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The effect of the Hydrus trabecular shunt on endothelial cell count: a double blind prospective randomized clinical study

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Abstract

Purpose: One of the major complications of glaucoma tube surgery is the endothelial cell loss. Recently trabecular micro-shunts have been proved effective in reducing intraocular pressure in conjunction with cataract surgery, but there are no reports on their potential side effects on the endothelium.

Methods: In a double masked prospective randomized clinical study, endothelial cell count of patients undergoing cataract surgery (controls) or cataract and Hydrus stent (Ivantis) implant (cases) was performed at baseline and 3 months after surgery. Patients with an endothelial cell density lower than 1500 or with endothelial guttae were excluded. Endothelial cell evaluation was performed with a Konan Cellchek XL. The percentual change of the preoperative and postoperative CD, SD, CV and SA was compared between the two groups using unpaired Student t-test. All surgery was performed by the same surgeon (AF)

Results: A total of 24 patients were included in the study using a 2 :1 randomization criterion (8 controls: 16 cases). Two patients were excluded because of cornea guttata. Cases and controls had comparable pre-operative endothelial parameters (CD: controls: 2373 \pm 114 cases: 2495 \pm 80; SD: controls: 145 \pm 16 cases: 163 \pm 11; CV: controls: 33.4 \pm 2.7 cases: 39 \pm 1.9; SA: controls: 53 \pm 3.3 cases:56 \pm 2.4). The percentual decrease in cell density between groups (cases: 16.6 \pm 17.2 controls: 12 \pm 12.1)after surgery was not significantly different ($p=0.5$).

Conclusions: The Percentual CD reduction in both groups is comparable to the data reported in the literature. The implant of the Hydrus device in conjunction of cataract surgery does not seem to significantly affect the endothelial cell count in the short term. Long term studies are warranted.

Keywords: 481 cornea: endothelium

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