



Comment on: ‘Quantification of anterior chamber reaction after intravitreal injections of conbercept and ranibizumab: a pilot study’

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Received: 8 August 2019 / Accepted: 17 September 2019 / Published online: 30 October 2019
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To the Editor:

We noted the recent use of anterior segment optical coherence tomography (AS-OCT) to quantify anterior chamber inflammation in a pilot study of intravitreal anti-vascular endothelial growth factor agents [1]. The authors reported an incidence of postinjection anterior chamber reaction of 30.5%, as detected on AS-OCT. This is more than 50-fold higher than previous clinical reports using slit lamp based examinations.

The perfect diagnostic tool is able to discriminate between subjects with and without disease. The current gold standard diagnostic for grading anterior chamber inflammation is slit lamp bio-microscopy using the Standardized Uveitis Nomenclature (SUN) inflammatory cell count scoring system. Under this system, “0” (a level denoting disease inactivity) represents no cells seen by the clinician within a 1-mm beam of light at maximal intensity. Crucially, it does not denote the absence of anterior chamber cells.

We have derived the diagnostic accuracy measures, specifically sensitivity, specificity, negative, and positive predictive values (NPV/PPV), from five of the key recent AS-OCT validation studies (Table 1) [2–6]. Figure 1 shows

the accuracy metrics of AS-OCT for active inflammation in each of these studies. The consistently high-negative predictive values suggest that AS-OCT would be able to exclude anterior uveitis with high certainty. However, all studies reported detection of free floating cells in eyes which were ‘clinically’ free of inflammation. If one were to directly apply the thresholds provided by the SUN grading to AS-OCT, it would result in overdiagnosis and over-treatment. Further clinical validation and clinical utility work on normal and diseased cohorts is needed for us to understand the clinical relevance of imaging based cell counts.

Anterior uveitis is the most common form of uveitis worldwide, and is a common cause of attendance to emergency ophthalmology care. This disease burden combined with a worsening national shortfall of ophthalmologists represents a challenge to care provision. The use of virtual clinics has revolutionized the delivery of glaucoma and age related macular degeneration services. AS-OCT quantification of anterior chamber inflammation could, following further clinical validation work, emerge as a valuable tool for improving the quality and efficiency of clinical service provision.

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Table 1 Summary of studies comparing anterior segment OCT grading of anterior chamber inflammation with standard clinical assessment

Studies	Imaging device	Scan acquisition protocol	Number of eyes imaged	Proportion of eyes with clinically active disease (%)
Invernizzi et al. [2]	Casia SS-1000 (SS-OCT)	2 cross-section (B) scans, each 6 mm in length and depth	237 eyes 122 participants 167 eyes with uveitis and 70 healthy control eyes	64 (27%)
Baghdasaryan et al. [3]	DRI Triton (SS-OCT)	3-mm length horizontal B-scan at central cornea	58 eyes 38 eyes of 32 patients, and 20 eyes of 10 controls	18 (31%)
Sharma et al. [4]	RTVue-100/CAM (SD-OCT)	6 × 6-mm cube scan (512 B-scans) at central cornea	83 eyes 50 patients	59 (71%)
Igbre et al. [5]	Visante OCT; Zeiss Meditec (TD-OCT)	Between 4 and 8 B-scans 10 mm length	69 Number of patients not reported	47 (79%)
Li et al. [4]	Carl Zeiss Meditec anterior segment prototype (TD-OCT)	Two concentric circular scans of diameter 2 and 4 mm were obtained Inner and outer scans consisted of 256 and 512 axial scans	77 Number of patients not reported, 19 eyes of 19 controls included	42 (55%)

SS swept source, SD spectral domain, TD time domain

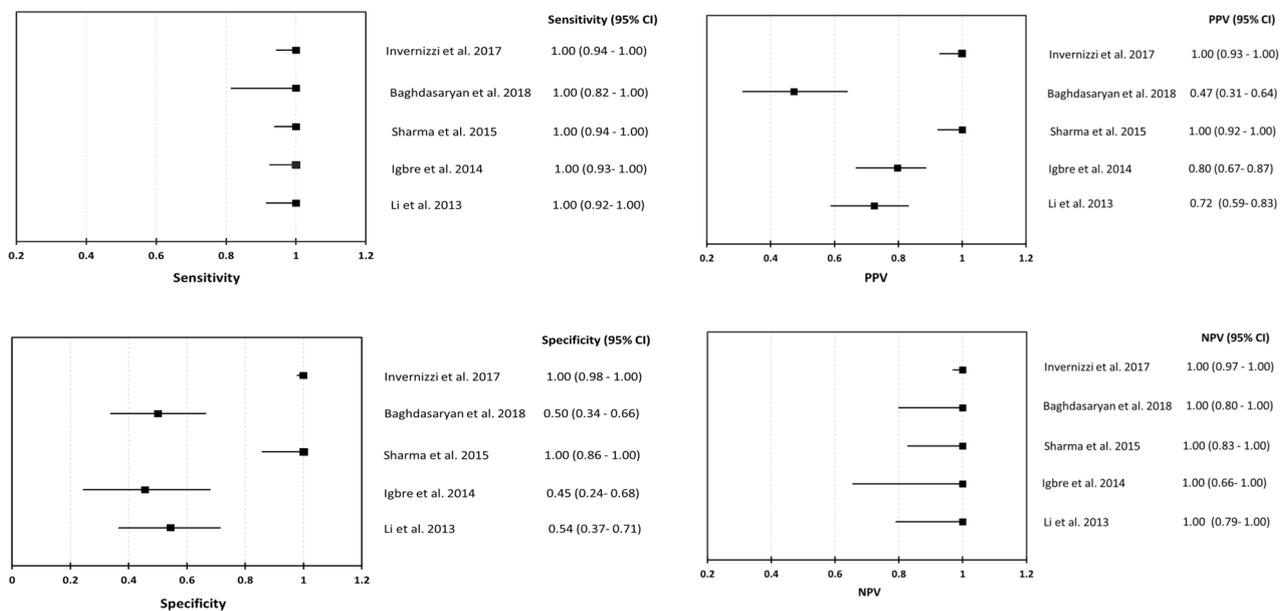


Fig. 1 Diagnostic accuracy measures from five key anterior segment OCT validation studies [2–6]

Funding ALS received supported through an NIHR Clinician Scientist award. This work was undertaken at the National Institute for Health Research Biomedical Research Centres (NIHR BRC) based at Moorfields Eye Hospital NHS Foundation Trust and UCL Institute of Ophthalmology UCL and Institute of Child Health/Great Ormond Street Hospital for children. The funding organizations had no role in the design or conduct of this research. This paper presents independent research. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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