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SILICONE OIL TAMPONADE REMOVAL: WHICH TECHNIQUE IS MORE EFFECTIVE? AN X-RAY PHOTOEMISSION SPECTROSCOPY STUDY

Oral

Rossi T.*

IRCCS Ospedale Policlinico San Martino – Genoa, Italy ~ Genoa ~ Italy

Purpose:

to compare the efficacy of two surgical techniques used to remove silicone oil (SiO) emulsion tamponade after pars plana vitrectomy: triple Air-Fluid exchange (AFX) and BSS Lavage (BSSL).

Methods:

X-ray photoemission spectroscopy measured silicon content of the dry residue of fluid samples taken during AFX and BSSL. Ten patients underwent AFX and 5 BSSL, 3 fluid samples were taken per each patient and the dry residue of 10 drops per each sample were analysed. A fluid sample from a patient who never received SiO tamponade was also analysed to set a “blank” sample.

Results:

Patients' demographics showed no significant difference. Samples 1 of the two groups contained comparable silicon content while samples 2 and 3 of AFX group contained more silicon than BSSL Group (15.0 ± 0.1 and 12.0 ± 0.9 for AF group Vs 10.7 ± 1.4 and 5.2 ± 0.6 for BSSL group, respectively; $p < 0.05$). The cumulative amount of silicon in sample 1+2+3 was higher for AFX group (42.3 ± 1.6 Vs 32 ± 2 ; $p < 0.0001$). Average silicon content ratio between consecutive samples was significantly higher for AFX group compared to BSSL group (0.90 ± 0.01 Vs 0.58 ± 0.06 ; $p = 0.006$).

Conclusions:

Triple AFX removed more silicon than triple lavage. The eyewall actively retains silicon emulsion establishing a dynamic relation with the dispersion silicon content and does not behave as a neutral container.