Corneal refractive power and eccentricity in the ٤٠- to ٦٤-year-old population of Shahroud, Iran

PURPOSE:

To determine the normal corneal curvature, power, and eccentricity in an Iranian population and their determinants.

METHODS:

This report is part of a population-based study conducted in ٢٠٠٩. Of the ٥١٩٠participants of the study, Pentacam data from ٨٥٣٢eyes of ٤٢٦٦people who met the inclusion criteria for this analysis were used. For each eye, we extracted minimum and maximum keratometry readings, the average of the ٢readings (mean-K), the difference between these ٢parameters (keratometric astigmatism), and corneal eccentricity.

RESULTS:

The average mean-K, keratometric astigmatism, and eccentricity were ٤٣.٧٣± ٢.٤٧, ٠.٩٠± ٠.٩٣, and ٠.٢٧± ٠.٦٣diopter, respectively. Mean-K was directly correlated with age; inversely correlated with body mass index, axial length, white-to-white corneal diameter, and anterior chamber depth; increased at higher amounts of myopia; and was higher in women compared with men. Keratometric astigmatism was significantly higher in women, increased at higher amount of refractive error, but showed no association with other variables. Eccentricity was correlated indirectly with age and white-to-white corneal diameter, and directly with axial length. It increased with myopia.

CONCLUSIONS:

Compared with other studies, the mean corneal power and eccentricity values were lower in this Iranian population sample. Our findings may have implications for clinical interventions, especially refractive surgery. Further studies can identify the causes of such differences in the shape and size of the cornea, which may also be attributable to the choice of the measuring device.