



Axial Length Elongation Factors in High Myopia

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ABOUT THE STUDY

When compared to myopia, Pathologic Myopia (PM) has the potential to reduce best-corrected visual acuity while myopia can be repaired so that visual acuity is preserved. PM is one of the main reasons for vision loss, and prevalence rates are very high. High myopia accompanied by degenerative changes is referred as PM (eg, myopic maculopathy that included diffuse or patchy chorioretinal atrophy, lacquer cracks, myopic choroidal neovascularization). An international team of myopia researchers created a new categorization of myopia maculopathy for the straightforward classification of PM (META-PM classification). According to the META-PM classification, PM is divided into four categories: "macular atrophy," "diffuse chorioretinal atrophy," "patchy chorioretinal atrophy," and "tessellated fundus". Lacquer cracks, Fuchs mark, and posterior staphyloma are three more characteristics recognized as "plus" lesions.

In order to investigate the connection between After Light Exposure (ALE) and ocular variables, several investigations were conducted. According to a prior study, Axial Length (AL) and slanted disc ratio were substantially associated, and eyes with a longer AL had more pronounced disc tilt. Before controlling for AL, age, sex, and other factors in this study, there was a correlation between ALE and tilted disc ratio; however, following adjustment, there was no longer a significant relationship between ALE and tilted disc ratio. While some research had discovered a strong connection between posterior staphyloma and ALE, other research had produced contradicting results. Because it was difficult to diagnose posterior staphyloma only based on fundus photography, we did not examine the relationship between ALE and posterior staphyloma. Instead, we looked at the association between ALE and the extent of chorioretinal atrophy, which was significantly related to posterior staphyloma. After accounting for several factors, there was a link between ALE and the region of chorioretinal atrophy. Angle peaking, which is another term for a change in vascular arcade angle, and the evolution of myopia were both associated. Vascular arcade angle and ALE were shown to be significantly

correlated in the current study, and this link persisted even after accounting for all possible confounding factors.

Optically Coherence Tomography (OCT) has recently become widely used, which has helped investigations looking into high myopia and choroidal thickness. The reduced choroidal thickness in the high myopia group was a topic of many investigations. A deeper connection between myopic maculopathy and macular choroidal thickness existed than with AL. There is a good chance that macular choroidal thickness will also be related to ALE if myopic maculopathy and that condition are highly correlated. But since OCT data was not included, we were unable to verify this. Regarding ALE and intraocular pressure, there are conflicting results. While some authors claimed there was no correlation between them, others claimed there was a considerable rise in AL in groups with higher Intraocular Pressure (IOP). It is known that normal tension glaucoma is more common in myopic eyes, and that extremely myopic eyes with high adolescent IOP are at an increased risk of developing the condition. Therefore, we predicted that IOP and ALE in very myopic eyes would be related, but no such correlation was discovered in our investigation.

The relationship between ALE and age and sex was the subject of several investigations. Contradictory studies have found that older individuals had a higher likelihood of having severe ALE, whereas other research has found no connection between ALE and age. Since age was not taken into account while calculating AL in the research that found a significant relationship between ALE and age, older people's axial elongation was likely larger as a result. If ALE is not adjusted for AL as age grows, ALE may become more severe because AL is often longer in older people. If they had made an AL adjustment, it's feasible that ALE and age do not correlate. It was hypothesized that there was a considerable increase in AL in females when it came to the association between ALE and sex. The link between ALE and female sex in our study was strong, and it remained so even after accounting for all other factors. The current study does have certain limitations. To start, we presumptively extended AL linearly. However, we believe that the AL is always changing. It

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may be assumed that there is some crucial point connected to AL elongation. The study's follow-up time was relatively brief. A reasonable follow-up period of more than 10 years was necessary since AL grows gradually. Observing AL for a prolonged length of time with a single biometry tool, however, was difficult. The thickness of the cornea was not taken into count. Even though a relationship between mean IOP and ALE was not seen in investigation, we were unable to fully show it because of how significantly corneal thickness affected IOP measurements. The

OCT results were not examined in this research. Following the new description of the significance of choroidal thickness, more research utilizing OCT data is required.

Finally, we were unable to examine how ALE and systemic illnesses relate to one another. Since AL elongated more noticeably in females, it might be assumed that ALE is connected to systemic problems like collagen abnormalities. To fully explain this association, a different investigation is currently under way.