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## **Involved-node radiotherapy and modern radiation treatment techniques in patients with Hodgkin lymphoma.**

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### **PURPOSE:**

To assess the clinical outcome of the involved-node radiotherapy (INRT) concept using modern radiation treatments (intensity-modulated radiotherapy [IMRT] or deep-inspiration breath-hold radiotherapy [DIBH]) in patients with localized supradiaphragmatic Hodgkin lymphoma.

### **METHODS AND MATERIALS:**

All but 2 patients had early-stage Hodgkin lymphoma, and they were treated with chemotherapy prior to irradiation. Radiation treatments were delivered using the INRT concept according to European Organization for Research and Treatment of Cancer guidelines. IMRT was performed with the patient free-breathing. For the adapted breath-hold technique, a spirometer dedicated to DIBH radiotherapy was used. Three-dimensional conformal radiotherapy was performed with those patients.

### **RESULTS:**

Fifty patients with Hodgkin lymphoma (48 patients with primary Hodgkin lymphoma, 1 patient with recurrent disease, and 1 patient with refractory disease) entered the study from January 2003 to August 2008. Thirty-two patients were treated with IMRT, and 18 patients were treated with the DIBH technique. The median age was 28 years (range, 17-62 years). Thirty-four (68%) patients had stage I - (I-IIA) IIA disease, and 16 (32%) patients had stage I - (I-IIB) IIB disease. All but 3 patients received three to six cycles of adriamycin, bleomycin, vinblastine, and dacarbazine (ABVD). The median radiation doses to patients treated with IMRT and DIBH were, respectively, 40 Gy (range, 21.6-40 Gy) and 30.6 Gy (range, 19.8-40 Gy). Protection of various organs at risk was satisfactory. Median follow-up was 53.4 months (range, 19.1-93 months). The 5-year progression-free and overall survival rates for the whole population were 92% [95% confidence interval (CI), 80%-97%] and 94% [95% CI, 75%-98%], respectively. Recurrences occurred in 4 patients: 2 patients had in-field relapses, and 2 patients had visceral recurrences. Grade 3 acute lung toxicity (transient pneumonitis) occurred in 1 case.

### **CONCLUSIONS:**

Our results suggest that patients with localized Hodgkin lymphoma can be safely and efficiently treated using the INRT concept and modern radiation treatment techniques such as IMRT and DIBH.