

High-dose radiotherapy for ultracentral lung tumors in poor risk patients

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Abstract

Objectives: Lung tumors in which the planning target volume (PTV) overlaps the trachea or main bronchi are called "ultracentral". We studied outcomes after delivery of 60 Gy in 12 fractions using stereotactic techniques (BED10=90Gy) to ultra-central tumors, in patients unfit for surgery or chemo-radiotherapy.

Methods: 47 consecutive patients with single primary or recurrent ultra-central NSCLC treated between 2010-2015 using volumetric modulated arc therapy were evaluated. Previously irradiated patients, or those with metastasis to sites other than the brain/adrenal glands, were excluded.

Results: The median age was 78 years; 49% had a WHO performance score =2. The median PTV size was 105cm³ (range 18-509). Median follow-up was 29 months, median overall survival 15.9 months, and 3-year survival 20.1%. No isolated local recurrences were observed. Grade 3 or higher toxicity was recorded in 38% of patients. 21% had a 'possible' (n=2) or 'likely' (n=8) treatment-related death, 5-18 months after treatment. Pulmonary hemorrhage was observed in 15% of patients.

Conclusions: Poor-risk patients treated with this scheme achieved a high rate of local control and acceptable median survival. Fatal hemorrhage was seen in 15% of patients, a rate similar as reported after conventional radiotherapy in endobronchial tumors.

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Abstract

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