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Editorial

# This issue at a glance

In this issue of JOCO, Safarzadeh and his coworker have presented "Anterior segment characteristics in normal and keratoconus eyes evaluated with a combined Scheimpflug/Placido corneal imaging device". They randomly selected one eye of 200 patients with different degrees of keratoconus (suspect, mild, moderate, and severe) and compared them with one eye of 25 healthy individuals. They used combined Scheimpflug/Placido control imaging device to determine corneal thickness at the apex, thinnest corneal thickness (TCT), anterior chamber depth (ACD), corneal volume, corneal keratometry, and asphericity of corneal elevation at two surfaces, and also the Zernike coefficients for aberrations. TCT, corneal thickness at the apex (CTA), and posterior corneal elevation were significantly different in all groups ($p < 0.05$). Mean volume of cornea in healthy cases compared with suspect KC, mild KC, and moderate KC showed statistically significant changes ($p < 0.05$). There were statistically significant differences in aberrometric values in most groups. Keratoconus is characterized by corneal thinning and ectasia.[1] There are also changes in high order aberrations which are needed to be recognized for correct management of the disorder.

Mohammadpour and coworkers present "Correlation of higher order aberrations and components of astigmatism in myopic refractive surgery candidates". They investigated higher order aberration (HOA) after refractive surgery. 375 eyes of 188 patients aged 238.2 ± 6.24 years were investigated. Refraction, topography, and aberrometry were obtained prior and after refractive surgery. Post-operatively, a positive significant correlation between residual astigmatism and HOA was found. Modifications in HOA can be predictable prior to surgery,[2] and it should be considered before surgery.

Sharifipour and coworkers present "Age-related variations in corneal biomechanical properties". The aim of the investigators was to detect the changes in corneal viscoelasticity: corneal hysteresis (CH) and corneal resistance factor (CRF) in healthy people caused by the aging process. Ocular Response Analyzer (ORA) has been introduced since 2005, for in vivo measurements of corneal biomechanical properties.[3] CRF is the elastic property of the cornea. CH is the difference between a force-in and force-out applanation measurement. In this observation cross-sectional study of 302 individuals studied in 6 age decades (10–69 years), CH and CRF showed a significant negative correlation with age, $p < 0.001$. They were both significantly correlated with central corneal thickness (CCT) which was significantly thicker before 20 and after 50 years of age. CH and CRF measurements were also significantly correlated with each other ($p < 0.001$) and also significantly higher in women compared with men.

Khan and colleagues present "Hypertension potentiates cataractogenesis in rat eye through modulation of oxidative stress and electrolyte homeostasis". Some epidemiological studies have shown that hypertension is also a risk factor for cataract formation.[4] The mechanism has been claimed to be through inhibition of $Na^+$ $K^+$ ATPase pump activity.[5] Here, the investigators used albino rats. In different groups (six animals in each), different hypertensive agents were used. The biochemical parameters in serum and eye lenses were evaluated after 6 weeks. A significant elevation of $Na^+$ and $Ca^{2+}$ and reduction of protein and ATPase activity was observed in all but one group of rats. They concluded that systemic hypertension is cataractogenic in experimented rats via modulation of the antioxidant defense mechanism and electrolytic activities in the lens.

In a prospective, single center analysis, Asharlous and colleagues investigated the effect of the cyclopentolate 1% on the cylindrical and spherical values questioning "Does astigmatism alter with cycloplegia?". 375 eyes (195 subjects) between the ages of 3 to 59 years were refracted before and 30 min after application of cycloplegic. Refraction has been assessed by the mean of five-time auto-refractive values confirmed by retinoscopy. If the axe of the refraction was unchanged before and after cycloplegic refraction, algebraical subtraction was applied to determine the values. If the axes were different, vectorial analyses were applied.[6] A statistically significant difference was found before and after cycloplegic in "with-the-rule" and "against-the-rule" astigmatism while the oblique astigmatisms was not changed significantly. Comparing the emmetropes, myopes, and hyperopes, only in hyperopic eyes was this change observed ($p = 0.014$). They found that spherical equivalent values in cases under cycloplegics were significantly more hyperopic compared to

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non-cycloplegic cases ($p < 0.0001$). Meanwhile, these values were negatively correlated with age. Different factors can be involved in this astigmatic shift. On top of them, accommodation can play the essential role.

Hasani et al present their experience "Estimation of the hybrid lens parameters through rigid gas permeable lens fitting". Irregular astigmatism which is a consequence of corneal ectasia impairs the vision and is not correctable by simple methods.[7] The authors selected 34 eyes with corneal ectasia. The eyes were fitted with both RGP lens and hybrid contact lens. They found a linear relationship between the base curvature of the RGP lens and the vault of the hybrid lens. A correlation between the power of the RGP and hybrid lens was also found. They concluded that in this manner, a better hybrid contact lens could be selected for this purpose and more quickly.

Hashemi et al present "The prevalence of ptosis in an Iranian adult population". In the multi-stage cluster sampling of Shahroud city,[8] 300 clusters of 40−64 years, 5190 participants were selected. They were examined in 2009 and re-examined 5 years later (2014). At the second phase, 4737 cases responded. The prevalence of upper eyelid ptosis was 4.7%. It was different between the two genders, 5.2% in women and 4.0% in men. The prevalence of bilateral ptosis was 1.3%, and 3.4% for unilateral. The prevalence of ptosis increases with age 3.1% (age 45−49 years) and 5.8% (age 65−69).

Abdelfattah and co-authors present "Perspective of ophthalmology residents in the United States about residency programs and competency in relation to the International Council of Ophthalmology guidelines". In this cross-sectional, web-based survey comprising 61 residents (PGY-3 and 4) and 26 graduates, 93.6% of respondents were highly satisfied with their program. However, most of them claimed that they had done an insufficient number of extra-capsular cataract extraction, refractive, and orbital surgery. This investigation was based on the rules and regulations measuring the skills and competencies of ophthalmic residents all over the world.[9]

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