

The correlation of ocular HOAs and mesopic pupil size with age and sex.

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PURPOSE: To analyze the correlation of ocular HOAs and mesopic pupil size (MPS) with age and sex in myopic patients screened for refractive surgery.

DESIGN: Observational case series.

SETTING: My private clinic, Tehran, IRAN.

METHODS: Ocular HOAs and MPS were examined in 1641 females eyes and 749 male eyes with myopia and myopic astigmatism and also in two different age groups, under 30 years old(1675 eyes) and over 30 years old(713 eyes), using the Advanced Personalized Treatment (APT, Busch& Lomb) wavefront aberrometer. Root-mean-square (RMS) values of HOA and MPS were analyzed. All patients had correctable refractive errors without history of refractive surgery or underlying diseases. Pupil size measurement was performed under mesopic condition and Ocular HOAs were examined across a ≥ 6.0 mm pupil.

RESULTS: The mean value of MPS in 18-30 year/old group was $6.35 \text{ mm} \pm 0.89$ (SD) (range 3.1 mm to 8.9 mm) and in over 30 year/old group was $5.6 \text{ mm} \pm 0.99$ (SD) (range 2.8 mm to 8.5 mm) ($P= 0.00$).

The mean value of HOAs in 18-30 year/old group was $0.354 \mu\text{m}, \pm 0.137$ (range $0.10\mu\text{m}$ to $0.97\mu\text{m}$) and in over 30 year/old group was $0.420\mu\text{m} \pm 0.158$ (range $0.10\mu\text{m}$ to $0.99\mu\text{m}$) ($P= 0.00$).

The mean value of MPS in female group was $6.09 \text{ mm} \pm 0.98$ (SD) (range 2.8 mm to 8.7 mm) and in male group was $6.2 \text{ mm} \pm 1.01$ (SD) (range 2.8 mm to 8.9 mm) ($P= 0.010$). The mean value of HOAs was $0.372 \mu\text{m}, \pm 0.147$ (range $0.10\mu\text{m}$ to $0.98\mu\text{m}$) and $0.375\mu\text{m} \pm 0.145$ (range $0.10\mu\text{m}$ to $0.99\mu\text{m}$) respectively ($P= 0.660$).

CONCLUSIONS: The mean value of HOAs in over 30 yr/old group and MPS in male group had statistically significant greater levels.