Stereotactic Radiotherapy (SRT) is Associated with Improved Rates of Hearing Preservation for Patients with Vestibular Schwannoma

Isaac Yang MD; Marko Spasic MD; Patrick Pezeshkian MD; Brendan Manuel Fong; Winward Choy BA; Alessandra A. Gorgulho MD; Michael T. Selch; Antonio DeSalles MD PhD

David Geffen School of Medicine at University of California, Los Angeles. Department of neurosurgery.

Introduction

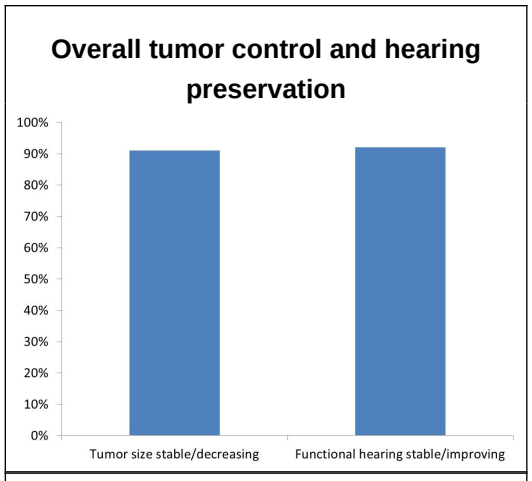
Vestibular schwannoma (VS) is a skull base tumor most commonly in the CP angle. Hearing loss commonly occurs in varying degrees as a result of VS and can have a significant and lasting impact on quality of life. In this study, we compare the long term clinical outcomes of patients with VS treated with either SRS or SRT.

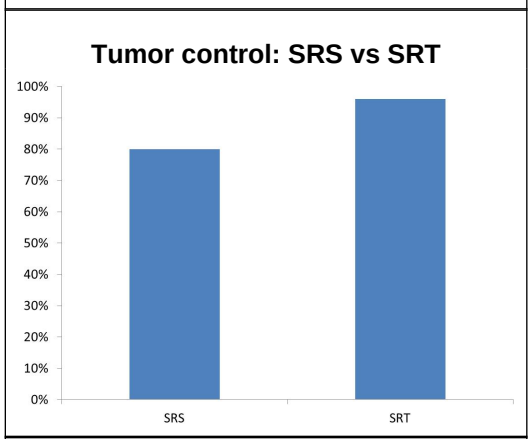
Methods

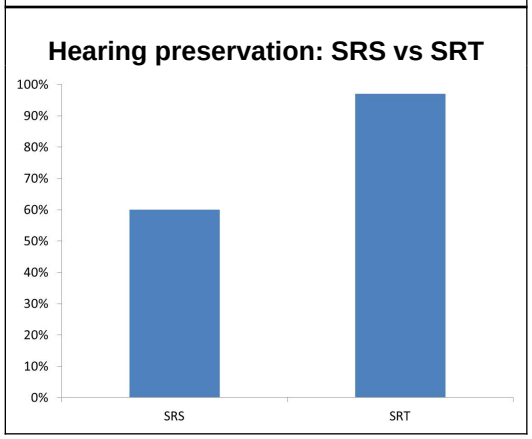
A retrospective analysis of 197 patients receiving SRS or SRT for VS between 1996 and 2010 at the UCLA Medical Center was performed. The inclusion criteria: 1) diagnosis of VS without other intracranial tumors, 2) SRS or SRT performed at UCLA Ronald Reagan Medical Center. Patients without clinical follow up data and those with neurofibromatosis were excluded from this analysis.

Results

In this analysis, 32% of the patients received SRS while 68% received SRT. The average age at completion of SRS or SRT was 55 years old (range: 23-83). The median dose for SRS was 12Gy, and the average dose for SRT was 180cGy to the 90% IDL over 30 fractions. Patients had an average radiological and clinical follow-up of greater than 3 years. SRT demonstrated a trend towards a higher rate of tumor control following treatment relative to SRS, this difference though was not statistically significant (96% vs. 80%, p=0.067). Conversely, in patients with functional hearing prior to treatment, SRT was associated with significantly improved functional hearing preservation compared to SRS (97% vs. 60%, respectively, p=0.045).







Learning Objectives

Assess stereotactic radiation options for skull base acoustic neuromas for hearing preservation and tumor control

Conclusions

Our data indicates excellent tumor control with long term follow up for both SRS and SRT.

SRS and SRT have demonstrated effectiveness at preserving functional hearing and limiting tumor growth in case reports and patient series

Our data confirm these findings and elaborate on them by demonstrating that SRT shows a trend toward improved tumor control relative to SRS

Furthermore, SRT shows a statistically significant improvement in functional hearing preservation relative to SRS

Further investigation is required to further characterize the optimal use of SRS and SRT for treatment of VS.