

Research Progress of Osteoporosis Based on the Theory of “Homology of Liver and Kidney”

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Abstract: Osteoporosis is a systemic chronic metabolic bone disease, mainly in the elderly and postmenopausal women. At present, most of the clinical treatment is western medicine, but the curative effect is not very significant. In the treatment of osteoporosis, traditional Chinese medicine (TCM) is mainly based on the overall concept of TCM. This article briefly analyzes osteoporosis from the theory of “liver and kidney homology,” discusses the research on osteoporosis in TCM, and hopes to provide reference for the clinical treatment and research of osteoporosis.

Keywords: Liver and kidney homology; Osteoporosis; Research progress

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1. Introduction

Osteoporosis (OP) is the most common bone disease in the elderly and postmenopausal women. Systemic bone disease characterized by decreased bone mass, damage to the microstructure of bone tissue, decreased activity of osteoblasts, and increased activity of osteoclasts, leading to increased bone fragility and prone to fractures ^[1]. With the aging of our country’s population, OP will become a disease that seriously endangers public health. According to the statistics of the World Health Organization ^[2-3], the current incidence of osteoporosis has steadily ranked seventh among frequently-occurring and common diseases in the world.

Osteoporosis is not recorded in the classical TCM, but the cause of the disease is consistent with the “osteomy” in TCM. The internal cause of the pathogenesis of osteoporosis is the inadequacy of congenital endowment and the disorder of acquired nutrition, and the invasion of external pathogens is the inducement of the disease. This article discusses osteoporosis based on the “liver and kidney homology” in the theory of TCM.

2. “Liver and kidney homology” and etiology and pathogenesis of osteoporosis

The kidney is the congenital foundation, the bone is responsible for the production of marrow, the liver is responsible for the storage of blood, and the body is combined with the tendons. Deficiency of kidney essence affects blood deficiency. Anyway, loss of liver blood and kidney essence will also be affected. Insufficiency of the liver, the function of liver and blood decreases and the muscles are lost for nourishment, and the bones become useless. Kidney deficiency and the essence of the kidneys decrease, and the ability of the main bones to produce marrow is reduced, which causes the use of muscles and bones. Therefore, the bones and muscles are not used for a long time. “Theories on the Sources of Diseases” states: “The liver controls the tendons and hides blood, and the kidneys controls the bones to produce marrow; deficiency strain damages the blood and consumes the marrow, so it hurts the bones.”

Essence and blood are homogenous, and the theory of “liver and kidney homologous” is also called “sperm and blood homologous.” The liver stores blood, the kidney stores essence, and the essence and blood coexist, so the kidney and liver nourish each other. The kidney controls bone to produce marrow, and the marrow can metabolize liver blood, and if liver blood is sufficient, it can further metabolize into kidney essence, so the liver and kidney are homologous, and the kidney and liver have a mutual relationship.

3. The application of “liver and kidney homology” in the treatment of osteoporosis

According to the relationship and function between kidney essence and liver blood, as well as the dialectical treatment and overall concept of Chinese medicine treatment. Therefore, TCM treatment of osteoporosis based on the theory of “liver and kidney homology” is mainly based on “treatment of essence and blood,” that is, treatment of liver and kidney. For the simultaneous treatment of liver and kidney, the nourishment of liver and kidney can achieve the same nourishment of essence and blood. Kidney essence can transform bones and produce marrow, liver blood can nourish the muscles and veins, liver and kidney can nourish the muscles and bones, so that the muscles and bones can be used, so as to avoid osteodystrophy and achieve prevention and treatment of bones. The purpose of poor quality ^[4-6].

At present, TCM treatments for osteoporosis are mainly liver and kidney tonic drugs such as Epimedium, Cistanche, *Drynaria fortunei*. Epimedium has the effects of nourishing kidney yang, strengthening muscles and bones, and dispelling rheumatism. Modern medical research has shown that, epimedium extract icariin can promote the proliferation of pre-osteoblasts ^[7]. icariin can regulate the levels of serum osteocalcin mRNA and protein in the bones of rats to achieve the purpose of preventing and treating OP ^[8], *drynaria* fortifying the liver and kidney channels. It has the effect of invigorating the kidney and strengthening the bone, *drynaria fortunei* can effectively inhibit the proliferation of osteoclasts. One aspect is to inhibit the transformation of osteoclasts into mature osteoclasts, and the second is to inhibit osteoclast bone resorption ^[9-11]. Therefore, the mechanism of treating OP is achieved. The Chinese patent medicines based on the liver and kidney tonic treatment of osteoporosis are mainly Qigu capsules, Liuwei Dihuang pills, and Shenggu capsules.

4. Conclusion

Osteoporosis is a relatively important aging disease facing society today. When western medicine treats osteoporosis, most of the treatment options not only face the disadvantages of high cost, long treatment period, and less obvious treatment effect. Therefore, it is particularly important to find a treatment plan with good curative effect and low cost.

The theory of “liver and kidney homology” takes full advantage of TCM, it provides a better TCM solution strategy for the treatment of osteoporosis, at the same time, it also provides a theoretical basis for the mechanism of action of TCM in the treatment of osteoporosis, which is worthy of popularization and use.

Disclosure statement

The author declares no conflict of interest.

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