

Radiotherapy for inoperable non-small cell lung cancer using helical tomotherapy

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ABSTRACT

Aim. To investigate the impact of tomotherapy on the dose delivered to the lungs and other normal tissues.

Material and methods. From February 2008 to May 2009, 35 patients with stage II-IA/IIIB non-small cell lung cancer were treated with helical tomotherapy at the S. Camillo-Forlanini Hospital. For our study we selected 20 patients who underwent chemotherapy followed by sequential radiotherapy. The planning target volume was delineated using planning CT scan and FDG-PET. The mean prescribed radiation dose was 67.5 Gy delivered in 30 fractions at a dose of 2.25 Gy per fraction.

Results. Median follow-up was 12.3 months. All patients developed acute esophageal toxicity, 15 of RTOG grade 1 and 5 of RTOG grade 2. At first follow-up 15 patients presented stable disease or partial response, 4 patients presented complete response, and 1 patient presented disease progression.

Conclusions. Helical tomotherapy is useful to achieve dose-per-fraction escalation without increasing the treatment-related morbidity. Our results applying dose escalation were encouraging considering that we delivered doses that may be difficult to achieve with 3-dimensional treatments with no excessive complication rates.

Key words: radiotherapy, tomotherapy, lung cancer.

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