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**Title:** The relationship between smoking habit and tuberculosis in patients under anti-TNF- $\alpha$  treatment

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**Body:** Aim: There are studies on smoking increases the risk of tuberculosis (TB), but this relationship is unclear. TNF- $\alpha$  inhibitors used in the treatment of various immune-related diseases, and are known to increase the risk of development TB. In this study, we investigated the effect of smoking habit on the risk of TB in patients under the anti-TNF- $\alpha$  treatment. Method: Between October 2003 and January 2013, in accordance with the criteria of RAED II Consensus Report of TNF- $\alpha$  inhibitors in total 2930 patients with various diagnoses were retrospectively evaluated. Smoker and nonsmoker patients were compared according to risk of TB. Statistical analysis was done by using SPSS15.0 software. Results: 1494 (%51) patients were male, 1436 (%49) were female, mean age was 40,1  $\pm$  14,4 years. At admission the distribution of primary diseases was: ankylosing spondylitis (n=1130, 36.8%), rheumatoid arthritis (n=951, 32.0%), psoriatic arthritis (n=251, 8.6%), juvenile rheumatoid arthritis (n=153, 5.2%), Behcet's disease (n=118, 0.4%), Crohn disease (n=100, 3.6%). 1279 patients (43.7%, male=856, female=423) were smoker (mean 15.2  $\pm$  13.3 packet-year). 10 patients (male=6, female=4) developed TB (341/100.000) [3 miliary TB, 3 TB pleurisy, 1 TB of ear, 1 TB of intestine, 2 pulmonary TB; 8 patients of 10 TB cases (80%); and all of 5 extrapulmonary TB cases (100%) were smoker]. TB was statistically significantly higher (P<0.05) in patients who are smoker. Conclusion: The risk of tuberculosis especially extrapulmonary tuberculosis is increased in patients under anti-TNF- $\alpha$  treatment, this risk is higher in patients who are smoker. The patients using TNF- $\alpha$  inhibitors should be monitored closely for tuberculosis and encouraged for smoking cessation.