

SUMMARY

This thesis is divided into 3 parts.

Part 1: purpose of this part is creation of a patient database and choice of the statistical method.

Part 2: purpose of this part was to compare the extent of corneal endothelial cell loss and pachymetry changes in two groups of patients based on age when using the Infiniti AquaLase and NeoSoniX cataract removal modalities. Group A (30 patients younger than 80 years) and group B (patients older or equal 80 years). All patients had bilateral cataract. The right eye was operated by method AquaLase and the left eye by method NeoSoniX. The nuclei were graded clinically on the basis of their hardness. Endothelial cell count (ECC), pachymetry and best corrected visual acuity (BCVA) were evaluated pre- and postoperatively. Statistical analysis of the postoperative changes of ECC and pachymetry between right and left eye in patients in both groups was performed using the paired t-test.

The differences of postoperative changes of ECC and pachymetry between AquaLase and NeoSoniX in group A (younger than 80 years) were not statistically significant. In group B (older or equal 80 years) there were statistically significant differences in postoperative changes of both ECC and pachymetry with the results better in eyes where AquaLase was performed. Best corrected visual acuity improved in all eyes immediately after operation. The results suggest that AquaLase is a very safe cataract extraction method for endothelium even in senior patients with harder cataracts and primary loss of endothelial cells/mm².

Synopsis: Statistically significant less loss of endothelial cells and pachymetry changes after AquaLase cataract removal in elderly patients were found in this survey.

Part 3: this part evaluates the benefits of cataract surgery for old patients. There were investigated 112 patients older than 80 years. Best corrected visual acuity (BCVA) before operation, on the first postoperative day and 6 and 18 months after surgery were assessed as well as the changes in the quality of life using the modified test VF-8. The positive effect of cataract surgery was proved in the patients in this age group. Not only the improvement of visual functions, but also of the orientation and of the quality of life was reported by the patients. Based on our results we consider cataract surgery indicated for old patients even with systemic morbidities.