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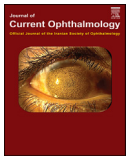

This issue at a glance

In this issue of JOCO, Moghimi S. et al present "Early phacoemulsification in patients with acute primary angle closure". In this nonrandomized, comparative, prospective study, 35 patients with manifest primary angle closure (APAC) were studied. Twenty patients were assigned to the phacoemulsification (phaco) and laser peripheral iridectomy (LPI), and 15 patients were assigned to the LPI alone. Although acute attack did not occur in any case, the success in reducing the intraocular pressure was significantly higher in phaco-LPI group, $p = 0.02$. A lens-induced mechanism in APAC has been proposed. A thick crystalline lens may cause reduction of anterior chamber depth and consequently the closure of the iridocorneal angle.[1]

Bhandari V. and colleagues present "Implantable Collamer Lens V4b and V4c for correction of high myopia". Implantable collamer lens (ICL) is a soft and flexible posterior chamber phakic lens which is implanted through a small incision for high myopic young patients. The older model V4b is known to cause high intraocular pressure (IOP) via pupillary block which necessitates peripheral iridectomy. However, V4c model with three holes on it is safer and gives less complication. The aim of the authors was to evaluate the visual outcome and complications of these two ICLs during nine months post surgery. In this prospective, consecutive interventional and comparative study in 64 eyes, V4b was implanted with peripheral iridectomy, and 10 eyes had implantation of V4c. The mean preoperative spherical value was -9.98 ± 2.8 D and -9.14 ± 2.4 D in each group which was significantly reduced to -0.24 ± 1.3 D and -0.2 ± 1.18 D nine months after intervention. After this period of observation, the mean endothelial cell loss was 6.4% and 6.1%, respectively. The mean vault was reported to be 573.13 ± 241.13 μ in the first and 612 ± 251.14 μ in the second group. Anterior subcapsular opacities were reported in 6.9% and 3.14% of eyes, respectively. Two eyes (3.22%) with V4b ICL implantation had high IOP postoperatively which was managed by peripheral iridectomy. The authors conclude that V4c is a safe method for correction of high myopic which is in accordance with the results of other investigators.[2]

In this issue, Gharaee H. et al present "Effectiveness of Technolas torsional eye tracking system on visual outcomes after photorefractive keratectomy". Despite the accuracy of surgical techniques and preoperative investigations in excimer laser refractive surgery, patients' unavoidable ocular micromovements results in postoperative complications, such as glare and astigmatism. In 1994, Molebry introduced his laser radar eye tracking system with high accuracy, providing less postoperative complications.[3] In this randomized, double blind, interventional study, the authors studied fifty eyes of 25 patients. They used orbscan II and wavefront aberrometry to treat one eye of the patient, and an eye tracking system was added for the second. In all cases, the mean spherical equivalent (SE) was −4.75 D (range: −1.5 to −7.5), and the mean astigmatism was 3 D (range: 1–4). After six months of observation, the mean visual acuity was improved significantly in both groups. The difference of improvement between the two groups was insignificant. Total HOAs increased less in the group treated with the eye tracking system ($p < 0.001$). Irregularity index in the central zone was significantly lower in study group, but the contrast sensitivity function was not different between the two groups. The authors recommend the use of the eye tracking system to obtain a more regular anterior surface of cornea and less complications.

Abri Aghdam K. and coauthors present their work "Comparison of the effect of cycloplegic versus NSAID eye drops on pain after photorefractive keratectomy". In this randomized, double-masked, interventional study, 32 patients (64 eyes), after photorefractive keratectomy (PRK), were treated by Homatropine in one eye and a drop of Diclofenac in the fellow eye for 48 h. The level of pain was evaluated by 3 scales, visual analogue scale (VAS), verbal rating scale (VRS), and pain rating index (PRI). Controlled by all three scales, Diclofenac eyes had significantly less pain after 24 h of PRK, $p < 0.001$. By use of VHS, the patients indicated the pain sensation in a linear manner from 0 to 10.[4] In VRS, the patients indicated their sensation on keele verbal pain chart.[5] The pain was scored from 0 to 4 in a semiquantitative way. PRI measured pain score as a sum of the sensory and affective sensation.[6]

Hashemi H. and coauthors present "Corneal elevation and keratoconus indices in a 40- to 64-year-old population,

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Shahroud Eye Study". In this prospective, random cluster sampling of Shahroud Eye cohort study[7] performed between 2009 and 2012, numbers of 4148 invited cases respondents, having keratoconus (KC) or forme fruste keratoconus (FFKC) were analysed by Pentacam HR via Scheimpflug imaging technique to determine KC indices, central corneal thickness, maximum elevations on the surface of cornea, and elevation values at the thinnest point and steepest points at two sides of the cornea. KC an FFKC cases were compared with normal eyes. The authors selected 40- to 64-year-old patients to see the changes with age. They emphasize that the previous studies were completed on cases with 20–40 years of age and give limited information about aging indices. They showed that maximum elevation values on the anterior and posterior corneal surfaces were significantly higher in KC and FFKC cases compared with normal eyes ($p < 0.002$). Maximum anterior elevation, but not posterior elevation, correlated with age ($r = 0.11$, $p < 0.001$). They concluded that KC an FFKC indices significantly change with age ($p < 0.001$). They emphasize that such information is essential for diagnosis and treatments of KC eyes.

Rajabi M.T. et al present "Utility of orthokeratology contact lenses; efficacy of myopia correction and level of patient satisfaction in Iranian myopic/myope-astigmatic patients". The authors selected 182 patients (364 eyes) and used the overnight orthokeratology (OK) lenses (Buston XO) which is a reverse-geometric designed rigid gas permeable contact lens. The fitting process was done by a computer software program. OK is a new field which has been claimed to slow down the progression of myopia,[8] but the exact mechanism is not yet understood. The authors claimed that the amount of uncorrected myopia decreased significantly after six months of follow-up, $p < 0.001$. Patients with myopia of less than −5.0 had a better permanent visual acuity and at less time compared with higher myopia, $p \leq 0.05$. Achieving the target visual acuity was longer in younger cases compared to older ones, $p = 0.05$. However, no major complications were reported in their patients. They particularly propose the use of OK for patients with spherical equivalent and myopia of less than −5.0 diopter.

Rajavi Zh. and coauthors present "Long-term visual outcome of congenital cataract at a tertiary referral center from 2004 to 2014". Congenital cataract in developing countries has a prevalence of 1–3 per 10,000 births.[9] 133,000 cases of childhood blindness in developing countries is due to congenital cataract.[10] In this retrospective, descriptive study, the authors investigated the long-term postoperative visual outcome, complication, and risk factors for low vision in congenital cataract. 42 patients (71 eyes), 20 males with mean age of 65 ± 66.6 months and 22 females with mean age of 12.9 ± 23.5 months, were included in the study. 69% of children had bilateral cataract. In more than 90% of cases, combined aspiration, posterior capsulotomy, and anterior vitrectomy was performed. In 56.3% of cases, the refractive correlation was by intraocular lens (IOL) and glasses, and in 43.7% of cases by glasses alone. In the first group, the mean best corrected visual acuity (BCVA) was 0.29 ± 0.28 logMAR, and in the second group 0.7 ± 0.53 logMAR. The average duration of follow-up was 76 ± 65 months (6–240 m). The most common postoperative complications were: amblyopia (56%), glaucoma (23.90%), and posterior capsular opacity (16.40%). The most common risk factors for final low vision were unilateral cataract ($p < 0.001$), nystagmus ($p = 0.007$), female gender ($p = 0.007$), and strabismus ($p = 0.009$). They conclude that better visual acuity was achieved among children who had IOL correction and those who had surgery before 6 months of age.

Ademola-Popoola D.S. and coauthors from the University of Ilorin have published "Comparison of ocular biometry measurements by applanation and immersion A-scan techniques". Ocular biometric values are of great importance in our everyday practice of ophthalmology, particularly for cataract surgery and intraocular lens calculation. A-scan ultrasound technique is the traditional way to measure anterior chamber depth, axial length, and lens thickness. This can be done by contact applanation or by immersion which uses a saline-filled shell between the probe and the eye. Applanation causes slight indentation on the cornea which may introduce errors in calculations.[11] Optical method which is a non-contact interferometry gives comparative results with immersion technique.[12] However, optical technique is unable to obtain accurate axial length measurements in some pathological cases such as dense cataract. Axial length is of high value in calculation of IOL power, and a 1-mm error causes 2.35 error of IOL power. In this prospective, cross-sectional comparative study, the biometry values of 92 eyes were taken. The mean age was 64.7 ± 12.9 years. The immersion and contact (applanation) techniques were compared. There was a high linear correction in axial length measurements by the two techniques, $p = 0.000$. However, the correlation for lens thickness and anterior chamber was insignificant. The authors indicate that the immersion technique gives a longer axial length compared to applanation method which could cause error in the selection of IOL power.

Hashemi H. and coauthors have studied and presented "Higher order aberrations in a normal adult population". Higher order aberrations (HOAs) are part of the refractive errors and not correctable with lenses. They are among errors of the optical system which can deteriorate vision. In this study, the 40- to 64-year-old citizens of Shahroud were selected. 300 clusters were randomly selected using multiple sampling, and 6311 citizens were invited to participate. Finally, 1017 people were selected as the subsamples. Zywave aberrometer was used to assess HOAs and Zernike indices. HOAs in this study were on average higher than other reports. Many factors can influence HOAs such as race,[13] age,[14] and others. The authors claim that although the higher HOAs in their patients may be due to the higher mean age of their cases, racial factors should also be considered. They propose that this issue of HOAs in Iran should be considered in diagnostic and therapeutic procedures.

Ghasemi Falavarjani K. et al present "Macular thickness measurement in clinically significant macular edema before and after meals". The macular edema caused by diabetes

(DME) has significant diurnal variations in thickness[15] change related to fasting and meals. Kotsidis et al[16] reported significant hourly changes in macular thickness while glucosemia, blood pressure, and body temperature were constant during those hours. In this prospective case series, the investigators reported changes in the mean central subfield thickness (CST) and maximum retinal thickness (MRT) after 7 h of fasting and 2 h after breakfast. They report a significant decrease ($p < 0.001$) in CST and MRT values after meals. They propose that these variations should be considered during the treatment of macular thickness.

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