

Postoperative Intensity Modulated Radiation Therapy in the Treatment of Head and Neck Cancer : Early Clinical Results

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Purpose : To evaluate the feasibility and the early treatment result of postoperative intensity modulated radiation therapy (IMRT) in the patient with head and neck cancer.

Methods and Materials : From September 2002 to February 2004, fifteen patients with head and neck cancer underwent radical surgery and postoperative adjuvant IMRT. Of the 15 patients, 12 were men and 3 were women. Eight patients had oropharyngeal cancer, 6 patients oral cavity cancer and 1 patient hypopharyngeal cancer. All patients had squamous cell carcinoma. One patient was stage I, 1 stage II, 4 stage III and 9 stage IV. IMRT was delivered using computer-controlled auto-sequencing segmental multileaf collimator (SMLC) by inverse planning. Radiation dose to tumor bed ranged 50.8Gy to 68Gy (median 60 Gy) with 2-2.27 Gy/fr according to T stage and marginal status. Tumor bed and uninvolved nodal area were treated with different daily fraction dose. Median follow-up period was 11 months (range 6-24 months).

Results : The volume less than 95% of prescribed dose was median 0.13% (0-9.84%). The mean dose irradiated to 50% of total parotid gland was 10.5Gy, ranged 1-25.7Gy. All patients received planned dose without interruption. Six out of 15 patients (40%) showed grade 3 or 4 acute mucositis. Xerostomia was assessed at 3 months after the completion of treatment. Five patients (33%) experienced grade II xerostomia and there was no grade III or IV xerostomia. At 9 months after treatment, grade II xerostomia decreased to 22.2%. During the follow-up period, two patients (13%) developed locoregional recurrence. One patient with tongue cancer (7%) showed in-field local failure and the other patient recurred in untreated contralateral neck.

Conclusions : Postoperative IMRT for head and neck cancer shows good loco-regional control rate by better target coverage. Treatment toxicities were acceptable. Intensity of xerostomia decreased as time and there was no grade III or IV xerostomia after IMRT.