Dose-escalated re-irradiation improves outcome in locally recurrent head and neck cancer - Results of a large multicenter analysis

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Multicenter Study

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Abstract

To determine efficacy and prognostic parameters of definitive re-irradiation of locoregionally recurrent squamous cell carcinoma of the head and neck (HNSCC).

MATERIALS AND METHODS

Patients with locoregionally recurrent or second primary HNSCC undergoing re-irradiation with modern radiotherapy technique were eligible for this multicentric retrospective analysis. Main endpoints were overall survival (OS), progression-free survival (PFS) and locoregional control (LC). Univariate analyses were performed using the Kaplan Meier Method (log-rank). For multivariable analysis, Cox regression was used.

RESULTS

A total of 253 patients treated between 2009 and 2020 at 16 university hospitals in Germany were included. The median follow up was 27.4 months (range 0.5-130). The median OS and PFS were 13.2 (CI: 10.7 - 15.7) months and 7.9 (CI: 6.7 - 9.1) months, respectively, corresponding to two-year OS and PFS rates of 29 % and 19 %. Rates of locoregional progression and "in-field-failure" were 62 % and 51 % after two years. Multivariable Cox regression analysis identified good ECOG performance status and high radiation dose as independent prognostic parameters for OS. Doses above 50 Gy (EQD2) achieved longer median OS of 17.8 months (vs 11.7 months, $p < 0.01$) and longer PFS of 9.6 months (vs 6.8 months, $p < 0.01$). In addition, there was a trend for worse survival in patients with tracheostomy (multivariable, $p = 0.061$). Concomitant systemic therapy did not significantly impact PFS or OS.

CONCLUSION

Re-irradiation of locally recurrent or second primary HNSCC is efficient, especially if doses above 50 Gy (EQD2) are delivered. ECOG performance score was the strongest prognostic parameter for OS and PFS.

KEYWORDS

HNSCC; Head and neck cancer; Re-Radiochemotherapy; Re-irradiation; Recurrent; Reirradiation.