

題名:An acute injection of Porphyromonas gingivalis lipopolysaccharide modulates the OPG/RANKL system and IL-6 in an ovariectomized mice model

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摘要:BACKGROUND/AIMS: In the present study, we attempted to develop a simulated model to explore the causal effects of periodontal pathogens on skeletal homeostasis in postmenopausal osteoporosis. METHODS: Fifty-three female adult ICR mice were randomly assigned to an experimental group (ovariectomized) or a control group. A single injection of Porphyromonas gingivalis lipopolysaccharide (P. gingivalis-LPS, ATCC 33277) or Escherichia coli lipopolysaccharide (E. coli-LPS) was administered intraperitoneally 4 weeks after an ovariectomy. Concentrations of interleukin-6 (IL-6), osteoprotegerin (OPG), and the receptor activator of nuclear factor-kappaB ligand (RANKL) in serum were subsequently analyzed using an enzyme-linked immunosorbent assay (ELISA). RESULTS: Under stimulation with P. gingivalis-LPS or E. coli-LPS, the concentration of OPG rose in both groups. The serum level of RANKL showed a decreasing trend 24 h after the injection in both groups. After injection of P. gingivalis-LPS in both the experimental and control animals, the OPG : RANKL ratio increased 24 h after the booster (22.26-620.99, P < 0.05). The serum level of IL-6 in the experimental group significantly increased 1-6 h after administration of E. coli-LPS and 1-3 h after administration of P. gingivalis-LPS (P < 0.05). CONCLUSIONS: A single booster injection of P. gingivalis-LPS induced short-term changes in OPG, RANKL, and IL-6 serum levels in this ovariectomized mouse model.