Patterns of Failure and Toxicity after Intensity-Modulated Radiotherapy with Simultaneous Integrated Boost for Head and Neck Cancer

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Objective:
Analysis of toxicity as well as patterns of failure in head-and-neck cancer (HNC) following intensity-modulated radiation therapy (IMRT) and simultaneous integrated boost (SIB), with focus on the location of locoregional failures in relation to the chosen target volumes and dose distributions.

Materials and Methods:
Between 09/06 and 06/08 26 patients with HNC (13 Oropharynx, 2 Larynx, 5 Oral cavity, 5 Hypopharynx and 1 CUP) were treated with IMRT and SIB, most of these patients (65%) with concomittant chemotherapy (Cisplatin). The dosimetry plans for patients with either locoregional failure or Grade 3-4 complications were reviewed and fused over the computed tomography images corresponding with the location of the event.

Results:
Median follow up time was 19 months. Patients received a total dose of 54 to 68 Gy with 1.80 to 2.29 Gy per day. 73% (19) patients had Stage IV (M0) disease, 19% (5pts) Stage III and 8% (2pts) Stage II. 10 patients experienced Grade 3-4 toxicity, 5 acute (4 mucositis/1 necrosis), 5 late (3 dysphagia/xerostomie, 2 osteonecrosis). 6 patients with Grade 3/4 toxicity were treated with SIB volume > 100 ccm. 3 of 26 patients failed locally (12%), 1 developed recurrent disease in low dose (56 Gy) RT - volume, 2 had persistant tumor within SIB - volume. 4 patients (15%) developed metastatic disease, 4 patients died. 69% of the patients are in complete remission.

Conclusion:
Outcome and toxicity of treatment with IMRT and SIB seem to be acceptable in locally advanced HNC.

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