

Smaller anterior chamber volume is associated with higher risk of intraocular pressure elevation after laser peripheral iridotomy: a 1-year follow up study

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Introduction

There was no data about the efficacy of volumetric parameters such as anterior chamber volume in the follow-up of PACD patients. This study is designed to explore the efficacy of volumetric parameters during the follow up of PACD.

Methods

In this single-center study, PACD patients who underwent laser peripheral iridotomy (LPI) were recruited. Anterior segment images of the patients were captured using swept-source OCT before and at one week, one month, three months, six months and one year after LPI. IOP elevation was defined as IOP greater than 21 mmHg at any time point after LPI. The changes in trabecular iris surface area, anterior chamber volume and iris volume with time and their relationship with IOP elevation were analyzed.

Results

Ninety eyes of 81 subjects were included. ACV, IV and mean TISA750 of the four quadrants significantly increased at one week after LPI and did not decrease during the first year. ACV and mean TISA750 were significantly smaller in those with IOP elevation when compared to the control (coefficient = -5.17, $P < 0.001$ and coefficient = -22.40, $P = 0.01$, respectively). Correlations between TISA750 and IOP elevation varied across different quadrants and were significant only in the superior and inferior quadrants ($P < 0.001$ and $P = 0.03$, respectively).

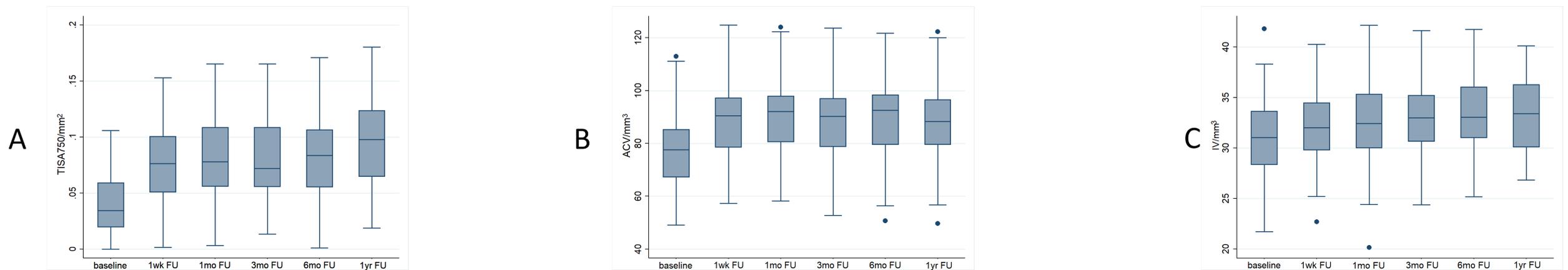


Figure 1: Box plots showing longitudinal changes of TISA750 (A), ACV (B) and IV (C). All the above parameters increased significantly shortly after LPI compared to baseline and remained fluctuated thereafter.

Conclusions

ACV is a reliable and accurate parameter for the follow up of PACD. ACV is a better representation of the status of the anterior chamber in PACD patients than traditional angle width parameters such as TISA750.