

## Commentary: Efficacy of swept-source optical coherence tomography in dense cataract

Various IOL calculation formulas have been developed over the years to estimate the accurate IOL power in cataract surgery. Despite this, accurate axial length (AL) measurement remains a challenge, specifically in dense cataracts, which is a cause of inaccurate estimation of IOL power.

Among the various options for AL measurement, one can choose from immersion ultrasound, partial coherence tomography (PCI), and the latest swept-source ocular coherence tomography (SS-OCT). PCI has limited use in cases of central corneal opacity, dense cataracts, retinal pathology, and poor fixation. In contrast, SS-OCT has better tissue penetration and can overcome problems faced by PCI in optical biometry.

The article is pertinent in cases of dense cataracts in enhancing the ability of cataract surgeons to estimate accurate IOL power and thus provide glass-free surgery to demanding patients.<sup>[1]</sup> To assess the accuracy, patients with corneal opacity and retinal pathology were excluded from the study, and comparison was done only in dense cataracts. In dense cataracts, PCI-based optical biometry was possible in 31.43% of cases, while it improved to 78.57% in SS-OCT. The failure rate of PCI-based optical biometry in the above article was 68.58% in

cases of dense cataracts as compared to the general population where it was found to be 5%–19.4%.<sup>[2,3]</sup> However, failure rates of SS-OCT were 20% in dense cataracts as compared to 2.32% in the average population.<sup>[3]</sup> The measurements performed using PCI and SS-OCT were similar to those reported in other studies.<sup>[4,5]</sup> Thus, SS-OCT is efficacious in AL measurement in cases of dense cataracts.<sup>[6-8]</sup> In another other study, authors demonstrated that ss-OCT significantly improves the rate of attainable axial eye length measurements, especially in eyes with posterior subcapsular cataracts, but also in eyes with dense nuclear cataracts, except for white cataracts.<sup>[8]</sup> However, this study showed that A-scan immersion ultrasound is more useful in cases of intumescent cataract and nuclear opacity 6 (NO6) cataract where SS-OCT has limited use.

To summarize, SS-OCT is a recent technique that should be kept in the armamentarium of cataract surgeons for providing excellent surgical results in cases of dense cataracts, especially in developing countries where patients present fairly late for cataract surgery.

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