Developing an Effective Food Supplement for the Prevention of Osteoporosis

Ping-chung LEUNG¹,², Erik Chun-hay KO², Sammy Wing-sum SIU², Ellie Suet-yee PANG², King-fai CHENG², Yat-heung CHAN¹

¹Jockey Club Centre for Osteoporosis Care and Control, The Chinese University of Hong Kong, HKSAR; ²Institute of Chinese Medicine, The Chinese University of Hong Kong, HKSAR

Corresponding author: P.C. Leung, MD, Professor, Director, Center for Clinical Trials on Chinese Medicine, The Chinese University of Hong Kong, Prince of Wales Hospital Shatin, NT, Hong Kong SAR

Submission date: July 18, 2011; Acceptance date: September 28, 2011; Publication date: September 29, 2011

Abstract

Background: Aging is accompanied by a gradual loss of bone mineral contents which might lead to a higher rate to fractures. In the past twenty years, many pharmaceuticals are created to prevent bone loss. Most effective drugs only suppress bone resorption, the result of which is a loss of the normal balance of bone metabolism. Anti-resorptive drugs have already shown complications arising from the loss of balanced metabolism. Therefore it becomes clear now that prevention of bone mineral loss through a natural maintenance process will be more beneficial for those not under special risks. Drug treatment could be researched for those who already developed severe osteoporosis. There are many medicinal herbs in Chinese Medicine known to be supporting bone health. Three of those herbs, Herba Epimedii, Fructus Ligustri Lucidi and Fructus Psoralea (ELP) were chosen to make a formula for the prevention of osteoporosis.

Result: One hundred and fifty postmenopausal osteopenic women were recruited, randomized and allocated to the herbal group (ELP) or placebo group. After 12 months of consumption of herbal formula, bone mineral maintenance was found when the bone mineral density (BMD) of the femur and tibia were as assessed using Dual-energy X-ray
Absorptiometry (DEXA) and Peripheral Quantitative Computed Tomography (pQCT) machines. No adverse effects were found.

**Conclusion:** The clinical study using ELP was designed as a randomized controlled trial to test the efficacy of the agent used. The results showed positive support on the BMD of all bone tested. However statistical difference between the herbal and placebo group reached the significant level only in the proximal tibia and those who experienced menopause for more than ten years. This finding well indicates that ELP is good for preventive but does not satisfy the demand of a treatment agent. ELP could be recommended to those under the early threat of osteoporosis, i.e. osteopenia, to be used as a preventive agent.

**Keywords:** Osteoporosis, post-menopause women, herbal supplement, functional food.