# HYPOFRACTIONATE TOMOTHERAPY FOR INTRATHORACIC STAGE IV NON-SMALL CELL LUNG CANCER – A SINGLE INSTITUTION EXPERIENCE

Cheng-Yen Lee, Heng-Jui Chang, Kai-Lin Yang, Hui-Ling Ko,
Su-Chen Huang, Chia-Chi Wen, Kwan-Hwa Chi

*Department of Radiation Therapy and Oncology, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan*

***Introduction :*** To retrospectively evaluate Hypofractionated Tomotherapy (HT) on the treatment of intrathoracic lesions in patients with stage IV non-small cell lung cancer (NSCLC).

***Material and Methods :*** Between April 2007 and July 2011, 27 stage IV NSCLC patients were treated with HT for their intrathoracic lesions. The number of intrathocic lesions was ≦ 5 and none of them exceeded 5 cm in greatest dimension. Overall survival, rate of in-field recurrence and incidence of radiation pneumonitis were analyzed. Megavoltage computerized tomography (MVCT) was utilized for tumor contouring. The mean radiation dose per fraction was 4.7 ± 0.3 Gy (mean ± standard deviation) and the number of fractions ranged between 9 and 16 (median: 10 fractions). Total irradiation dose was 48.8±6.8 Gy.

***Results :*** The median follow-up period was 16.1 months. There was no in-field failure. The median duration of overall survival was 11.2 months among patients with extrapulmonary disease (EPD) and 38.6 months among patients without EPD ($p$ = 0.03). The median duration of overall survival was 34.7 months among patients with < 3 intrathoracic GTVs and 32.1 months among patients with 3-5 intrathoracic GTVs ($p$ = 0.57). The aggregated intrathoracic GTV in each patient averaged 39.18±39.98 $cm^3$. The median duration of overall survival was 38.6 months among patients with aggregated intrathoracic GTV ≦ 27.89 $cm^3$ and 12.3 months among patients with aggregated intrathothoracic GTV > 27.89 $cm^3$ ($p$= 0.04). Two patients developed grade 3 or greater radiation pneumonitis.

***Conclusion :*** HT may be feasible for selected stage IV NSCLC patients with the number of intrathoracic lesions less than or equal to 5. Excellent local control can be anticipated. Presence of EPD and volume of intrathoracic lesions may be significant prognostic factors for overall survival.

[ Therapeut Radiol Oncol 2013; 20(2): 97-105 ]

Key words: Lung cancer, Tomotherapy, Hypofractionated radiotherapy