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PRE AND POSTOPERATIVE OCT MARKERS AND THEIR VALUE AS PROGNOSTIC FACTORS IN FULL THICKNESS MACULAR HOLE SURGERY

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Introduction:

We aim to validate preoperative and early postoperative biomarkers in OCT for idiopathic macular hole (iMH) surgery and correlate them with best-corrected visual acuity (BCVA).

Materials and methods:

This was a retrospective study conducted in S. José Local Health Unit, that included patients who underwent successful surgical treatment for iMH, who had a preoperative and early postoperative (1 month) OCT, and BCVA assessed at 6 months. We excluded patients with other retinal diseases or prior vitreoretinal surgery.

Minimum linear diameter (MLD), base diameter (BD), hole height (HH), nasal arm length, and temporal arm length were measured. Diameter hole index (DHI), tractional hole index (THI), macular hole index (MHI) and hole forming factor (HFF) were then calculated. On 1 month postoperative OCT, ELM and EZ disruption diameters were assessed.

We examined preoperative parameters' correlation with BCVA at 6 months and with postoperative EZ defect. BCVA and EZ defect were compared between C3F8 and SF6 tamponade. Patients were also divided into groups based on BCVA, BCVA improvement, and ELM/EZ restitution, and compared using appropriate tests.

Results:

49 eyes were included, with mean age of 69 ± 9 years. Mean preoperative BCVA was $1.0 \pm 0.5 \log \text{MAR}$ and postoperative BCVA at 6 months was $0.5 \pm 0.4 \log \text{MAR}$.

Both MLD, BM, MHI, THI and HFF, and ELM/EZ diameter were correlated with BCVA at 6 months ($p < 0.01$). Concordantly, MLD, BD, HH, MHI, THI, and HFF also correlated significantly with EZ defect. BCVA improved $0.2 \log \text{MAR}$ in 36 eyes (73%), however, no statistically significant differences were found when compared with those who didn't. Among eyes that improved to $\leq 0.3 \log \text{MAR}$ (29%), significant differences were found in MLD, BD, MHI, THI, HFF, and ELM/EZ defect.

We found no significant difference in BCVA according to gas used. However, EZ defect in eyes in which C3F8 was used was significantly lower than when SF6 was chosen ($p = 0.02$).

4 eyes had no postoperative ELM disruption, 3 of which also had complete EZ restitution. A statistically significant difference was found in MLD, MHI, THI, HFF, and also 6 month BCVA, vs. eyes in which integrity had not been achieved.

Conclusions:

Several structural OCT markers were validated as prognostic factors in the Portuguese population, correlating with post op BCVA, and ELM/EZ restitution. Combined with preoperative BCVA, they can be used for managing patients' preoperative surgical expectations.

We furthermore confirmed a strong correlation between ELM/EZ restitution and BCVA.