



P37. THORACIC RADIOTHERAPY FOR LUNG CANCER INCREASES LOCAL CONCENTRATIONS OF TRANSFORMING GROWTH FACTOR β_1 (TGF β_1)

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Radiation therapy, frequently used to treat lung cancer patients, induces pulmonary injury in 20% of these patients. The most significant and serious pulmonary complications associated with thoracic radiotherapy are radiation pneumonitis and pulmonary fibrosis. The molecular mechanisms responsible for these radiation-induced lung injuries have been scarcely investigated in humans.

Objective: This study was designed to assess, in lung cancer patients, the effects of thoracic radiotherapy on the concentrations of a profibrogenic cytokine, Transforming Growth Factor β_1 (TGF β_1), and of a proinflammatory cytokine, Interleukin-6 (IL-6), in the bronchoalveolar lavage (BAL) fluid.

Methods: Eleven patients with histologically proven lung cancer and without metastasis at the time of diagnosis were enrolled in the study. All required irradiation as part of their treatment. They had an Eastern Cooperative Oncology Group performance status < 2. BAL was performed bilaterally before irradiation, once 40 Gy had been delivered as well as 1, 3 and 6 months after completion of radiation therapy. Before each BAL session, the patients were assessed clinically using pulmonary function tests and an adapted LENT-SOMA scale including subjective and objective (radiological) alterations. The National Cancer Institute (NCI) Common Toxicity Criteria were used to grade pneumonitis. TGF β_1 and IL-6 levels in the BAL fluid were determined using ELISA (Biosource S.A., Fleurus, Belgium).

Results: TGF β_1 concentrations in the BAL fluid recovered from the irradiated areas increased continuously and significantly throughout the study period ($p=0.0053$). This increase tended to be larger in the group of patients who developed an NCI grade ≥ 2 pneumonitis ($p=0.058$). In the BAL fluid from the non-irradiated areas, TGF β_1 concentrations remained unchanged throughout the study period. IL-6 concentrations were not significantly altered during the study period.

Conclusion: The observed increase of TGF β_1 concentrations in the BAL fluid recovered from the irradiated lung areas suggests that, in humans, this profibrogenic cytokine may contribute to the process leading to radiation-induced lung injury.