

## The efficacy of leukotriene receptor antagonist on radioiodine-induced lung fibrosis

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### Abstract

**Objective:** Radioiodine therapy (RAI) is a standard treatment for the treatment of metastases after total thyroidectomy in differentiated thyroid carcinomas. However, the side effects of RAI are well known. Montelukast is an antagonist of the leukotriene receptor that inhibits the binding of cysteinyl leukotrienes to the CysLT1 receptor. Anti-fibrotic effect of montelukast in induced lung fibrosis with bleomycin was evaluated. We examined the immunohistopathological effect of montelukast on rat lungs after RAI. **Materials and methods:** 30 Wistar albino rats were randomly divided into 3 groups each containing 10 rats. In Group 1 (control group) only total thyroidectomy was performed; Group 2 had RAI after total thyroidectomy; and Group 3 had total thyroidectomy and montelukast before and after RAI treatment. All rats were sacrificed after 12 weeks. By immunohistochemical (IHC) methods TNF- $\alpha$  and TGF- $\beta$  tissue expression were evaluated to determine the degree of fibrosis in the lungs. **Results:** TNF- $\alpha$  and TGF- $\beta$  tissue expression in Group 2 was significantly higher than Group 1 ( $p < 0.01$ ). TNF- $\alpha$  and TGF- $\beta$  tissue expression was significantly less observed in Group 3 compared to Group 2 ( $p < 0.05$ ). **Conclusion:** Co-administration of montelukast significantly prevented RAI-induced immunohistopathological alterations, which can be associated with the radioprotective effects of montelukast.

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### Biography

Aylin Akbulut has completed her fellowship on Nuclear Medicine at the age of 30 years from Gazi University and she had postdoctoral studies at Geneva University, Switzerland with Prof O. Ratib. Prof Korkmaz, M.D., PhD is the founding director of Nuclear Medicine Department in University of Health Sciences, Ankara Training and Research Hospital After her

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