The distribution of axial length, anterior chamber depth, lens thickness, and vitreous chamber depth in an adult population of Shahroud, Iran

BACKGROUND:

Ocular biometric parameters can be influenced by race, ethnicity, and genetics; their differences across different populations can probably explain differences in refractive errors in these populations. The aim of this study is to determine the normal range of axial length, anterior chamber depth, lens thickness, and vitreous chamber depth in the population of Shahroud in the north of Iran.

METHODS:

In the first phase of Shahroud Eye Cohort Study, the ٦٤-٤٠year old population were sampled cross-sectionally; ٦٣١١were invited and ٥١٩٠(%٨٢.٢) participated in the study. Biometric examinations were done using the LENSTAR/BioGraph (WaveLight AG, Erlangen, Germany) after vision tests and before cycloplegic refraction tests. Any type of eye surgery, extensive pterygium, and lack of cooperation were used as exclusion criteria, and analyses were done with data from ٤٨٦٩eyes.

RESULTS:

We found a mean axial length of ٢٣.١٤mm (%٩٥confidence interval [CI], ٢٣.١٧-٢٣.١١), mean anterior chamber depth of ٢.٦٢mm (%٩٥CI, ٢.٦٣-٢.٦٠), mean lens thickness of ٤.٢٨mm (%٩٥ CI, ٤.٢٩-٤.٢٧), and the mean vitreous chamber depth was ١٥.٧٢mm (%٩٥CI, -١٥.٧٠ ١٥.٧٥).Kolmogorov-Smirnov tests showed that the distribution of axial length, anterior chamber depth, lens thickness, and vitreous chamber depth significantly differed from normal; axial length and vitreous chamber depth demonstrated a leptokurtic distribution as well.Axial length, anterior chamber depth, and vitreous chamber depth significantly decreased with age, and lens thickness significantly increased with age (p .(٠.٠٠١ > All indices were significantly higher in men.

CONCLUSIONS:

The distributions of axial length, vitreous chamber depth, and lens thickness are reported for the first time in an Iranian adult population. Compared to other studies, axial length was in the mid range, nonetheless, studying axial length components showed that the Iranian population had smaller anterior chamber depth and lens thickness. Age and gender were significantly associated with all indices assessed in this study.