

Curative radiotherapy using different radiation techniques for isolated lung metastasis from colorectal cancer

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ABSTRACT

Aims and background. Surgical resection remains the mainstay for the treatment of colorectal lung metastasis, but a group of patients who are medically inoperable or unsuitable for surgery are treated with radiotherapy. The purpose of this multi-institutional study was to evaluate the clinical outcome and investigate the prognostic factors affecting local control and survival in this subset of patients.

Methods. We retrospectively analyzed 30 patients with 43 lesions who underwent curative radiotherapy for isolated lung metastasis from colorectal cancer at nine institutions from 2003 and 2008. A total dose of 42-75 Gy at the peripheral planning target volume was administered in 3-35 fractions. The median biologically equivalent dose was 84 Gy (range, 58.5-180).

Results. Treatment response was complete in 10 (33.3%), partial in 13 (43.3%), stable in six (20.0%), and progressive in one patient (3.3%). The median follow-up period for all patients was 29.0 months (range, 5.0-93.8). Kaplan-Meier local control at 5 years was 44%. The median survival was 46.2 months, and the 5-year overall survival was 47%. Twenty-three patients (77%) experienced treatment failure, most of which were intrapulmonary failure. The intrapulmonary relapse-free survival and overall relapse-free survival at 5 years were 22% and 19%, respectively. Treatment response and pre-radiotherapy carcinoembryonic antigen level were significant prognostic factors for local control and survival. Grade 3-5 toxicity occurred in 7 patients. Three patients had grade 5 toxicity, including radiation pneumonitis, a tracheoesophageal fistula, and hemoptysis.

Conclusions. Curative radiotherapy for isolated lung metastasis from colorectal cancer in patients who are medially inoperable or unsuitable for surgery results in long-term survival, comparable to surgical resection. Curative radiotherapy could be an effective and noninvasive alternative if dose-limiting toxicity is carefully considered, particularly in patients with bilateral or central lesions.

Key words: colorectal cancer, curative radiotherapy, isolated lung metastasis, patterns of failure.

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