### Title: Serum Receptor Activator of Nuclear Factor-k B Ligand, Osteoprotegrin, and Total antioxidant capacity in Tuberculosis.

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**Abstract:**

Introduction: Tuberculosis (TB) causes stimulation of innate immune cells to produce reactive nitrogen intermediates and reactive oxygen species. A higher level of the free radicals and inflammation is the main causes of excess generation of oxidative stress and wide variety of damages in patients with TB. Recently the Osteoprotegerin (OPG)/ receptor activator of nuclear factor-kappa B (RANK) / receptor activator of nuclear factor-kappa B ligand (RANKL) system have emerged as an important contributing factor to atherogenesis and osteogenesis. The present study was carried out to evaluate OPG, RANKL, oxidant and antioxidant statues in untreated active pulmonary tuberculosis patients (PTB).

Method: 42 patients with different forms of untreated active PTB admitted to the Research Center for TB and Pulmonary Diseases of Tabriz, Iran together with 45 healthy male subjects as a control group with no history of TB and matched with case for age and sex, were included in this study. Serum levels of OPG, (RANKL) and tumor necrosis factor alpha (TNF-α) were quantified by enzyme-linked immunosorbent assay. Malondialdehyde (MDA), Total antioxidant statues (TA) and lipid profiles were measured by spectrophotometry methods.

Results: Patients with PTB were detected to have significantly higher plasma MDA, TNF-α, OPG, RANKL and lower TAC levels in comparison with healthy controls (p<0.05 all the cases). In conclusion, Low TA and high MDA levels in PTB patients are indicators of oxidative stress in these patients. Evidence of severe oxidative stress and increased RANKL and OPG in our study may induce vascular calcification in PTB patients.

Conclusion: pulmonary tuberculosis patients (PTB), Osteoprotegerin (OPG), receptor activator of nuclear factor-kappa B ligand (RANKL), tumor necrosis factor alpha (TNF-α), total antioxidant statues (TA)