Tumori, 95: 198-206, 2009

Radiotherapy after partial laryngectomy: an analysis of 36 cases and a proposal to optimize radiotherapy

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ABSTRACT

Aims and background. Laryngeal cancer treatment options include radical surgery, "organ preservation surgery", radiotherapy and chemotherapy. There is no proven evidence of a significant increase in late toxicity with adjuvant radiotherapy after conservative surgery. The aim of this retrospective study was to evaluate the toxicity, local-regional control and overall survival of adjuvant radiotherapy after conservative surgery.

Methods. A total of 36 patients was treated with radiotherapy after partial laryngectomy at the Radiotherapy Department of the Institute for Cancer Treatment and Research (IRCC) of Candiolo and of the Mauriziano Hospital in Turin, between 1994 and 2007. The postoperative treatment doses ranged from 45 to 70.2 Gy with conventional fractionation. The Kaplan-Meier method was applied for statistical analysis. The RTOG-EORTC scale was used to evaluate late and acute toxicity.

Results. Overall 5- and 10-year survival was 93% and 47%, respectively. Local control was 93.5% at 5 and was unchanged at 10 years. Grade 2 acute cutaneous and mucous toxicity was 41% and 62%, and grade 3, 6.9% and 3.5%, respectively. Only one patient required percutaneous endoscopic gastrostomy due to severe dysphagia and one patient required temporary tracheostomy for severe acute laryngeal edema (grade 3). Two patients experienced late toxicity greater than grade 3. The median dose to the residual larynx was 59.5 Gy (range, 45-70.2), and the median dose to the neck was 50.4 Gy (range, 39.6 -55.8).

Conclusions. The results of our study showed a dose-dependent increase in the late toxicity trend at doses over and above 60 Gy, which is higher than the cutoff dose reported in the literature. There was no indication from our data that adjuvant postoperative radiotherapy means additional toxicity. The use of highly conformal techniques can further reduce toxicity of the radiotherapy.

Key words: acute toxicity, adjuvant radiotherapy, late toxicity, partial laryngectomy.

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Received April 30, 2008;
accepted October 28, 2008.