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# Systematic Review of Published Studies on Stereotactic Body Radiation Therapy (SBRT): Re-irradiation in Head and Neck Cancer

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## Abstract

Objectives: To quantitatively synthesize published experiences with SBRT in recurrent head and neck cancer in order to characterize response rates and overall survival.

Methods: We identified published articles that reported response rates and/or overall survival following re-irradiation of recurrent head and neck cancers with SBRT. Patients with a history of a primary head and neck cancer, with recurrent disease were included. Chemotherapy and targeted agents were allowed. Evaluation of tumor response varied widely between all studies. Several studies used a wide range of dose fractionation schedules, so a dose response analysis could not be performed. Local control data was also reported inconsistently, precluding quantitative analysis. Toxicity was assessed according to the RTOG scoring criteria (n=2), CTCAE criteria 2.0 (n=1) and CTCAE 3.0 criteria (n=2). Late toxicity was reported in 4 of the 5 studies examined. Overall survival (OS) data from individual lesions treated in each study were aggregated to form a single data set. Kaplan-Meier curves for overall survival were generated from each study.

Results: Five studies comprising 206 patients (241 lesions) met all inclusion criteria and formed the dataset for our analysis. Median follow up was 17.3 months. Median age was 60 years. The most common histology was squamous cell carcinoma. Examples of dose fractionation schedules include 6 Gy x 6, 8 Gy x 5, 8.8 Gy x 5, and 6 Gy x 5. The composite response rate was 61%. One and two-year actuarial survival rates were 49% and 24% respectively. The rate of carotid blow out syndrome was 1% for the entire group. The overall rate of Grade 3+ acute side effects was 20.2%. The overall rate of late toxicities was 8.2%. The most common late toxicities were soft tissue necrosis (n=3) and fistula formation (n=3).

Conclusions: SBRT in patients with recurrent head and neck cancers is feasible and may yield good response rates and acceptable toxicity profiles. Uniform reporting of clinical experiences and well-designed prospective studies will further our understanding of this novel treatment technique.

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