Targeted radiation of benign tumours of the vestibular nerve offers some advantages

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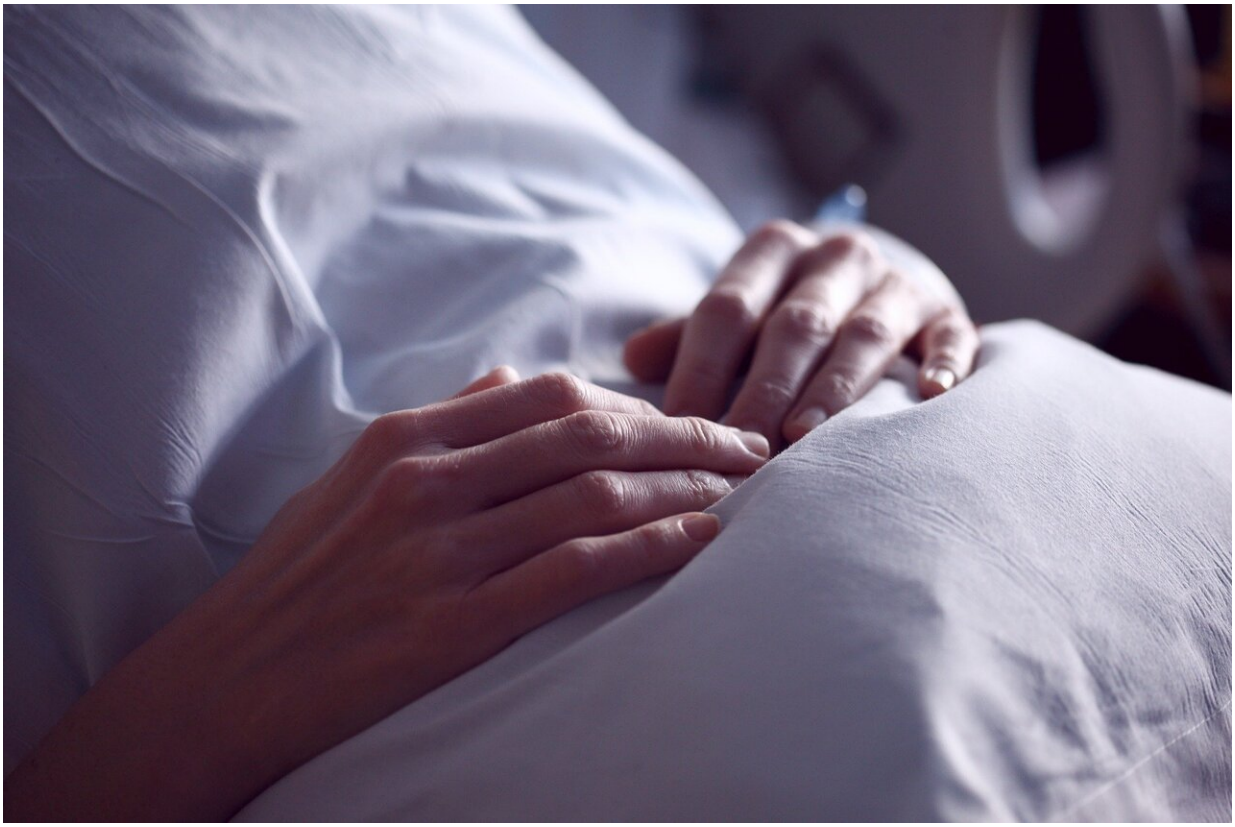

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Stereotactic radiosurgery (SRS) for benign tumors of the vestibular nerve (vestibular schwannomas, also called acoustic neuromas) offers more advantages to affected patients than microsurgical resection: After

targeted one-time and high-dose radiation, facial palsy, hearing loss, and hospitalizations occur less often than after surgery. However, because of the short duration of the studies available, it is unclear whether and to what extent these advantages last, particularly with regard to hearing loss. Moreover, data on serious complications are lacking.

When balancing the benefits and harms of the study results available, overall the data provide a hint of a greater benefit of SRS versus microsurgical resection in patients with vestibular schwannomas needing treatment. This is the conclusion of a benefit assessment conducted by the Institute for Quality and Efficiency in Health Care (IQWiG) on behalf of the Federal Joint Committee (G-BA), which has now been completed.

One-time radiation as an alternative to surgery

Vestibular schwannomas are benign, usually slow-growing tumors originating from the vestibular nerve and mostly occurring unilaterally in people older than 50 years of age. The consequences often include hearing loss, tinnitus, dizziness and facial palsy. The size, location and growth of the tumor affect the decision on treatment, as do the patient's medical history and preferences.

Especially in the case of small, non-growing tumors not yet causing symptoms, watchful waiting is an option, but requires regular magnetic resonance imaging about every twelve months. In the case of clear symptoms and/or larger tumors, surgery is usually performed. Radiation is an option for older patients with vestibular schwannoma needing treatment and in patients with an increased surgical risk: In single-stage SRS, the tumor tissue in the head is radiated once, with high doses and precision, using linear accelerators or cobalt-60-gamma radiation sources. Because SRS can generally be performed on an outpatient basis, there is usually no need to hospitalize patients.

Advantages of SRS for facial palsy, hearing loss and hospitalizations

A total of three non-randomized prospective comparative studies with approximately two years of follow-up provided results on patient-relevant outcomes. However, serious complications were not recorded in these studies. There were no advantages of SRS versus microsurgical resection for outcomes such as mortality, symptoms (e.g. dizziness, headache, tinnitus and balance disorders), consequences of the disease (e.g. inability to work) or side effects (treatment-related complications and re-interventions) and health-related quality of life.

However, the risk of facial palsy was about 17 times lower with SRS than with microsurgical resection. There were also great effects for the outcome "hearing": the likelihood of preserving functional hearing was about 23 times higher with SRS than with microsurgical resection. If the procedure was not performed on an outpatient basis, the average hospital stay for patients receiving SRS in the studies analyzed was 2.5 days. In comparison, patients undergoing microsurgical resection are always hospitalized; the average hospital stay in the studies analyzed was 12.5 days and 5.1 days.

In summary, the clear advantages of SRS versus microsurgical resection (hints of greater benefit due to fewer cases of facial palsy, hearing loss and hospitalizations) are not countered by hints of greater harm.

Study designs allow conclusions on benefit in the form of hints

Patients were not actively allocated to the treatment arms according to pre-planned rules in any study, but mainly according to the patients' wishes. The test and control groups therefore differed in the number and age of the study participants and in the size of their tumors. However, great effects were present in all studies, which cannot be explained by

bias alone. In addition, in one of the three studies, relevant prognostic factors were considered in the analysis. Conclusions on benefit in the form of hints were therefore possible.

Procedure of report production

In June 2021, IQWiG published the preliminary results, the preliminary report, for discussion. After completion of the commenting procedure, the project team revised the preliminary report and in May sent the final report to the contracting agency, the G-BA. The written comments received are published in a separate document at the same time as the final report.

More information: Project overview: www.iqwig.de/en/projects/n20-03.html

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