00494 Assessment of Circumferential Angle Closure With Swept-source Optical Coherence Tomography: A Community Based Study

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Aims: To evaluate the diagnostic performance of swept-source optical coherence tomography (SS-OCT, CASIA SS-1000, Tomey Corporation, Nagoya, Japan) for angle closure detection, in comparison with gonioscopy in a community setting.

Methodology: Cross-sectional study. A total of 2027 phakic subjects aged ≥50 years, with no previous history of glaucoma, intraocular surgery or ocular trauma, were consecutively recruited from a community polyclinic in Singapore. Gonioscopy was performed by a single trained ophthalmologist. SS-OCT 3-dimensional angle scans, which obtain radial scans for the entire circumference of the angle, were performed under dark conditions, and 128 cross-sections of the anterior chamber of each eye were analyzed by a single examiner, masked to the subject's clinical details. Gonioscopic angle-closure was defined as non-visibility of posterior trabecular meshwork for at least 2 quadrants, while on SS-OCT images, angle closure was defined as contact between the iris and any part of the angle wall anterior to the scleral spur. Different cut off values of the degree of circumferential angle closure (≥35%, ≥50% and ≥75%) on SS-OCT were analyzed.

Result: 1857 subjects (91.6%) were included in the final analysis after excluding poor quality SS-OCT scans. Almost 90% of the subjects were Chinese, with a mean age of 61.8 ± 6.7 years, and more than half were women (63.5%). The prevalence of angle closure on SS-OCT 26.1% for the ≥35% definition, with an AUC of 0.80 (0.77-0.84), sensitivity of 82.5% (75.3-88.4) and specificity of 78.5% (76.5-80.4). The AC1 statistics for the 2-quadrant gonioscopic definition of angle-closure with corresponding ≥35%, ≥50% and ≥75% angle closure definitions for SS-OCT were good at 0.89 (0.83 - 0.93), 0.89 (0.842 - 0.93) and 0.88 (0.831 - 0.99) respectively.

Conclusion: In this large community-based study, SS-OCT exhibited moderate performance for angle closure detection compared to gonioscopy as the reference standard.