OBJECTIVE: The objective is to perform a systematic review and meta-analysis of the literature on the long-term results of hearing preservation after vestibular schwannoma resection.


STUDY SELECTION: Inclusion criteria: age ≥18 years, minimum 10 patients in the treatment group, hearing preserving microsurgery, no previous radiation treatment, serviceable hearing at immediate postop follow-up, hearing outcomes reported using Gardner Robinson or the American Academy of Otolaryngology-Head and Neck Surgeons hearing grading scales, and average follow-up of 5 years. Preoperative, immediate postoperative, and last follow-up audiograms were required. Exclusion criteria included neurofibromatosis type 2 patients and surgery for salvage therapy or decompression.

DATA EXTRACTION: Quality evaluated using Methodological Index for Non-Randomized Studies.

DATA SYNTHESIS: Meta-analysis was performed using R v3.2.2, Metafor package v 1.9-7. Cohen's D was used to determine effect size. Ten reports had at least 5-year follow-up and used standardized hearing grading scales. The systematic review found that if hearing was preserved at Class A or B at early postop visit, the chance of preserving hearing at 5 years was excellent. Those who maintained speech discrimination score ≥ 89% at the early postoperative follow-up had better long-term hearing preservation. The meta-analysis reveals that only preoperative and postoperative pure-tone average was associated with long-term hearing preservation.

CONCLUSION: Long-term (>5 yr) hearing durability rates are generally very good. Most studies do not report patient and tumor characteristics, therefore precluding combining studies for meta-analysis. Only preoperative and postoperative postoperative pure-tone average was associated with long-term hearing durability.

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