

“Simultaneous Integrated Boost”(SIB) Intensity-Modulated Radiotherapy in the Treatment of Nasopharyngeal Carcinoma : the Asan Medical Center

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Purpose : To introduce our early experience with intensity-modulated radiotherapy (IMRT) in the treatment of nasopharyngeal carcinoma.

Methods and Materials : Six patients who underwent IMRT for no disseminated nasopharyngeal carcinoma at the Asan Medical Center between May 2001 and May 2002 were evaluate by prospective analysis. According to the 1997 American Joint Committee on Cancer staging classification, 1 had Stage II, 3 had Stage III, and 2 had Stage IV disease. The IMRT plans were designed to be delivered as a “simultaneous integrated boost”(SIB) using the “step and shoot” technique with a MLC. Daily fractions of 2.2–2.4Gy and 2Gy were prescribed and delivered to the GTV and CTV and clinically negative neck node. The prescribed dose was 70–76Gy to the gross tumor volume (GTV), 66Gy to the clinical target volume (CTV) and metastatic nodal station, and 46Gy to the clinically negative neck. All patients also received

weekly cisplatin during radiotherapy. Acute and late normal tissue effects were graded according to the Radiation Therapy Oncology Group (RTOG) radiation morbidity scoring criteria.

Results : Follow-up period was ranging from 4 to 16 months. All patients showed complete response and loco-regional control rate was 100% but one patient died of malnutrition due to treatment related toxicity. There were no Grade 3 or 4 xerostomia and all patients had experienced improvement of salivary gland function.

Conclusion : Simultaneous integrated boost intensity-modulated radiotherapy technique allows parotid sparing as evidenced both clinically and by dosimetry. Initial tumor response and loco-regional control was promising. It is clinically feasible. A larger population of patients and a long-term follow-up are needed to evaluate ultimate tumor control and late toxicity.