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[Response to] Comparing Gonioscopy with Visante and Cirrus Optical Coherence Tomography for Anterior Chamber Angle Assessment in Glaucoma Patients

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Dear Dr. Cioffi,

We recently reviewed the article published online ahead of print in May 2014 by Hu et al titled "Comparing Gonioscopy With Visante and Cirrus Optical Coherence Tomography for Anterior Chamber Angle Assessment in Glaucoma Patients"¹ in our glaucoma journal club at The University of Texas Medical School at Houston. The article raises the interesting

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concept of using anterior segment ocular coherence tomography (ASOCT) to assess the presence of angle closure compared to gonioscopy.

The authors report that when visualizing the anterior chamber angle with the Visante or Cirrus, there were 89/200 and 100/200 quadrants, respectively, where the scleral spur was not visible. Subsequently, there were 86/200 (43%) quadrants and 95/200 (48%) quadrants, respectively, wherein angle closure could not be determined. The authors state in the discussion that the discrepancy in results was because they were unable to classify angles as closed without identifying angle structures. Of these quadrants, 33 quadrants and 39 quadrants were the superior quadrant,¹ respectively, which is the narrowest quadrant on gonioscopic exam.²⁻⁴ In the results section, the authors state that, “all angles wherein closure was unable to be determined were excluded from this analysis”,¹ indicating the elimination of 66% and 78% of the superior angle data from analysis. Further, the remaining data used to determine the agreement between gonioscopy and ASOCT were calculated by quadrant, not by eye.¹

Because gonioscopy graded mainly superior angles and the ASOCT graded mainly the nasal or temporal angles, presenting the data in this manner misrepresents the concordance of gonioscopy to the Visante and Cirrus in determining the presence of angle closure. Because quadrants were not paired for analysis, i.e. superior angle on gonioscopy to superior angle on ASOCT, omitting this data from analysis and evaluating the agreement between gonioscopy and ASOCT by quadrant rather than eye is significant to the interpretation of the results and makes the study appear more robust than it actually is. Additionally, it is often more difficult to identify angle structures in narrow angle eyes on ASOCT,⁵ which may skew the results away from the narrow angle population. A more complete discussion of the methods and data analysis may be warranted.

Sincerely,

Mallika K. Doss, MD, Lauren S. Blieden, MD, David A. Lee, MD, Nicholas P. Bell, MD, and Robert M. Feldman, MD

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References

1. Hu CX, Mantravadi A, Zangalli C, et al. Comparing Gonioscopy With Visante and Cirrus Optical Coherence Tomography for Anterior Chamber Angle Assessment in Glaucoma Patients. *J Glaucoma*. 2014
2. Rigi M, Blieden LS, Nguyen D, et al. Trabecular-iris circumference volume in open angle eyes using swept-source fourier domain anterior segment optical coherence tomography. *J Ophthalmol*. 2014; 2014:590978. [PubMed: 25210623]

3. Liu S, Yu M, Ye C, et al. Anterior chamber angle imaging with swept-source optical coherence tomography: an investigation on variability of angle measurement. *Invest Ophthalmol Vis Sci*. 2011; 52:8598–8603. [PubMed: 21948547]
4. Cumba RJ, Radhakrishnan S, Bell NP, et al. Reproducibility of scleral spur identification and angle measurements using fourier domain anterior segment optical coherence tomography. *J Ophthalmol*. 2012; 2012:487309. [PubMed: 23209880]
5. Sakata LM, Lavanya R, Friedman DS, et al. Assessment of the scleral spur in anterior segment optical coherence tomography images. *Arch Ophthalmol*. 2008; 126:181–185. [PubMed: 18268207]