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lingua: *Inglese*

Negative influence of preoperative tinnitus on hearing preservation in vestibular schwannoma surgery

Luciano MASTRONARDI , Guglielmo CACCIOTTI, Raffaellino ROPERTO, Ettore DI SCIPIO

Neurochirurgia delle Chirurgie Specialistiche, Ospedale San Filippo Neri, SFN, Rome, Italy

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BACKGROUND: Goals of vestibular schwannoma (VS) microsurgery are: maximal resection, facial nerve (FN) preservation and, in selected cases, hearing preservation (HP). Postoperative HP rates are related to clinical and radiographic factors: size of tumor, preoperative hearing, hypertension, diabetes, and presence or absence of preoperative tinnitus. In this retrospective review we evaluated the influence of preoperative tinnitus on HP after VS surgery in patients with preoperative socially useful hearing (SUH).

METHODS: Twentyfive patients with socially useful hearing (SUH) underwent VS microneurosurgery by retrosigmoid (RS) approach. Selection criteria were: pure tone audiogram ≤ 50 dB loss and speech discrimination score $>50\%$ (50/50 criterion; AAO-HNS class A-B). In relation to maximum diameter, we identified 2 size-groups: A) ≤ 2 cm (13 cases); B) >2 cm (12 cases). HP attempt was assisted by intraoperative ABR evoked by LS CE-Chirp® acoustic stimuli.

RESULTS: Mean age was 44,3 years (20-64); average maximum diameter 2,0cm (0,8-4). Preoperative tinnitus was present in 10 patients (40%): all of them had a Class B-hearing. Total and nearly-total ($>95\%$) resection was possible in all. Mortality and major morbidity were zero. In all, FN was anatomically and functionally preserved; in 10 an incomplete FN deficit was followed by complete recovery within 2-8 weeks. At a follow-up ranging from 8 to 17 months (average 12,7 months), SUH preservation rate was 52%, with significant differences in relation to size: 61,5% group A and 41,7% group B ($p=0,014$). Postoperative AAO-HNS C (serviceable) hearing was observed in 36%, deafness in 12%. At last follow-up, among the 10 patients with preoperative tinnitus 6 worsened from Class-B to Class-C, 3 remained in Class-B, and one was deaf. As regards SUH preservation, 3 of 10 patients with preoperative tinnitus and 10 of 15 without it remained in Class-A-B ($p=0,006$).

CONCLUSIONS: Microsurgery represents the first therapeutic option for small growing VS with SUH. Our data confirm that key-hole RS removal of VS with intraoperative LS-CE-Chirp ABR monitoring allows good rate of SUH preservation, especially maximum diameter does not exceed 2cm. Preoperative tinnitus seems to indicate a lower hearing reserve and predicts a lower likelihood of HP.

KEY WORDS: Vestibular schwannoma - Hearing preservation - Tinnitus - Retrosigmoid approach - Acoustic neuroma

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