Abstract ID: 18622  Title: Application of IMAT in Non-Small-Cell Lung Cancer with Simultaneously Integrated Boost Radiation Therapy

Purpose: To compare and analyze the characteristics of intensity-modulated arc therapy (IMAT) versus fixed-gantry intensity-modulated radiotherapy (IMRT) in treatment of non-small-cell lung cancer.

Methods: Twelve patients treated in our radiotherapy center were selected for this study. The patient subsequently underwent 4D-CT simulation. Margins of 5mm and 10mm were added to the ITV to generate the CTV and PTV respectively. Three treatment plans (IMRT, one single arc (RA1), double arcs (RA2)) were generated with Eclipse ver.8.6 planning systems. Using a dose level of 75Gy in 15fractions to the ITV, 60Gy in 15fractions to the CTV and 45Gy in 15fractions to the PTV respectively. The target and normal tissue volumes were compared, as were the dosimetry parameters.

Results: There were no significant differences in CI of ITV, PTV, HI of ITV, CTV and PTV, V5, V10, V15, V20, V25, V30, V45, V50 of total-lung and mean lung dose (all p>0.05). However, the differences were significant in terms of CI of CTV, V5 of B-P (all p<0.05). On the MU, IMRT=1540MU, RA1=1006 MU and RA2=1096 MU. (F=12.00, P=0.000). On the treatment time, IMRT= 13.5min, RA1= 1.5min, and RA2=2.5 min (F= 30.11, P=0.000).

Conclusions: IMAT is equal to IMRT in dosimetric evaluation. Due to much less MU and delivery time, IMAT is an ideal technique in treating patients by reducing the uncomfortable influence which could affect the treatment.