

relative retention time of common peaks is stable, but relative peak area is different, which means that the species of contained chemical composition of different region's herbs is similar, but the content of each component is different. Similarity of 10 batches of samples and common pattern were greater than 0.9, indicating that this experiment established fingerprint having marked characteristic and good stability, for the quality control of *Celosia cristata* L. provide a scientific basis and effective method of identifying. The results are described in the following diagram.

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## The research progress of osteoporosis treated with traditional Chinese medicine

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[Abstract] This article summarized the etiology and pathogenesis, clinical diagnosis, medical treatment and other therapies of osteoporosis, to help further investigation.

[Key words] Osteoporosis; traditional Chinese Medicine

There's no disease or syndrome named as osteoporosis in classics of traditional Chinese medicine, but it could be differentiated as lumbago, bone atrophy or bone arthralgia.

### 1 Etiology and pathogenesis

There are a large number of discuss in the classics, and kidney is the primary viscera involved. Plain Questions said, "the kidney is concerned with the bone and produces bone marrow." Danxi Xinfu, "limbs wither, joints aching, refined essence and marrow disappear when kidney deficiency."

It's also involved with liver and spleen. As said in Li Gao's Treatise of Spleen and Stomach, "Spleen disease downgoing to kidney cause deficiency of bone marrow". Liu Yuansu's Su Wen Xuan Ji Yuan Bing Shi said, organs, channels, limbs and body all depend on Spleen and Stomach for nourishing. Plain Questions said, the tendons can't move if liver qi deficiency. Zheng

Zhi Zhun Sheng also said, "liver deficiency, so tendons can't be nourished, result in non-flexibility of joints."

Obstruction of collaterals by blood stasis is another pathogen of osteoporosis. The Miraculous Pivot said, "only with fluently blood, could tendons and joints move smoothly."

In short, the etiology and pathogenesis of osteoporosis is deficiency of kidney essence, bone loss of filling; the spleen and stomach disorders, lack of biological sources; liver dysfunction, no nutrition; blood stasis, pain caused by unreasonable.

## 2 Differentiation of syndromes and herbs

Syndrome differentiation of osteoporosis type there is no uniform standard.

Zhang Wentai<sup>[1]</sup> osteoporosis were divided into three types: the type of deficiency of liver and kidney, spleen and stomach type standard type inclusion. Treatment should identify the actual situation, clear disease dirty. Although Fuzheng method through always, that is nourishing the liver and kidney with strong bones and muscles, invigorating the spleen for the auxiliary. When thinking of cold, wet, blood stasis, with Onyang cold-dispelling, spleen dampness, promoting blood circulation and removing blood stasis method.

Liu Qingsi<sup>[2]</sup> will be divided into four types: kidney yang deficiency, yin deficiency, spleen kidney two empty, qi stagnation and blood stasis. With Bushen Jianpi Huoxue recipe: Rou Cong Rong 10g, Tu Si Zi 15g, Bu Gu Zhi 15g, Yin Yang Huo 10g, Dan Shen 15g, Dang Gui 15g, Shu Di 10g, Bai Shao 15g, Da Zao 10g.

Shi Yinyu in the treatment of osteoporosis, focused "loose" and "pain"<sup>[3]</sup>. He warned, if the patients with "pain" to see a doctor, when considering no pain and no pain. The pain, kidney deficiency and stasis is the main cause of the second. Shi Yinyu stressed that the loose bone should distinguish deficiency and empirical, deficiency of kidney-yang deficiency in the north, South to kidney yin deficiency as much; empirical mainly phlegm or blood stasis. Treatment with nourishing essence of kidney, invigorating the spleen, promoting blood circulation and removing blood stasis legislation. Selecte Si Jun Zi Tang, Shen Qi Wan, Zuo Gui Wan, You Gui Wan and so on<sup>[4]</sup>.

Wang Hequn<sup>[5]</sup> osteoporosis were divided into four types: the type of deficiency of liver and kidney, treated by Bushen Rougan, Yang Yin Yi Gu, voted to Da Bu Yin Wan or Zuo Gui Wan addition and subtraction. Yang deficiency of spleen and kidney, invigorating spleen and kidney to cure temperature, with Gui Pi Wan modified You Gui Wan. Deficiency of Spleen Qi, when replenishing qi to invigorate the spleen, tonifying kidney and strengthening bones, with additive Shen Ling Bai Zhu San. Qi stagnation and blood stasis, cold dampness, when promoting blood circulation to remove blood stasis, qufentongbi, cast ShenTongZhuYuTang addition and subtraction.

Wang Taihong<sup>[6]</sup> according to syndrome differentiation principle will be divided into four types: 1. Yang deficiency of the kidney, due to the frail elderly, various hypofunction or resulted from low. Treatment should be warming kidney-yang clinical with Jin Gui Shen Qi Wan as the basic cultural carrier, often with antler glue, placenta, the love of flesh and blood products. 2. Yang deficiency of the kidney, expelling Ziyin Bushen, with Zhi Bai Di Huang Wan as the basic cultural carrier, often with myeloid fill with tortoise plastron glue, wolfberry essence. 3. Qi stagnation and blood stasis, expelling qi and blood circulation, with Tao Hong Si Wu Tang as the basic cultural carrier, often with Huang Qi, Ru Xiang, Mo Yao. 4. Weakness of spleen and stomach, expelling the spleen and stomach, cast Si Jun Zi Tang, often with Huang Qi, Sha Ren, Chen Pi, Ci Wu Jia.

Hu Xiaodong<sup>[7]</sup> experiments in groups of 164 osteoporosis patients, randomly divided into treatment group and control group. Chinese medicine treatment group, the kidney yang deficiency with Chinese traditional medicine: Du Zhong 15g, Ba Ji Tian 15g, Rou Cong Rong 15g, Gui Ban 10g, Bie Jia 10g, Shu Di Huang 10g, Lu Rong 15g, Yin Yang Huo 15g, Bu Gu Zhi 15g, Shan Zhu Yu 10g, Gou Qi Zi 10g, Lu Jiao Jiao 10g. Kidney deficiency of Yin with Chinese herbs: Sheng Di Huang 15g, Zhi Gui Ban 15g, Huang Jing 15g, Shan Zhu Yu 15g, Dang Gui 10g, Tu Si Zi 15g, Xu Duan 10g, Gu Sui Bu 10g, Gou Qi Zi 15g, Nv Zhen Zi 10g, Dan Shen 10g, San Qi 10g.

Li Zhongwan<sup>[8]</sup> postmenopausal osteoporosis is divided into kidney yang deficiency, yin deficiency of liver and kidney, Yang deficiency of spleen and kidney, qi stagnation and blood stasis syndrome type four. He thinks the kidney-yang deficiency occurred in the early stage of osteoporosis, and qi stagnation and blood stasis type occurs in late stage. The degree of kidney yang deficiency osteoporosis is Qi stagnation and blood stasis type light. In the pathologic process, "kidney yang deficiency, blood stasis" is likely an important link for the transformation of pathogenesis of postmenopausal osteoporosis.

Wu Jianxiong<sup>[9]</sup> osteoporosis patients according to syndrome of yin and Yang syndromes. Yang Syndrome Treated with Bushen blood-cooling analgesic method. Party to: Ling Yang Jiao 15g, Yin Yang Huo 15g, Bu Gu Zhi 15g, Sheng Di 15g, Zhi Mu 15g, Chuan Duan 15g, Huang Qin 12g, Bai Shao 15g, Yu Jin 12g, Quan Chong 6g, Chuan Zu 2. Yin Syndrome group treated with Yiqi Huoxue Zhitong nourishing kidney method. Party to: Yin Yang Huo 15g, Bu Gu Zhi 15g, Tianqi 10g, Lu Jiao Jiao 12g, Chuan Duan 15g, Dan Shen 10g, Quan Chong 6g, Chuan Zu 2. For two weeks the measured bone density had no significant difference, but the pain has been significantly improved.

Therapies of traditional Chinese medicine with the overall concept, syndrome differentiation and treatment. In the treatment of osteoporosis, to play its unique advantage. The doctors in the treatment of the disease, not only the kidney method. However, the doctors are diseases combined, in order to clinical potential side effect of tonifying kidney, liver, spleen, will, and removing blood stasis method are combined together.

### 3 Other therapies

Clinical treatment of osteoporosis and acupuncture, massage, Chinese medicine external treatment, physical therapy and other therapies.

#### 3.1 Acupuncture therapy

Zhou Zhihua<sup>[10]</sup> using acupoints of spleen kidney. Zusanli, Sanyinjiao, Taixi, Guanyuan, Shenshu, Pishu, Ashipoint. He Jin<sup>[11]</sup> needling Xuanzhong, Shenshu, Mingmen, set up the control group oral Gusongbao granules treatment, to observe the effect of the two groups on primary osteoporosis after 3 months, the acupuncture group in pain visual analog scale have a significant advantage over the control group. Liu Guangxia<sup>[12]</sup> to Du mainly acupoints, methods of acupuncture and moxibustion combined with. Main point: Baihui, Yaoyangguan, Dazhui, Mingmen, to yang. Acupoints: Zusanli, Sanyinjiao, Guanyuan, Xuanzhong, Taixi, Qihai, Pishu and Shenshu. After treatment, clinical manifestations of joint pain and swelling were improved, the effective rate was 78.6%. Xiong

Cui<sup>[13]</sup> combination therapy, acupoint Weizhong, Guanyuan, Taixi, Mingmen, Shenshu, pishu. Every time after acupuncture, auricular plaster therapy for, take God door, liver, spleen, kidney, adrenal glands, endocrine. Three times a week, termination of scale visual analogue scale and osteoporosis symptoms quantitative grading scores after a month to observe its clinical pain, these two parameters were significantly improved. Ye Tao<sup>[14]</sup> application of acupoint magnetic therapy. Acupuncture, the main point to take Shenshu, Seki Yuanyu, with points from vertebral body corresponding on Back-shu points, connecting multifunctional high-efficiency magnetic therapy apparatus. 10 to 1 course of treatment, each treatment interval was 1 ~ 2 days, a total of 2 courses of treatment. Clinical proof, this therapy can play a relieve pain, promote bone healing, recovery of function.

#### 3.2 External therapy of traditional Chinese Medicine

Yang Huili<sup>[15]</sup> using the method of traditional Chinese medicine ironing, eucommia bark, frankincense, myrrh, cassia, angelica, angelica, ground into a powder bags, steam for 30 minutes, while it is hot enough to move back and forth in the waist bag. Two times a day, each time 15-30 minutes. According to the traditional Chinese medicine warm performance and external heat, to heat and cold-dispelling, promoting blood circulation and relieving pain, Bushen Zhuanggu role<sup>[16]</sup>, thus benefiting the bones and muscles, relieve pain.

The common clinical path of fumigating and washing: Mu Gua 30g, Gou Ji 30g, Wu Jia Pi 30g, Bai Zhi 25g, Yuan Hu 25g, Hong Hua 25g, Tou Gu Cao 20g, Du Zhong 20g, Ji Xue Teng 20g. Decocting juice, steam smoked in the affected area, the medicine juice suitable temperature, gauze soaked liquid medicine hot compress on the affected area, once a day. Wash Wen Tong: Tou gu cao 30g, Chuan Wu 30g, Cao Wu 30g, Chuan Duan 30g, Gou Ji 30g, Hai Tong Pi 30g, Da Huang 20g, Gui Zhi 20g. Above the water decoction of the medicine juice 1500ml, residual 1000ml off the fire. Until the liquid temperature is appropriate, wash in the affected area, once a day.

In clinical practice, in-depth study of various physical therapy, and the treatment method and related disciplines are combined together organically, realize the complementary advantages, synergy of maximum, can better show the characteristics and advantages of traditional Chinese medicine.

#### 4 Prospect

Due to the extension of life expectancy and population structure changes, the incidence of osteoporosis is on the rise. The patients to bring great suffering, serious impact on the quality of life and physical and mental health. At present, problems of osteoporosis clinical treatment is still a difficult. To study the disease, no breakthrough progress at home and abroad.

Chinese medicine in the treatment of osteoporosis, has accumulated rich clinical experience, the syndrome differentiation and treatment ideas impenetrate the whole process of the disease treatment, at the same time using a variety of methods synthetically, to maximize the characteristics and advantages of TCM diagnosis and treatment.

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## **The Animal Model of Insulin Resistance Induced by High-fat Diet**

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### **Abstract:**

**Background:** Insulin resistance (IR) is the common morbidity basis of type 2 diabetes mellitus (T2DM), impaired glucose tolerance(IGT), hyperlipidemia, hyperuricemia, cardiovascular disease and metabolic syndrome . In lab studies, the establishment of animal model of insulin resistance is the primary condition, The modeling methods can be divided into four kinds: genotype, drug injection type, die<sup>3</sup>t induced type, various ways mixed. This article mainly discuss the affection on the establishment of the model type which induced only by high fat diet in animal experiments.The influence conditions includes different high fat feed formula ratio, laboratory animal age, food intake and animal strains and so on.

**Conclusion:** The type with high fat calories, large food intake, old week age is more likely to develop the insulin resistance model.

**Keywords:** High-fat Diet, Insulin Resistance (IR), Type 2 Diabetes Mellitus (T2DM), Animal Model

### **1 Background**

Insulin resistance (IR) refers to a variety of reasons make insulin to promote glucose uptake and utilization efficiency decreased, the reactivity decreases insulin physiological function, i. e., impaired insulin to promote glucose uptake, compensatory insulin secretion grow in quantity, cause its important symbol for high insulin hematic disease [1]. Insulin resistance and its secondary metabolic disorder are the common morbidity basis of type 2 diabetes, low glucose tolerance, reduce, hyperlipidemia, high uric acid hematic disease, cardiovascular disease and metabolic syndrome. Studying on the experiment method is the major way in this field of research. In all animal experiments, insulin resistance model is the foundation and the prerequisite of research.

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