factor that significantly correlated with the risk of RILT (P = 0.035, OR = 2.354). If patients were grouped based on high or low TGF-β1 ratio (during RT/pre-RT), 13 out of the 29 patients with a TGF-β1 ratio higher than the median level of 0.8 developed RILT, while only 5 out of the 35 patients with low TGF-β1 ratios developed RILT (P = 0.007). No significant correlation was seen between TGF-β1 ratio and MLD or between TGF-β1 ratio and the decline in DLCO

Conclusion: An increase in plasma TGF-β1 level during RT may be predictive of RILT. The potential use of TGF-β1 levels during RT to adapt RT delivery deserves further study.

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Combination of serum cytokine with lung DVH for prediction radiation pneumonitis

Ji, Wei
Cancer Hospital CAMS (Chinese Academy of Medical Science),
Beijing, China

Objective: To study the relationship between level of plasma transform growth factor beta (TGF-beta), interleukin (IL-6), angiotensin-converting enzyme (ACE) and physical parameters (V10, V15, V20, MLD) and radiation pneumonitis (RP).

Methods: The records of all patients with lung cancer treated with radiotherapy (RT) with curative intent from February 2004 to August 2005. A total of 67 patients were identified who met the following inclusion criteria: (1) newly diagnosed lung cancer of any histology treated with RT± chemotherapy with curative intent; (2) a Karnofsky performance status >70; (3) expected survival >6 months; (4) follow-up time more than 6 months; (5) no pneumonectomy. Blood samples were collected and measured with enzyme-linked immunosorbent assay (ELISA). TGF-beta, IL-6 and ACE measurements obtained before RT (Pre-RT) and when RT dose reached 40-50Gy (during-RT). Fifty-eight patients were treated with computed tomography based 3-dimensional planning and had dose-volume histogram data available. The endpoint of the study was the development of ≥ grade 2 RP (NCI [National Cancer Institute] common toxicity criteria 3.0).

Results: The Median follow-up time of the alive patients is 22.6 months. The incidence of ≥ grade 2 RP for all 67 patients was 25.4%. Between the RP and non-RP group, there was no difference in Pre- or during- RT level of TGF-beta, IL-6. We observed ACE level was lower in RP group than that in non-RP group, both pre-RT and during-RT (p=0.033 and p=0.004). Fifty-eight patients received 3-dimensional conformal RT (3D-CRT). In RP group, patients were treated with higher dose of the primary tumor were already reported (Bosmans et al, Int J Radiat Oncol Biol Phys, 2006). The purpose of this study is describing the time trends in nodal CT volume and nodal motion for patients with locally advanced non-small cell lung cancer.

Methods: Eleven patients, with a total of 21 nodes, from a prospective clinical trial underwent CT-PET scans prior to treatment, which was repeated in the first and second week following the start of radiotherapy. For 20 nodes, the motion could be measured based on a respiration correlated CT (RCCT) scan. For 21 nodes, the movement could be measured based on a respiration correlated CT (RCCT) scan. Moreover, repeated RCCT scans were available for 11 nodes to evaluate the change in motion. Patients were treated with an accelerated fractionation schedule, 1.8 Gy BID, with a total tumor dose depending on pre-set dose constraints for the lungs and the spinal cord.

Results: A heterogeneity of nodal volume changes was observed at all time points similar to the tumor volume changes. In some patients the nodal volume increased > 50% (4/21) in others the volume decreased > 50% (1/21) but for the majority of nodal areas (16/21) the volume only changed slightly (< 5%). The initial absolute nodal volume was 4.5 cc ± 4.3 cc, therefore large volume changes were observed and the delineation of small volumes is sensitive to intra-observer variability. On average the nodal volume did not change significantly (4.5, 4.9 and 4.3 cc prior to treatment, 1 and 2 weeks after the start of treatment respectively). The 3D vector motion, which is the quadratic sum of the

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Time trends in nodal CT volume and nodal motion during radiotherapy for patients with stage III non-small cell lung cancer

Bosmans, Geert van Baardwijk, Angela Dekker, Andre Wanders, Stofferinus Boersma, Liesbeth Lambin, Philippe De Ruysscher, Dirk Department of Radiation Oncology (MAASTRO), GROW, University Hospital, Maastricht, The Netherlands

Background: Knowledge of changes in volume and motion of either tumor or involved lymph nodes during a course of radiotherapy is necessary to improve the treatment (adaptive radiotherapy). These changes for the primary tumor were already reported (Bosmans et al, Int J Radiat Oncol Biol Phys, 2006). The purpose of this study is describing the time trends in nodal CT volume and nodal motion for patients with locally advanced non-small cell lung cancer.

Methods: Eleven patients, with a total of 21 nodes, from a prospective clinical trial underwent CT-PET scans prior to treatment, which was repeated in the first and second week following the start of radiotherapy. For 20 nodes, the motion could be measured based on a respiration correlated CT (RCCT) scan. Moreover, repeated RCCT scans were available for 11 nodes to evaluate the change in motion. Patients were treated with an accelerated fractionation schedule, 1.8 Gy BID, with a total tumor dose depending on pre-set dose constraints for the lungs and the spinal cord.

Results: A heterogeneity of nodal volume changes was observed at all time points similar to the tumor volume changes. In some patients the nodal volume increased > 50% (4/21) in others the volume decreased > 50% (1/21) but for the majority of nodal areas (16/21) the volume only changed slightly (< 5%). The initial absolute nodal volume was 4.5 cc ± 4.3 cc, therefore large volume changes were observed and the delineation of small volumes is sensitive to intra-observer variability. On average the nodal volume did not change significantly (4.5, 4.9 and 4.3 cc prior to treatment, 1 and 2 weeks after the start of treatment respectively). The 3D vector motion, which is the quadratic sum of the