The Outcome of Postoperative Simultaneous Modulated Accelerated Radiotherapy(SMART) for Head and Neck Squamous Cell Carcinoma

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Objective : To evaluate the outcome of postoperative simultaneous modulated accelerated radiotherapy (SMART) for patients with head and neck squamous cell carcinoma (SCC).

Methods : Between February 2003 and September 2008, 51 patients with histologically confirmed SCC received postoperative IMRT (N=33) or helical tomotherapy (N=18) after curative surgical resection. Sites included were oral cavity in 23, oropharynx in 20, larynx in 6, and hypopharynx in 3 patients. By using SMART technique 63−64.5Gy, 60Gy, 57Gy, and 51−54Gy in 30 fractions were delivered to PCTV1, PCTV2, PCTV3 and PCTV4, respectively. In the case of gross margin positive disease, 64.8Gy, 58.05Gy, and 51.3Gy in 27 fractions were delivered to PCTV1, PCTV2, and PCTV3, respectively.

Results : Median follow-up was 28 months (range, 4.3−71.8). Twelve patients experienced recurrences. The 3-year overall survival, disease free survival, loco-regional recurrence free survival (LRRFS) and distant metastasis free survival (DMFS) were 69.1%, 73.8%, 84.3% and 80.1%, respectively. Although no significant difference in 3-year LRRFS was found between oral cavity (81.9%) and oropharyngeal cancer (80.6%), 3-year DMFS was worse in oral cavity cancer (60.9%), compared with oropharyngeal cancer (94.6%). Acute grade 3 dermatitis, mucositis, and esophagitis occurred in 10%, 10%, and 2%, respectively. At last follow up, grade 2 and 3 xerostomia were documented in 20% and 10%, respectively.

Conclusions : Postoperative SMART was effective and safe in patients with head and neck SCC.