

Chapter 20

Osteoporosis

Osteoporosis is a condition in which the bone has lost sufficient mass to sustain a fracture with minimal trauma. It affects 15 to 20 million Americans, and accounts for some 1.3 million fractures per year at an annual health care cost of \$6 billion.(1) Both men and women lose bone mass as they age, but a period of rapid loss occurs in women with the onset of menopause. It has been estimated that nearly half of the women in the US over age 50 have some degree of osteoporosis.(3)

Overt symptoms are generally absent until a fracture occurs. Most typically, this takes the form of compression fracture of one or more vertebrae, which can result in progressive deformity, loss of height, and chronic pain. Two other common sites of fractures are the hip and the wrist. Hip fracture carries high morbidity and mortality rates and is the most serious complication of osteoporosis.

As is true for many other diseases, primary prophylactic measures for osteoporosis consist of proper nutrition, a sensible exercise program, and other good health habits practiced early on by the individual. Estrogen therapy combined with adequate calcium has been shown to retard bone loss and reduce risk of fractures in postmenopausal women. For estrogen to be an effective prophylaxis, it must be started before osteoporosis is established and must be continued indefinitely. Other available medical therapies include fluoride, calcitonin, and the anabolic steroids. Fluoride is still experimental and causes a considerable number of side effects, while the long-term safety and efficacy of synthetic calcitonin and anabolic steroids have yet to be demonstrated.(8d)

The quest for therapeutic methods with few adverse effects suitable for long-term administration has led some Japanese physicians to explore the use of Kampo in osteoporosis. Kampo medicine abounds in remedies for aging-related degenerative changes, including low back pain and other musculoskeletal problems in older people. However, osteoporosis might be said to number among its newer applications. It is unlikely to have been a significant phenomenon in the past when the average life span was shorter and sedentariness not a public health

concern. The ancients also had no way of measuring bone density, even if they did observe that bones become more fragile with age. A Kampo physician would perceive osteoporosis indirectly, inferring the state of bone health from sensory information about the entire body. He or she would deal with osteoporosis the same way as with any other disease: by identifying imbalances and attempting to restore balance, which in concrete terms means relieving symptoms and improving the constitutional condition.

Kampo treatment

Research on the use of Kampo to control the rate of bone loss only began recently and has concentrated on a small number of remedies. Thus far, no effect comparable to estrogen has been demonstrated, but there is some preliminary evidence of the bone-preserving potential of Kampo therapy. For example, a randomized control trial in 30 surgically-menopausal osteopenic patients has shown that Cinnamon Twig and Poria Pills combined with a form of activated vitamin D3 led to a significant increase in cortical bone mass over a 10-month period, and is more effective than activated vitamin D3 alone or non-treatment.(16)

Bone health depends on multiple interacting parameters. Diet, activity level, other diseases, and drug use can all influence the processes of bone repair, formation, and resorption. Although the specific impact of traditional remedies on bones remains unclear, several interrelated features of Kampo medicine may be expected to contribute to the prevention and treatment of osteoporosis.

- **Overall health**

Kampo treatment increases resistance and the ability to recover from illness. It helps to raise the level of overall health, which affects bone health.

- **Circulation**

Bone formation and repair would be undermined if circulation to the bones were impaired. Many Kampo remedies improve circulation and may be expected to exert a positive effect in this regard.

- **Nutritional factors**

A proper diet is important in supplying the body with calcium and other nutrients necessary to bone health. However, the benefit of a sound diet cannot be realized unless there is also sound digestion and absorption. The improvement of GI function is a major benefit that can be derived from Kampo.

- **Other illness**

Developing osteoporosis often is not an isolated medical problem. Beginning with limitation of physical activity that contributes to further impairment of skeletal strength, concurrent chronic conditions may be related to osteoporosis in complex, poorly understood ways. The integrative approach of Kampo medicine to patient evaluation and treatment is desirable in such instances of comorbidity.

For example, worsening of diabetes is associated with increased rate of bone loss, and insulin-dependent diabetics have a higher-than-average risk of complications from osteoporosis. Eight-Ingredient Rehmannia Pills and kindred

formulas not only can ameliorate osteoporosis-related low back pain, but also can contribute to the stabilization of diabetes mellitus in patients having the corresponding pattern. These formulas are also beneficial in atrophic vaginitis and urinary disorders.

• **Drugs**

A number of drugs create a negative calcium balance. For example, anti-inflammatory analgesics may cause digestive disturbances and interfere with the absorption of calcium and other nutrients. Many common antacids contain aluminum, which augments calcium loss from the body. Common anticonvulsants may interfere with vitamin **D** metabolism, causing decreased calcium absorption. Older people, the age group at risk for osteoporosis, tend to use more medications and thus are also at greater risk for intensifying the problem.

Steroid drugs used to control such diseases as asthma and connective tissue diseases are the most insidious offenders. Prolonged use of high doses of steroids accelerates bone loss and diminishes bone formation, and can cause depression that saps energy and reduces physical activity. Induction of severe osteoporosis is not uncommon among chronic users. (17)

Kampo may be prescribed in many instances where such drugs are being used to enable dosage reduction and possibly withdrawal. Again, this contributes indirectly to the prevention of osteoporosis.

Like estrogen therapy, the benefits of Kampo can be better realized if treatment is initiated before osteoporosis becomes established. Indeed, a judicious application of Kampo would be in the reduction of clinically modifiable risk factors in younger women at risk for osteoporosis.

A. Remedies

As may be inferred from the above discussion, numerous remedies can potentially contribute to the prevention and treatment of osteoporosis. Since they cannot all be cited here, this guideline focuses on four related therapeutic objectives:

1. Ramifications of diminished ovarian function

In perimenopausal women or younger women with ovarian underactivity (hypoestrogenic amenorrhea), the most frequently applicable formulas are Tangkuei and Peony Powder, Channel-Warming Decoction, and Cinnamon Twig and Poria Pills. Other formulas in the Hot Flushes table may also be useful.

Eight-Ingredient Rehmannia Pills and its derivatives are generally suitable in older patient populations. These are remedies traditionally employed to supplement the “kidney,” which in Kampo refers to a sphere of function representing parts of the urinary, reproductive, and endocrine systems and a part of the brain function. A role for kidney-supplementing remedies in osteoporosis is inherent in the traditional medical theory, which ascribes the growth and healing of the bones to the kidney function and associates depletion of the kidney with degenerative changes.

2. Symptomatic osteoporosis

Low back pain, and pain and sensory disturbances in the extremities are the most common symptoms related to osteoporosis. As is true for musculoskeletal problems in general, features of fluid imbalance and blood stasis are regularly observed in osteoporotic patients. Recall that both have to do with abnormal flow or distribution; in other words, impaired circulation and cellular exchange. Remedies that are likely to be useful here are basically the ones used for body aches and pains. In addition to the ones listed in the accompanying table, other formulas introduced in the preceding chapter may be considered.

3. The GI function and calcium absorption

Many formulas can be useful in normalizing the GI function and enhancing calcium absorption. In addition to the ones indicated in the table, the following may be relevant:

- Bupleurum and Cinnamon Twig Decoction
- Bupleurum, Cinnamon Twig and Dried Ginger Decoction
- Cinnamon Twig and Ginseng Decoction
- Pinellia, Ovate Atractylodes and Gastrodia Decoction
- Spleen-Returning Decoction
- True Warrior Decoction

4. General vitality

Center-Supplementing Qi-Boosting Decoction and Perfect Major Supplementation Decoction are examples of remedies that raise general vitality levels. Where indications exist, they may be employed in combination with other formulas. Furthermore, beginning with formulas suitable for weak digestive function, many Kampo formulas introduced in this manual incorporate “superior” substances (see p. 24) and have varying degrees of health-building effects.

As always, formulation of the treatment plan should be guided by the overall condition of the patient. Other chapters in Part III may be consulted as needed.

B. Combination with conventional medications

The constitutional effects of Kampo treatment complement the biomedical focus on target organs. Combinations with calcium supplements, estrogen, calcitonin, etc. are possible and indeed desirable in certain cases.

C. Evaluation

Kampo treatment may be expected to ameliorate painful symptoms related to osteoporosis within two to four weeks. Long-term treatment is generally indicated to bring about constitutional improvement. Depending on the patient’s subjective response and changes in bone mass status, different combinations of Kampo remedies and conventional therapies may need to be tried during the course of treatment.

