

CHAPTER VI

CONCLUSION

In the present study, the overall results could be summarized for the significance as follows:

1. The ovariectomy (OVX_{veh}) induced tibial bone loss significantly at 6 weeks after surgery.
2. Genistein supplementation could significantly prevent tibial bone loss at 6 weeks after ovariectomy.
3. Genistein supplementation for 1-wk and 3-wk has no significant effects on either serum estrogen level or uterus weight.
4. After 3-wk, genistein administration could prevent the increases in serum levels osteocalcin and alkaline phosphatase in ovariectomized rats.
5. Serum levels of TNF- α were significantly increased at 3-wk after ovariectomy. However, genistein administration could prevent as such estrogen-depletion-induced increase in proinflammatory cytokines, TNF- α in 3-wk ovariectomized rats.
6. Serum VEGF level was significantly decreased in OVX_{veh} compared to sham since 1 week after ovariectomy.
7. Since one week after ovariectomy, decrease in capillary density in OVX_{veh} was found. Interestingly, genistein supplementation could prevent ovariectomy-induced decreased capillary density significantly at 3-wk of experimental period.
8. According to the relationship study for our obtained data, our findings showed that genistein supplementation could prevent the reduction of bone loss in related to preserving bone capillary density ($r = 0.382$, $p < 0.01$)
9. In addition, the relationship between serum VEGF and bone mineral content

also supported our idea that as genistein supplementation could prevent the decrease in VEGF then it could preserve bone capillary density and consequently prevent bone loss.

10. Moreover, genistein supplementation could also prevent the changes of osteocalcin and alkaline phosphatase, together with inhibiting ovx-induced increased pro-inflammatory cytokine, TNF- α .

11. Therefore, our findings can positively support our hypothesis that the supplementation of genistein (0.25 mg/kg/day) could prevent the alterations of bone vascularization and bone remodeling in ovariectomized rats by **inhibiting** the increased pro-inflammatory cytokines and the decreased VEGF.