Fractionated vs. single-fraction stereotactic radiotherapy in patients with vestibular schwannoma: Hearing preservation and patients' self-reported outcome based on an established questionnaire.

Abstract:
Stereotactic radiotherapy (RT) has been established as a valid treatment alternative in patients with vestibular schwannoma (VS). There is ongoing controversy regarding the optimal fractionation. Hearing preservation may be the primary goal for patients with VS, followed by maintenance of quality of life (QoL). From 2002 to 2015, 184 patients with VS were treated with radiosurgery (RS) or fractionated stereotactic radiotherapy (FSRT). A survey on current symptoms and QoL was conducted between February and June 2016. Median follow-up after RT was 7.5 years (range 0.0-14.4 years). Mean overall survival (OS) after RT was 31.1 years, with 94 and 87% survival at 5 and 10 years, respectively. Mean progression-free survival (PFS) was 13.3 years, with 5- and 10-year PFS of 92%. Hearing could be preserved in RS patients for a median of 36.3 months (range 0.0-13.7 years). Hearing worsened in 17 (30%) cases. Median hearing preservation for FSRT was 48.7 months (range 0.0-13.8 years); 29 (23%) showed hearing deterioration. The difference in hearing preservation was not significant between RS and FSRT ($p = 0.3$). A total of 123/162 patients participated in the patient survey (return rate 76%). The results
correlate well with the information documented in the patient files for tinnitus and facial and trigeminal nerve toxicity. Significant differences appeared regarding hearing impairment, gait uncertainty, and imbalance. These data confirm that RS and FSRT are comparable in terms of local control for VS. RS should be reserved for smaller lesions, while FSRT can be offered independently of tumor size. Patient self-reported outcome during follow-up is of high value. The established questionnaire could be validated in the independent cohort.

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