infits and outfits were between 1.26 and 0.78 (STRATA=3) for the OSDI-6 and between 1.68 and 0.57 (STRATA=4) for the OSDI.

Conclusions: The OSDI-6 seems to be a good alternative questionnaire to the OSDI in clinical practice. It can be easily and quickly completed, giving a calculated score predictive of the longer OSDI

Research funding received: None

Paper Number: 13
Presentation time: 17:10-17:18
Responses of Contact Lens Wearers to OSDI and CLDEQ-8 questionnaires
Waleed Alghamdi, Maria Markoulli, Eric Papas
Purpose: To investigate the relationship between the Ocular Surface Disease Index (OSDI) questionnaire and the Contact lens Dry Eye Questionnaire (CLDEQ-8) in evaluating symptoms in contact lens wearers.

Method: Method: This was part of a cross sectional study of 100 individuals with different exposures to CL wear. Participants were divided equally into 5 groups: those with short, moderate and long experience of CL wear, previous CL wearers (PWs) who had ceased wear for at least 6 months prior to the study, and healthy non-wearers (NWs) as controls. The CLDEQ-8 was used to assess symptoms in CL wearers, and the Dry Eye Questionnaire (DEQ-5) was used for non-wearers (including PWs). the OSDI questionnaire was selected as common tool to assess symptoms for all participants. One-way Kruskal–Wallis analysis of variance followed by the Dunn's multiple comparison tests was used for statistical comparison and Spearman's rank correlation was used to assess correlation between different questionnaires.

Results: Results: There were no significant differences in symptoms between study groups using OSDI, DEQ-5 or CLDEQ-8. The OSDI scores were significantly correlated with CLDEQ-8 when both were used with CL wearers (Spearman r= 0.69, p<0.001) and with DEQ-5 when both were used with NWs and PWs (Spearman r= 0.51, p=0.001).

Conclusions: Although OSDI was not designed to measure symptoms in contact lens wearers, it showed strong relationship with CLDEQ-8 in CL wearers. This suggests that OSDI is reliable tool to assess symptoms in CL wearers and can be used interchangeably with CLDEQ-8.

Research funding received: N/A

Paper Number: 14
Presentation time: 17:18-17:26
Contact Lens Comfort Loss Daily Pattern
Michel Guillon, Trisha Patel, Ruchi Gupta, Kishan Patel, Jami Kern
Purpose: Contact lens comfort loss during the day has been reported for both asymptomatic and symptomatic wearers. However, the precise pattern of comfort loss from lens insertion to removal time is unknown, limiting effective management of contact lens discomfort. The purpose of the study was to establish the comfort loss pattern, effect of lens replacement modality and lens age.

Method: Methods: A comfort questionnaire was completed in real time at insertion, 3, 6, 9, 12 hours of lens wear and removal using SmartSurvey™, on a 100-point visual analog scale. The survey was administered for one week with daily disposable (DD) (n=50) and two weeks (first (MR1) and last week (MR4)) for monthly replacement (n=52) wearers using their habitual contact lenses. The comfort loss pattern was measured by comparing the loss every 3 hours of wear from insertion to removal.

Results: The lenses were the participants' habitual correction (Wearing times (mean): DD 6.3, MR 6.5 days/week; DD 11.6, MR 11.9 hours/day). The rate of comfort loss every 3-hours of wear increased with longer wearing time for all three groups. For participants achieving 12 hours of wear, the loss was more than double for the last than the first 3-hours (DD -1.80 vs. -5.57, p=0.047; MR1 -1.34 vs. -4.37, p=0.093; MR4 -0.47 vs. -4.00, p=0.014). Comfort at insertion was significantly better for MR1 than MR4 (mean 91.5 vs. 86.4; p=0.003), and average comfort remained superior for MR1 than MR4 up to 9-hours of wear (p<0.001 to p=0.016).

Conclusions: Regardless of the lens replacement modality, the rate of comfort loss per hour of lens wear increased with wearing time, therefore proactive discomfort management is recommended. For monthly replacement, the superior mean comfort achieved over most of the wearing day during the first compared to the last week suggests that a shorter replacement period should be considered.

End of session