Intensity Modulated Radiotherapy for Nasopharyngeal Carcinoma ; Initial Experience of Yonsei Cancer Center

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Background : Since May 2002, nasopharyngeal cancer (NPC) patients have been treated with intensity modulated radiotherapy (IMRT) at Yonsei Cancer Center. We retrospectively analyzed the clinical outcomes of IMRT with simultaneously integrated boost technique.

Methods : Between May 2002 and December 2005, 35 patients with stages I to IVB NPC underwent IMRT encompassing 3 targets : gross tumor volume (GTV), high-risk subclinical disease (CTV1), and low-risk subclinical disease (CTV2). Daily fractions of 2.12, 1.8 and 1.7 Gy were delivered to GTV, CTV1 and CTV2 to total doses of 70.0, 59.4 and 56.1 Gy in 33 fractions over 7 weeks, respectively. Twenty patients (57%) received concurrent chemotherapy ; weekly cisplatin (DDP group, 7 patients), 5FU-Cisplatin-Taxotere (FTP group, 12 patients), and 5FU-Carboplatin (1 patient).

Results : With a median follow-up of 33 months, there were 2 local recurrences in GTV, 2 regional recurrences in CTV1, and 6 distant metastases. Three year overall and local-, regional-, and distant-metastasis free survivals were 88.3% and 94.0%, 93.2%, and 85.5%, respectively. Grade 3 acute mucositis was observed in 10 (29%) patients 8 (23%) patients in the CCRT group vs. 2 (6%) patients in the RT alone group ($p=0.14$), and 8 (23%) patients in the FTP group vs. none in the DDP group ($p=0.01$). At 9 month-follow-up, Grade 2 xerostomia was observed in 17 (49%) patients 13 patients in the CCRT group vs. 4 patients in the RT alone group ($p=0.03$). No patient experienced xerostomia of Grade 3 or higher. Mean dose to total parotid volume (Dmean_TP) and Dose to 50% parotid volume (D50_TP) showed no significant correlation with prevalence of xerostomia at 9 month-follow-up ($p=0.16$ and $p=0.09$, respectively).

Conclusion : Initial IMRT experiences of our institution for nasopharyngeal cancer were encouraging, and the dose fractionation scheme proved feasible without serious complications.

KEY WORDS : Nasopharyngeal cncer · IMRT.