AXIAL LENGTH, CORNEAL CURVATURE AND THEIR ASSOCIATION WITH THE REFRACTIVE STATUS OF THE EYE-A REGRESSION ANALYSIS

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Aim: To study the key components of refraction and know the alterations in each component for various refractive states of the eye and to create a new index for refractive surgeries. Methods: Of the 300 eligible subjects 296 agreed to participate. Data from the right eye of the subjects was analysed. Results: Mean Axial length / Corneal radius (AL/CRC) of curvature was 3.09 (95% CI, 3.07-3.1). Mean AL/CRC of curvature was 2.98 in emmetropic eyes. The highest and lowest values of AXL/CRC were seen in eyes with high myopia and high hyperopia respectively. Mean AL/CRC was 3.49 in eyes with myopia greater than -5.00D. This value decreased linearly and reached a minimum of 2.65 in cases with hyperopia more than 2D. Linear regression showed a shift of 11.46D in spherical equivalence towards myopia with 1 unit increase in AL/CRC (p0.001). The ratio was found to be higher in males by 0.015. Chances of emmetropia are highest when the Al/CRC is close to 3. Conclusion: Zone of emmetropisaztion was found to be 2.98. Any disturbance in this ratio can be interpreted as a sign of refractive error. This could be used as an index for refractive surgeries where the surgeon should aim to keep AL/CRC close to 2.98. No financial interests.