Background: Radiation Induced Lung Injury has two components: radiation pneumonitis and radiation fibrosis. The pulmonary fibrosis has no efficient treatment known. The purpose of this study is: to research the relationship between the Oxidant/antioxidant Status and pulmonary fibrosis in rats having radiation induced pulmonary fibrosis and to research the effectiveness of pentoxifylline, Vitamin E and Vitamin C having antioxidant effects in the treatment of pulmonary fibrosis.

Material and Methods: The animals taken to the study were divided to five groups. Thoracic RT + Vitamin E+ Pentoxifylline for Group 1, Thoracic RT + Vitamin C + Pentoxifylline for Group 2, Thoracic RT + Vitamin C + Vitamin E + Pentoxifylline for Group 3 and Thoracic RT + Pentoxifylline for Group 4 and Group 5 was the control group.

Results: When groups are evaluated in doubles, significant differences between Group 1-2, Group 1-4, Group 1-5 are determined (p:0.002, p:0.002, p<0.001). No significant difference is determined between Group 1-3 (p:0.161). No significant difference is determined between Group 2 and Group 3, 4, 5 (p:0.105, p:0.645, p:0.234). There was no significant difference between Group 4 and Group 5 (p:0.645).

Conclusion: The combination of Vitamin E and pentoxifylline is efficient in preventing the radiation induced lung fibrosis. The additional benefit of Vitamin C, which is added to this combination in order to increase the antioxidant activity, cannot be shown. It will be useful to investigate the combination of Vitamin E, pentoxifylline and other non-enzymatic antioxidants.