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USE OF B MODE BIOMETRY FOR IOL CALCULATION

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PURPOSE: To explain B mode biometry technique and its role in our current practice.

METHODS: We present a retrospective study of 1000 consecutive patients referred to Explore vision center for IOL calculation. B-mode Biometry is performed patient reclined, open eyes without anesthetic drop. Ultrasound 10 Mhz probe is applied with pseudo-immersion technique with gel in order to obtain horizontal axial scan. Vector scan is aligned with visual axis (10 to 15 degrees temporally of optic nerve head). Axial length is measured with A-mode guided by B-scan using 4 gates to select ultrasound speed in cornea/anterior chamber, lens and vitreous. 5 consecutive B-Scan measurements are performed. Axial length by B-mode biometry is compared to IOL-Master (Zeiss Meditec) when available. IOL calculation is performed with B-mode axial length. When axial length with IOL-Master is not available we analyse post-op refraction and compare to other series. B-scan posterior pole examination is performed routinely.

RESULTS: IOL-Master Axial length measurement is not available in 7,6% of globes. B-Scan Axial length measurement is available in 100 % of globes. Comparison between B-mode Biometry and IOL-Master axial length (when available) shows no statistical difference. In case of no response of IOL-master axial length measurement (cloudy media mainly) (7,6%) post-op refraction is 77,2 % within +/- 0,50D. In this serie, B-mode ultrasound of posterior pole had shown epiretinal membrane (2,9%) retinal tears (1,8%), retinal detachment (0,1%) and 1 case of choroidal melanoma.

CONCLUSION: In our hands, B mode biometry is a very efficient tool for IOL calculation with no statistically difference with IOL-Master for axial length measurement, with 100% of axial length measurement, even in case of cloudy media. Posterior pole B-mode exploration in conjunction with IOL calculation can diagnose retinal tears, retinal detachment and choroidal melanoma before cataract surgery.