Effects of *Dokhwalkisaengtang* on the ovariectomized rat model of postmenopausal osteoporosis

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**ABSTRACT**

Osteoporosis is a state of reduced bone mass per unit volume with a normal ratio of mineral to matrix. Postmenopausal osteoporosis is known to be related to estrogen deficiency and give rise to spine and hip fracture in old person.

The purpose of this study is to examine what are the effects of the *Dokhwalkisaengtang* (DHKST) on the ovariectomized rat model of postmenopausal osteoporosis.

The results were summarized as follows:

1. Body weight in control group showed significant increase in comparison with sham, but that in DHKST-treated showed no change in comparison with control.

2. The level of serum albumin in control group showed significant decrease in comparison with sham. That in DHKST-treated was slightly decreased in comparison with control, which showed no efficacy.

3. The level of serum ALP activity in control group showed significant increase in
comparison with sham, but that in DHKST-treated was slightly decreased in comparison with control, which showed no efficacy.

4. The level of serum phosphorous in control group showed significant increase in comparison with sham, but that in DHKST-treated showed no change in comparison with control.

5. The level of serum calcium in control group showed no change in comparison with sham, but that in DHKST-treated was significantly decreased in comparison with control.

6. The level of serum T_{3} in control group showed no change in comparison with sham, but that DHKST-treated showed significant decrease in comparison with control.

7. The level of serum T_{4} in control group showed significant increase in comparison with sham, and that in DHKST-treated showed significant decrease in comparison with control.

8. Trabecular tibia strength in control group showed significant decrease in comparison with sham, but that in DHKST-treated was increased in comparison with control.

According to the above these results, DHKST has shown to be capable of preventing and curing osteoporosis caused by postmenopause.

### I. 緒論

骨代謝性 疾患인 骨多孔症은 更年期에 나타나는 變化중의 하나로, 脈에 작은 구멍들이 많 이 생겨 작은 衝擊에도 쉽게 骨折이 발생하며 骨軟化症과는 달리 骨基質과 骨無機質이 同時에 減少하므로서 骨量이 減少하는 疾病이며^{1-4}, 骨粗鬆症^{5,6,7,8,9}, 骨質疏松^{10,11} 등으로도 불 린다. 主症狀은 酱痛, 脊椎畸形, 身長減少 및 骨折 등이고^{5-7} 内分泌, 營養, 物理 및 遺傳學의 인 因子들이 關與하고 있으며^{8,9,10} 그중 에스트로겐 首不足은 閉經後 骨多孔症의 主原因이다^{5,6,10}.

骨多孔症에 대한 直接的의 症名은 韓醫學 文獻에서 찾아볼 수 없으나 그 病因病機와 臨床 症狀으로 보아 “骨痿”, “骨痿” 등의 範疇에 속한다고 알려져 있으며^{11,13-15}, 症狀을 辨證論治 하며 臉風虛, 臉風虛, 肝腎虧虛, 脾胃氣虛, 氣滯血瘀, 氣血兩虛 등으로 나뉘며 주된 病因病機는 臉風虛로 보고 補腎法을 가장 많이 活用하고 있다^{14,20,21}.

韓醫學에서는 臉與 骨의 關係에 대하여, 《素問・上古天真論》^{11}에 “腎者主水, 受五臟 六腑 之精而藏之”, 《素問・宣明五氣篇》^{11}에 “腎主骨”, 《素問・陰陽應象大論》^{11}에 “腎生骨髓”라 하였는데, 이는 臉과 骨의 關係를 謄하하고 精은 骨髓을 生하므로 骨은 骨髓가 充分해야 堅固함을 말하 는 것으로, 나이가 들어 臉腎이 虛弱해지면 臉腎이 虛少하게 되고 精은 骨髓を 生하지 못하며 骨髓이 生化的 根源을 잃게 되어 骨格을 營養하지 못하므로 骨髓가 空虛하게 된다고 한 것으 로^{12}, 즉 臉腎腎精의 盛衰와 骨格의 成長代謝와는 密切한 關係가 있다고 설명한 것이다.