( ) R1 ( ) R2 ( ) R3 ( ) PG0 ( ) PG1 (X) Estagiário ( ) Tecnólogo ( )
PIBIC Last Name - Alzamora T. First Name - Juan Middle - Benjami

Service (sector) Ocular BioengineeringNº CEP

Quantitative area topography: a new concept applied to study normal and pathologic corneas

Spatial variation of normal corneal thickness assessed by Orbscan II J.B. Alzamora T. MD, E.J. Maidana S. MD, C.G. Arce MD, P. Schor MD, M.S.Q. Campos MD Ocular Bioengineer and Refractive Surgery Sectors, Department of Ophthalmology, UNIFESP/EPM, São Paulo, Brazil. Purpose: Describe a method to assess the spatial variation of corneal thickness. Methods: Orbscan II quantitative pachymetry of area was performed in 40 normal corneas of 22 myopic patients. We evaluated the average pachymetry, its standard deviation (SD) and ground plane slope of three 1-mm-width rings concentric to the thinnest point and with 1.0, 2.0, and 3.0 mm external radii. The thickness at the thinnest point and its distance from the center of pachymetry maps centered in relation to the pupil were also recorded. Results: The thinnest point was located at (mean ±SD) 0.49 ±0.2 mm from the map center. No thinnest point was found beyond 0.9 mm in this series. Mean thinnest point ±SD was 546.26 ±41.89 µm. Mean average thickness ±SD was 553.62 ±40.83 µm in the first ring, 583.93 ±42.18 µm in the second ring, and 626.99 ±41.74 µm in the third ring (P=8x10-14). Mean SD of pachymetry ±SD was 3.70 ±2.79 µm, 13.94 ±3.46 µm, and 22.50 ±5.89 µm in the first, second, and third ring (P=.001) respectively. Mean slope ±SD was 2.7 ±1.5 nm/mm, 6.3 ±2.8 nm/mm, and 8.3 ±3.8 nm/mm in the first, second, and third ring (P=3x10-12) respectively. Conclusions: Spatial variation of corneal thickness may be assessed by quantitative area topography. Our findings suggest that normal corneal thickness increases as do the distance from the thinnest point. Dispersion of thickness values, represented by the SD of average pachymetry, and the rate of thickness variation, represented by the slope, also increase.