( ) R1 ( ) R2 ( ) R3 (X) PG0 ( ) PG1 ( ) Estagiário ( ) Tecnólogo ( ) PIBIC Last Name - Crema First Name - Armando Middle - Stefano

Service (sector) Cataract Nº CEP

Comparative Study Between Co-axial Phacoemulsification and Minimal Invasive Cataract Surgery (MICs)

Armando Stefano Crema **PURPOSES:** The purposes were to evaluate the amount of ultrasonic energy used in MICs, and the amount of postoperative corneal endothelial cell loss in MICs; and to compare the results with those obtained with co-axial phacoemulsification. **METHODS:** We included 60 eyes (30 patients) with grade II to III cataract and corneal endothelial cell count larger than 1.500cels/mm2. We excluded patients with other ocular pathologies. Each patient was randomly submitted to co-axial phacoemulsification in one eye (group 1 – 30 eyes), and to MICs in the fellow eye (group 2 – 30 eyes). All surgeries were done by the same surgeon (ASC), using the Legacy 20.000® (Alcon). We used the soft shell technique with Duovisc (Alcon) and implanted a SA60AT (Acrysof Natural – Alcon) IOL in all patients. In group 1 we used a 1mm sideport incision + a 2.75mm clear corneal temporal incision; and in group 2 we used two 1.2mm incisions, enlarging one incision to 2.75mm for IOL implantation. All surgeries were done with a vertical chopping technique. US settings were the same in both groups (US 30% burst-100m/s-pannel-50%neosonix for chopping and 60%-15pulses/sec-linear-50%neosonix for aspiration/emulsification of the pieces). Aspiration settings were 500mmHg-60cc/min in group 1 and 350mmHg-35cc/min in group 2. Irrigation was 110cm in both groups. In group 2 we used a Crema/Nagahara irrigating chopper (MST Inc.). In both groups the total US time and the effective US time were verified, and the endothelial cell count was evaluated pre-operatively and in 90 days post-operatively; the cell loss then was analyzed. The results were compared between both groups. **RESULTS:** Mean US time was 0.52min (+-0.34min) in group 1 and 0.84min (+-0.39min) in group 2. The difference between both groups was statistically significant (Mann-Whitney test - $p<0.001$). Mean effective US time was 10.3% (+-3.8%) in group 1 and 10.3 (+-4.1%) in group 2, with no difference between both groups (Mann-Whitney test - $p<0.905$). Mean endothelial cell count was pre-operatively 2473.3mm2 (+-290) and post-operatively 2516.7mm2 (+-299.5) in group 1 and pre-operatively 2353.3mm2 (+-281.3) and post-operatively 2400mm2 (+-272.9) in group 2. And the mean endothelial cell loss was 4.7% (+-6.1) in group 1 and 4.7% (+-4.5) in group 2. The difference between the mean endothelial cell loss in both groups was not statistically significant (Mann-Whitney test - $p<0.918$). **CONCLUSIONS:** The US time was higher in MICs, and the effective US power was similar in co-axial phacoemulsification and MICs. The central endothelial cell loss in three months was 4.7% in both techniques, with no difference between MICs and co-axial phacoemulsification.