Opg/Rankl mRNA dynamic expression in the bone tissue of ovariectomized rats with osteoporosis

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ABSTRACT. We established animal models of osteoporosis in ovariectomized rats to detect osteoprogerin (Opg)/receptor activator of nuclear factor-κB ligand (Rankl) mRNA expression levels in the tibias and serum estradiol concentrations at different time points. Sixty Sprague-Dawley female rats were randomly selected and divided into an ovariectomized (OVX) group and sham-operated (SHAM) group. In the SHAM group, only a small amount of abdominal fat and tissues was removed from the rats. Ten rats in each group were sacrificed at 0, 6, and 12 months after establishing the animal models (12 weeks). Opg mRNA expression and serum estradiol concentration in the OVX group were significantly lower than those in the SHAM group (P<0.05). In contrast, Rankl mRNA expression in the OVX group was significantly higher than that in the SHAM group (P<0.05). In the OVX group, Opg mRNA expression and serum estradiol concentrations decreased...
significantly from 0 to 12 months (P < 0.05), whereas Rankl mRNA expression increased significantly (P < 0.05). Opg mRNA expression and serum estradiol concentrations in the OVX group continually decreased, whereas Rankl mRNA expression continually increased. The Opg/Rankl ratio showed a decrease. The OPG/RANKL ratio may be a key factor affecting the osteoblast-mediated reaction.

**Key words:** Osteoprotegerin; Ovariectomized rats; Receptor activator of nuclear factor-κB ligand