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**Stapesplasty: Comparison of conventional technique with CO<sub>2</sub>-laser-stapedotomy using single-shot technique**

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Introduction: A recent question in laser-aided stapesplasty is whether there are inner ear damages after laser aided surgery. Different lasers have different characteristics depending on their wavelenght and therefore possibly different effects on the inner ear. Aim of this study was to investigate whether the CO<sub>2</sub>-Laser used in single shot technique does lead to a different frequency of inner ear damages in comparison to the conventional stapedotomy according to Fisch.

Material and Methods: We performed a retrospective chart investigation in a tertial referal center. The results of 183 CO<sub>2</sub> -Laser aided stapedotomies according to Jovanovic were compared with 64 according to the conventional Fisch technique between 2001 and 2004. Parameters of the investigation were audiological results and postoperative complications. Results: Differences of audiological results and of the rate of complications did not reveal a statistical significance. Postoperative hearing results showed an improvement of 23 dB at 250 Hz up to 5 dB at 6000 Hz for both groups (t-Test 0,6-0,2). The incidence of sensorineural hearing loss was 6.5% (12 patients) in the laser group compared with 12.5 % (8 patients) with the conventional laser technique.

Conclusion: Similar good results can be obtained using either CO<sub>2</sub> laser single-shot-technique or convential stapedotomy. ABG closure rate were analogous in the 2 techniques as well as in the complication rate.