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### Original Article

#### Osteoimmunological Insight in to Vertebral Fractures in Osteoporosis

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#### Abstract:

**Background:** The aim of this study was to investigate the relationship among circulating levels of OPG, RANKL, cytokine profiles, bone mineral density (BMD) and vertebral fractures in pre and postmenopausal women and comparing these finding in three groups including osteoporotic patients with and without fracture and healthy women.

**Methods:** In a cross-sectional study, 215 women who attended the BMD unit of Endocrinology & Metabolism Research Center (EMRC) of Tehran University of medical sciences were recruited. Serum Osteoprotegerin and sRANKL were measured. In addition, cytokines profile evaluated. Lumbar radiographs in the antero-posterior and left lateral projections were acquired following a standardized protocol and bone mineral densitometry was performed.

**Results:** In X-ray study, 65.2% of postmenopausal women and 34.8% of pre menopausal women had at least one vertebral fracture ( $P= 0.04$ ). Serum OPG and TNF $\alpha$  concentration significantly correlated with age (OPG:  $P= 0.001$ ,  $r= 0.22$ , TNF $\alpha$ :  $P=0.04$ ,  $r= 0.15$ ). In logistic regression model, RANKL/OPG ratio independent of age and BMD was predicted vertebral fractures.

**Conclusion:** Osteoimmunological insight in to vertebral fracture indicated that important role of proinflammatory cytokines and RANKL/OPG pathway in bone remodeling.

#### Keywords:

[Vertebral fractures](#) . [Osteoprotegerin](#) . [RANKL](#) . [Bone turnover](#)

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