Long-term outcome after highly advanced single-dose or fractionated radiotherapy in patients with vestibular schwannomas - pooled results from 3 large German centers.

To evaluate long-term clinical outcome and determine prognostic factors for local-control, hearing preservation and cranial nerve toxicity in 449 patients treated for 451 vestibular schwannomas (VS) with radiosurgery (n=169; 38%) or fractionated stereotactic radiotherapy (FSRT; n=291; 62%). 245 patients were male (55%), and 204 were female (45%). Median age was 60 years (range 17-88 years). Median tumor diameter was 15mm. For FSRT, a median dose of 57.6Gy in median single doses of 1.8Gy was applied. For SRS, median dose was 13Gy. The median follow-up time was 67 months. Local control was 97% at 36 months, 95% at 60 months, and 94% at 120 months with no difference between FSRT and SRS (p=0.39). "Useful hearing" was present 46%. After RT, "useful hearing" was preserved in 85% of the patients. Loss of useful hearing was observed in the FSRT group in 14%, and in the SRS group in 16% of the patients. For patients treated with SRS ?13Gy, useful hearing deterioration was 13%. For trigeminal and facial nerve toxicity, there was no difference between FSRT and SRS. Supported by this large multicentric series, both SRS and FSRT can be recommended for the treatment of VS. SRS application is limited by tumor size, and is associated with a steep
dose-response-curve. When chosen diligently based on tumor volume, pre-treatment characteristics and volume-dependent dose-prescription in SRS (?13Gy), both treatments may be considered equally effective.