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Comparative study and evaluation of traditional Chinese and Western medicine in methods for the treatment of subhealth state

Wang Jun^[1], Song Zhongtao^[1], Yu Shiting^[1], Liu Yan^[2]

1. The first affiliated hospital of Heilongjiang university of TCM, Harbin China
2. Heilongjiang university of TCM, Harbin China

【Abstract】 With the increased stress in social and daily life, more and more people in modern society are suffering subhealth. A latest predictive survey announced by WHO showed that 75% population in the world are in the state of subhealth and only 5% are in the state of real health. Doctors from both traditional Chinese medicine and western medicine have study and taken a lot of interventions to prevent subhealth, many of which have shown good results. However, methods for the treatment of subhealth state from traditional Chinese medicine have shown advantages obviously. These methods, which comply with the theory of preventive treatment in TCM, are diversified and vary from people to people according to their syndromes.

【Keywords】 Subhealth state; Intervention; Advantages of TCM

Introduction

WHO named the state of body with functional changes but without Organic disease as “The thire state”, firstly proposed by Berkman from the former Soviet Union in 1980s. It is also known as inferior health, intermediate state and wavering state. We call it subhealth in China. Wang Yuxue^[1] in China is the first researcher who use the title subhealth. It means a state of low quality and

psychological imbalance,without clinical symptoms and signs,or with the feeling of illness but without characteristic clinical and laboratory abnormalities,which is a potential trend to be of disease.According to the International Classification of Diseases,there is a description of various signs of discomfort,such as unexplained recurring dizziness, lack of energy, physical weakness, low quality of rest, difficulty to focus attention, emotional instability, and poor immunity.These signs cannot be identified by clinical checkup.It is named as chronic fatigue syndrome by Centers for Disease Control and Prevention of the United States ^[2] .

The basic simples of TCM theories require that doctors need to prevent people from falling ill and avoid patients getting worse. Bian Que,an ancient Chinese geniuses also promoted preventive treatment of disease.These are the basic TCM principles to carry out all kinds of treatment to improve the state of subhealth.

Materials and methods

1.Causes of the state of subhealth

In western medicine,the causes of subhealth include dysfunction of the nervous system,the immune system and the endocrine system,as well as the imbalance of the whole body's coordination ^[3] .

1.1 The state of subhealth in western medicine

1.1.1 The impact of unhealthy lifestyle and behavior

With the accelerated pace of work and life in modern society,a changed lifestyle are characterized by heavier burden, Irregular daily life, missed meals, Overeating, Intake of high salt, high fat, high-calorie foods, staying up all night ,lack of sleep and rest , heavy smoking, alcoholism,being sedentary,lack of exercises,unstable schedule,and so on.These factors can easily cause fatigue,weakness, general malaise, loss of appetite,etc. Fatigue caused by a long-term physical and mental overdraft is an important factor in the health hazards.

1.1.2 The impact of psychological and social pressures

Nowadays,with the tremendous pressure of competition and life,people always suffer the heavy burden of study and work, complex relationships,and all kinds of pressure.Modern people are easy to be nervous.Mental tensity, conflict, anxiety,depression easily lead people to be fretful,angry.sleepless,forgetful and dull.This is the psychological state of subhealth. Fierce emotional reactions and sustained mental stimulation can affect the function of autonomic nervous system, endocrine system and immune system by the regulation of central nervous system.Sometimes it cause disease. Stress reaction, which comes when individuals facing the challenges and threats from the external environment,is a mental and physical response.It is harmful to our health,and it is a cause of subhealth. Long-term overstrain and psychological stress can increase the tension of sympathetic nerve fibers,and induce vasospasm, which promote cardiovascular and cerebrovascular disease. Stress, tension, frustration, conflict are the factors that lead to social-psychosocial problems,such as psychological stress, emotional irritability, and abnormal behavior ^[4] .

1.1.3 The impact of biological factors

Physiological changes in the body are related to the body's natural aging, genetic factors and hard times in the human biological cycle. With aging, our physiological function will decline,and we can feel tired, lack of energy and uncompetitive. Furthermore , according to modern medicine theories, health and most diseases are directly or indirectly associated with the gene. The existence of disease genes and susceptibility genes, combined with internal and external environment factors, lead to diseases finally. Genetic factors affect synthesis of the enzyme, metabolism of the body and function of the immune system. Environmental factors affect chemical changes in the body through the nervous system. Furthermore, there are biological rhythms in cell, organ and the whole body. Our blood pressure, heart rate, endocrine, immune function, and neurohumoral also change with circadian rhythm. An irregular life, prone to metabolic disorders, lead to the state of subhealth .

1.1.4 The impact of environmental factors

The natural environment is essential to human survival, and it is the most important factor affecting human health. All kinds of pollution to our environment, including air pollution, land and water pollution, food contamination, noise and light pollution, electromagnetic pollution, chemicals and radioactive substances pollution, affect the body's normal physiological function in case long-term exposure to this environment. In addition, undermined balance of the whole body, mutations in the genetic material DNA, immune disorders, the increased incidence of tumors, allergic diseases, damage of nervous system, increased respiratory diseases, birth defects and fertility problems are also the adverse consequences. In the study of the various diseases, geographical factors are also important factors affecting the state of subhealth, which could develop into different endemic diseases in case of different geographical factors.

1.2 The state of subhealth in traditional Chinese medicine

1.2.1 Imbalance of Yin, Yang, Qi, and Blood of inner organs

According to the TCM theories, the causes which lead to the imbalance of Yin, Yang, Qi, and Blood of inner organs include improper diet, excessive work and rest, Irregular daily life, internal injuries caused by seven emotion, state of aging and ailing, etc. These causes also injury healthy energy, which is the main pathogenesis of subhealth. This view is basically consistent with the theories of modern medicine. However, as for syndrome differentiation, TCM demonstrate its advantages. With the basic diagnosis methods of Traditional Chinese Medicine, which include inspection, auscultation-olfaction, interrogation and palpation, a doctor of TCM can divided the state of subhealth into more than 11 syndromes, such as Qi stagnation of liver, blood resistance, damp-heat incide, Qi and blood deficiency, heart fire hyperactivity, accumulation of phlegm-damp, yang deficiency of spleen and kidney, disharmony of heart and kidney, disorder of liver and stomach, Qi deficiency of heart and spleen, etc.^[5]. Then, the doctor can select a treatment based on syndrome differentiation.

1.2.2 Theory about physical constitution

According to the theory about physical constitution in TCM, one person's physical constitution is different from others because of congenital and acquired factors. There are roughly two types of physical constitution, healthy ones and pathological ones. Pathological constitutions are several types of subhealth, including blood deficiency constitution, phlegm-damp constitution, yang deficiency constitution, etc. These are the states of subhealth, between the disease and health^[6]. We can prevent disease and treat subhealth by adjusting the physical constitution.

1.2.3 Disharmony of Liver Qi

Yang Shizhong et al.^[7] ascribed the state of subhealth to disharmony of liver Qi, because disharmony of liver Qi lead to some pathological changes, such as the spiritual and emotional changes, functional changes of organs, and influence on human Qi-blood and body fluid, etc. Those changes cause the state of subhealth eventually. Furthermore, congenital deficiency, along with exogenous pathogenic factors, is also the cause of the state of subhealth.

2. Treatment in western medicine

The main treatment in western medicine includes a reasonable diet, balanced time of work and rest, proper exercise, quitted smoking and limited alcohol, psychotherapy. Psychological counseling, music therapy, and Morita therapy, these means of treatment are always adopted.

2.1 Behavioral intervention

Promote healthy living, establish regular schedule, overcome bad habits, do not drink, do not smoke, balance the diet, adjust of the pace of life reasonably, take right amount of exercise, balance the time of work and rest^[8].

2.2 Psychological intervention

Make psychological adjustment, keep positive attitude. Give psychological guidance, counseling, and inspiration, establish correct outlook on life and values, face reality. Psychological counseling is the most important, and always does a good job in combination with other means.

2.3 Music therapy intervention

According to the modern medicine theories, music therapy treat subhealth through physiological and psychological ways. Because the frequency, rhythm, and a regular sound vibration of the music is a physical energy. Moderate physical energy will cause human tissue cells harmonious resonance, which make the cranial cavity, chest or a certain organization resonance. This resonance phenomenon will directly affect a person's brain waves, heart rate, and breathing rhythm, etc. Music can affect the body psychologically and physiologically, relieve tension, make human physiological structure resonance beneficially, and stimulate the body's potentiality. Many reports^[9] show that music therapy can significantly improve insomnia, fatigue, and other symptoms of physical decline. It can also alleviate depression, nervousness, irritability and other symptoms.

2.4 Biomedical technology intervention

Stellate ganglion block therapy has some effect by reducing the excitability of the overexcited sympathetic nervous system, improving blood circulation, promoting the body's self-healing capabilities, and strengthening the body's defense capabilities. Effects include anti-inflammatory, mediation of blood pressure, improvement of sleep and appetite, etc. Most people achieved a significant effect. There are also floating therapy, colon hydrotherapy, biofeedback and other therapies to be chosen^[10].

3. Treatment in traditional Chinese medicine

The treatment of subhealth in traditional Chinese medicine has specific ways and significant effect. The ways include self-cultivation, music therapy, acupuncture, tuina, cupping, Guasha, Qigong, diet therapy, medication, etc. They are all effective methods of recuperating the state of subhealth. In recent years, more and more people's attention are attracted.

3.1 Self-recuperate to prevent and treat subhealth

3.1.1 To recuperate your mind

According to the theories of TCM, emotional activities are supported by five viscera, and the changing of emotion can affect the function of five viscera. 'five emotions hurt five viscera', <Suwen> records: 'Rage leading to qi ascending, excessive joy leading to qi loose, excessive sorrow leading to qi consumption, fear leading to qi sinking, fright leading to qi turbulence, pensiveness leading to qi knotting' and 'rage impairing liver, overwhelming joy impairing heart, pensiveness impairing spleen, melancholy impairing lung, fear impairing kidney'. Recuperating the mind is the foundation of preventative treatment. The important ways to prevent the state of subhealth include recuperating the mind, maintaining a normal state of mind, avoiding abnormal mental stimulation. This way, just like the psychological intervention way in western medicine, need people pay more attention to their own self-cultivation, cure both body and mind, mobilize people's own spiritual emotions to nurse the mind. It is not like the psychological counseling.

3.1.2 Nurse your daily life

Doctors, following the theories of preventive treatment of disease in TCM, advocate proper diet, regular daily life, and balanced time of work and rest. It's the key point of preventing subhealth. Basic ways to prevent and treat subhealth include healthy habit of living, regular activities of daily life, moderate time of work and rest, and reasonable manner of work and rest. It's just the same as the attitude in western medicine.

3.1.3 Traditional exercises for health care

The training of breath, mind, and body strengthen the function of all parts of the body, light the potential energy inside, and prevent or treat disease to make a long life. Traditional Chinese exercises need to be done with a peaceful mind in order to achieve the harmony of spirit and flesh and the healthy state of physiology and psychology. This kind of exercise include Taiji, Qigong, Daoyin, changing tendon exercise, and five mimic-animal exercise, which are used to prevent disease and treat subhealth. Many researches reported the effect of those exercises practised in communities to prevent and treat subhealth^[11].

3.2 Music therapy for health care

Music therapy of TCM, based on the five basic tones of folk music, which has relationship with the five elements and the five viscera, choose certain track to treat corresponding disease. A song with Gong tone has relationship with spleen because of the commonalities of Earth according to the five elements' theory. A song with Shang tone has relationship with lung because of the commonalities of Metal; A song with Jue tone has relationship with liver because of the commonalities of Wood; A song with Zhi tone has relationship with heart because of the commonalities of Fire; A song with Yu tone has relationship with kidney because of the commonalities of Water. <Huangdineijing>, classic work of TCM, recorded that five tones could heal. <Shiji>, classic work of Chinese history, recorded that music could activate blood to dredge vessels, make spirit comfortable, and cultivate a positive attitude.

3.3 Diet therapy with medicinal foods

Diet therapy with medicinal foods prevent and treat subhealth with great advantages, Sun Simiao, the king of medicine in ancient China, believed that to cure patients, we'd better choose diet therapy firstly, and medicine secondly. Food, which is vital to our subsistence and enjoyment, is a good prescription. Nowadays, when we pay more and more attention to live a healthier life, diet therapy and medicinal foods become playing an important role. In daily life, a suitable diet is chosen based on the difference between individuals. Compared with medicine therapy, diet therapy is safer, cheaper, and more convenient, with less side-effect and less suffering^[12].

3.4 Tuina manipulations

Tuina is a method of TCM treatment of subhealth with exact effect. Manipulations are operated on the acupoints and certain areas of human's body stimulating the meridians and acupoints to balance Yin and Yang, condition organs, adjust Ying and Wei, improve Qi-blood circulation, promote the body resistance and eliminate pathogenic factors, prevent disease and protect health. Thus, it can cure all kinds of symptoms of subhealth patients. <Yangshengleiji> recorded that to cure and keep health, we should take Tuina and Daoyin first. Wang Yinglei, et al.^[13] treated 76 patients of subhealth using Tuina method of TCM, with the result of 22 cases cured, 35 cases effective, 17 cases improved, and 2 cases invalid. Total efficiency is 96.8%. Wang Yongquan^[14] treated 55 patients of subhealth using chiropractic method, with the result of 47 cases cured, 8 cases improved, and none invalid. Total efficiency is 100%. Zhou Haifeng, et al.^[15] treated 200 patients of subhealth with health-care Tuina method of TCM, with the result of 44 cases cured, 110 cases effective, 40 cases improved, and 6 cases invalid. Total efficiency is 97%. Song Hongquan, et al.^[16] used some manipulations including one-finger scrubbing, pressing, kneading, Mo method, and Gun method, on craniofacial areas, acupoints in the dorsal areas, and some health-care acupoints. After 330 days treatment, the total efficiency is 100%. They believed that to treat subhealth, pressing acupoints is safe and effective. Clinical reports which treat subhealth with Tuina method of TCM are in great quantity. Consensus has been reached about the security and the effectivity of this treatment. This can be easily adopted by the patients because it can avoid the adverse reaction of medicine, promote relieving fatigue, regular body functions, and enhance immunity. It plays a predominant role in clinical practice.

3.5 Acupuncture therapy

Acupuncture therapy is an effective way to treat subhealth with many clinical reports. Gu Zha treated 200 patients with combined acupuncture method including filiform needle needling method, means of seven-star needle, and ear-point taping and pressing therapy, with the result of 200 cases cured, and a 100% total efficiency. The result certificated that acupuncture and ear-point taping and pressing therapy can adjust the disharmony of Yin and Yang in the patients of subhealth^[17]. <Lingshu> recorded that the key point of acupuncture is to adjust Yin and Yang, thus the spirit turn refreshed. According to the theories of syndrome differentiation of TCM, different manipulations of acupuncture can stimulate the meridians and acupoints, reduce the excess, reinforce the deficiency, circulate Qi and blood, connect viscera, communicate exterior and

interior,work through top and bottom,regulate the function of organs and strengthen the disease resistance. Moxibustion use moxa as material to fumigate and iron certain acupoints.It regulate the function of meridians and organs to dredge meridian,adjust qi and blood,and balance Yin and Yang.

3.6 Cupping therapy

The cups are used to creat a small area of low air pressure on the skin of acupoints or other areas.There are many methods of creating the low pressure,such as burning ,heating or pumping the air in the cups,This physical therapy gives a warm and healthy stimulating,and result in an area of extravasated blood on the skin.The efficacy includes removing wind and dispersing cold, clearing heat and dehumidification,promoting circulation of qi and blood, dredging meridians,reducing swelling and alleviating pain,etc.Finally,achieve the harmony of Yin and Yang,alleviate fatigue, promote local blood circulation and enhance physique to prevent disease.

3.7Guasha therapy

Guasha therapy is a traditional method of treatment or health care,and it is an important part of treatment with no medicine in TCM.It is operated on the surface of skin,which is a part of meridians,always with a tool with a smooth edge.Certain areas include acupoints and pathways of meridians.Physical stimulations,such as scratching, squeezing, pulling, pinching, and stabbing,make the surface of skin red ,and result in sub-cutaneous blemishing.This method,by stimulating acupoints and skin part of meridians,improve the circulation of qi and blood,and furthermore achieve the effect of supporting healthy energy to eliminate pathogenic factors, accelerating the circulation of qi and blood, discharging stasis and toxins, activating energy to flow in the channels and collaterals, clearing the heat and adjusting spleen and stomach.

3.8Chinese herbal medicine based on the syndrome differentiation

Herbal medicine prevent and treat the state of subhealth by balancing Yin and Yang, conditioning viscera and organs,and replenishing qi and blood.Herbal therapy based on the difference of patients,time and diagnosis,has different composition for every patient.For example,the patients with stagnation of liver-qi need to use Chaihushugansan,the patients with stagnation of bile and harassing phlegm need to use Wendan decoction,the patients with accumulation of phlegm-dampness need to use Erchen combined with Xiangshaliujunzi decoction, the patients with deficiency of both heart and spleen need to use Guipi decoction, the patients with deficiency of both heart and spleen need to use Guipi decoction, the patients with Yin deficiency of both liver and kidney need to use Liuweidihuang pill or Qijudihuang pill, the patients with Yang deficiency of both spleen and kidney need to use Jinguishenqi pill combined with Lizhong decoction,etc ^[18] .So as to recover the normal function of viscera and organs,eliminate the accumulation of pathological product, regulating the immune system, improve the body's resistance to disease, and prevent subhealth ^[19] .

Results and discussion

4. Comparison of Chinese and western medical intervention

The comparative studies of the intervention of western and Chinese medicine, have the results as shown in Table:

Table:Comparison of Chinese and western medical intervention

	western medicine	Chinese medicine	Comparison
Conditioning daily life	regular life,healthy diet, improved living habits	Proper diet, balanced time of work and rest,regular dailylife, diet therapy with medicinal foods	Diet therapy with medicinal foods is the advantage of Chinese medicine,which is safe and easy to follow.
Psychological intervention	psychological guidance, counseling, and inspiration	self-cultivation, do it yourself	Intervention of Chinese medicine mobilize people's own spiritual emotions to nurse the mind.
Physical health care	Physical exercises	Traditionalhealth care exercisesinclude	Health care exercises of TCM regulate the physical function of people to

Treatment	Biomedical technology	Taiji,Qigong,Daoyin,and changing tendon exercise Tuina,Acupuncture,Cupping,Guasha	achieve healthy state of physiology and psychology. Compared with western medicine,treatment of TCM is more convenient and easy to follow,with various methods and significant effect.
Music therapy	The frequency, rhythm, and vibration of the music affect the body psychologically	Music therapy of TCM based on which has relationship with the five elements and the five viscera,choose certain track to treat	Music therapy of TCM associates the five basic tones of folk music with the five viscera and the five emotions,according to the theories of YinYang and the five elements.
Medication	No choice at recent	Chinese herbal medicine based on the syndrome differentiation	In western medicine,without a certain diagnosis,there are no choice of treatment with medicine.In TCM,doctors could use herbal medicine based on the syndrome differentiation to achieve a preventive effect.

5. Advantages of TCM intervention on subhealth

Comparison of Chinese and western medical intervention on subhealth make us believe that there are more methods in TCM. In western medicine, to treat subhealth, there is no better choice other than interventions mentioned above. The state of subhealth shows no obvious sign in laboratory tests, so there is no certain diagnosis and no effective treatment. In TCM, there are abundant methods of intervention, which should attribute to the theories of preventive treatment of disease. In traditional Chinese medicine, we prevent subhealth not only by self-moderating, self-cultivation, and daily life-nursing, but also by herbal medicine, acupuncture, tuina, cupping, guasha, qingong, daoyin, and music. Those ways are always obviously effective.

Conclusions

Nowadays, on base of the clinical researches and effect observation, methods for the treatment of subhealth state from traditional Chinese medicine have shown advantages obviously. Modern medicine concentrates on the physical and functional changes of the body, and uses biological, physical and chemical methods to intervene. TCM concentrates on the whole body and the response of the body, stimulates the abilities of self-recovery, and looks forward to the harmony of Yin and Yang. Following these theories, all kinds of method in TCM have the effect of regulating viscera and organs, dredging meridian, balancing Yin and Yang, and adjusting qi and blood.

In sum, theories of traditional Chinese medicine have unique cognition on the cause, prevention, and treatment of psychological and physical diseases like subhealth. Following the traditional medical theories, the methods of intervention will develop more and more better. In other words, the methods of treatment of subhealth are the new contribution of TCM to the humans in 21st century.

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Inhibition of insulin signaling impacts the competence of porcine granulosa cells in steroidogenesis

Jing Cong, Xue-min Qiu, Yang Liu, Xiaoke Wu

Department of Obstetrics and Gynecology, First Affiliated Hospital, Heilongjiang University of Chinese Medicine, Harbin, China;

Abstract

Objective: To investigate inhibition of insulin signaling pathway directly contribute to alteration of granulosa cells in sex steroid production.

Design: In vitro cell model

Setting: University-affiliated laboratory

Intervention: Granulosa cells from porcine follicles were isolated and cultured in vitro, and inhibition of insulin signaling was induced in cultured granulosa cells with a specific inhibitor of phosphatidylinositol-3-kinase (PI-3K), wortmannin or a specific inhibitor of mitogen-activated protein kinase (MAPK) kinase, PD98059.