

TCM Research Progress of the Coronary Heart Disease after PCI Complicated with Anxiety

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Keywords: Coronary heart disease after PCI, Anxiety, Etiology and Pathogenesis, CM treatment, Psycho-cardiology

Abstract: Anxiety state after PCI for coronary heart disease is a common and persistent disease that puzzles both doctors and patients. This paper analyzes this disease from the perspectives of the heart controlling God, form and spirit integration, five zang organs integration and liver treating heart, and puts forward the corresponding treatment principles and schemes.

1. Introduction

According to the China Cardiovascular Health and Disease Report 2021, the prevalence of coronary heart disease (CHD) in China is still on the rise. Percutaneous coronary intervention (PCI) is now an effective treatment for CHD due to its significant efficacy. However, the problems of angina recurrence and in-stent restenosis after PCI have led to anxiety in many patients after the procedure. Clinicians focus only on improving the physical symptoms caused by cardiovascular disease, with a low recognition rate and low diagnosis rate of postoperative patients' anxiety state, and even repeated coronary angiography, which increases patients' economic and psychological burden and affects their quality of life and prognosis. Anxiety has become an independent risk factor affecting the prognosis of coronary heart disease, which can have adverse effects on the prognosis and rehabilitation of coronary heart disease after PCI [2-3]. With the emergence of the dual heart medical model [4], the impact of mental and psychological factors on cardiovascular diseases has received increasing attention. At present, domestic and foreign scholars have conducted a large amount of research on anxiety state after coronary heart disease PCI surgery. In this paper, we systematically summarize the understanding of post-PCI with anxiety in Chinese medicine and the treatment of this disease in order to provide clinical reference for reasonable and effective diagnosis, treatment and postoperative intervention[1].

2. Recognition of the pathogenesis of the combined anxiety state after PCI for coronary artery disease

Coronary heart disease and anxiety state belong to the categories of "chest obstruction" and

"depression syndrome" in traditional Chinese medicine, and the disease is mainly located in the heart and liver respectively, while the heart and liver organs work together to maintain blood flow and regulate the spirit and emotions. The book "Lingshu-XieKe" states that "the heart is the great master of the five viscera and six bowels, and the house of the spirit." It points out that the heart is an organ generated by spiritual activities. If evil energy disturbs the heart, the mind has no hiding place, leading to mental and psychological diseases. Although PCI improves myocardial blood perfusion by unblocking narrow or even occluded coronary artery lumens, it is an objective foreign body that affects the function of the heart and mind. The "Yi Bian" states that "depression leads to discomfort, and all diseases are caused by liver numbness." It is believed that mental and emotional diseases are caused by the liver; The "Miscellaneous Works of Ming Medicine - Medical Treatise" states: "When the liver qi is unblocked, the heart qi is harmonious, and when the liver qi is stagnant, the heart qi is deficient. This heart disease first seeks the liver and clears its source." It is pointed out that the stagnation of liver qi is the basic pathogenesis.

3. Traditional Chinese Medicine Treatment for Anxiety after Coronary Heart Disease PCI

The expert consensus on the treatment of anxiety after coronary heart disease PCI suggests the use of a "dual heart" medical model, with liver depression and qi stagnation as the basic syndrome type [5]. Liver qi stagnation is the initial stage of the disease and has a high clinical incidence. Phlegm turbidity, blood deficiency and yin deficiency all continue to develop on the basis of liver qi stagnation [6]. Therefore, its treatment is mainly to relieve liver depression, clear away heat and phlegm, replenish qi, nourish blood and nourish yin.

In the initial stage, liver qi stagnation is the main symptom, resulting in depression. Depression turns into heart fire, which leads to impatience and irritability. The prescription of Chaihu plus dragon bone Oyster soup is used in the initial stage of the disease. This prescription is from the Treatise on Febrile Diseases by Zhang Zhongjing, which is composed of 12 traditional Chinese medicines, including Chaihu, dragon bone, oyster, and cinnamon twigs et al. It has the effect of soothing the liver, relieving depression, and calming the nerves. Modern research has found that this prescription could repair hippocampal neuronal damage caused by stress, regulates post-traumatic stress disorder by reversing the hypothalamic pituitary adrenal (HPA) axis, and exerts anti-anxiety effects by regulating the central nervous system [7-8]. This prescription can also resist arteriosclerosis and protect against cardiovascular endothelial damage caused by catecholamines [9]. Chaihu plus dragon bone Oyster soup also can effectively improve patients' angina symptoms, reduce Hamilton Anxiety Scale (HAMA) scores, and achieve "dual heart treatment" [10-11].

In the middle stage of the disease, phlegm mainly affects the mind. Stagnation of liver qi, heat transformed from stagnation, refining liquid into phlegm and phlegm heat disturbs the heart causing the restlessness of the mind. The "Zhang's Medical Communication" says that shock is the fire that agitates the heart with the confused mind. The function of the prescription of Huang Lian Warm Gallbladder Soup was to clear heat, dissipate phlegm, and calm the mind. Fu` [12] research revealed that the prescription has a significant therapeutic effect on treating phlegm heat-disturbing heart-type anxiety. Modern clinical research [13] has found that Huang Lian Warm Gallbladder Soup can reduce inflammatory reactions, increase 5-hydroxytryptamine (5-HT), and reduce substance P (SP) levels. Due to the anxiety-inducing effect of SP, the content of SP in brain tissue rapidly increases when emotionally upset. The decrease of the level of 5-HT which was the sleep neuromodulation factor will induce the occurrence of an anxiety state. Compared with the control group, the SP level in the treatment group (Huang Lian Warm Gallbladder Soup) is significantly reduced, while the 5-HT level is higher than that of the control group. Therefore, Huang Lian Warm Gallbladder Soup can significantly improve symptoms of angina and anxiety, thus treating different diseases with the

same method.

In the later stage of the disease, blood deficiency is the main symptom. Liver depression suppresses the spleen, and insufficient of source of qi and blood will leads to deficiency of qi and blood, and heart loses nourishment will leads to thoughtfulness and doubtfulness, and a restless mind. Yangxin Tang has the function of nourishing blood, calming the heart, and calming the nerves which was composed of 13 ingredients such as Huangqi, ginseng, Angelica sinensis and et. al. Modern clinical observations have found that Yangxin Tang can improve patients' anxiety state and is used to treat the qi deficiency and blood deficiency which was the state of anxiety after PCI [14]. Ye's Medical Doctrine said the person who is upset and disturbed in the mind, will be depressed and restless. Suanzaoren decoction nourish blood, regulate liver and calm the mind, and mainly treat deficiency and annoyance caused by heart liver blood deficiency. Modern pharmacological research has found that Suanzaoren decoction could evlebate the β -(β -EP) in brain by regulating the content of neurotransmitter 5-HT, dopamine (DA), etc., thus regulating sleep and anti-anxiety [15]. Meanwhile, Suanzaoren decoction can reduce TG, TC, LDL-c, increase HDL-c, and regulate blood lipid metabolism levels. Due to prolonged illness affecting the kidneys, Zi Shui Qing Gan Potion is evolved from the Six Flavors Dihuang Pills and Danzhi Xiaoyao Powder, and is mainly used to treat the disease with the symptoms pf liver and kidney yin deficiency, liver depression and fired [16]. Yang Chunling`s work [17] found that Zi Shui Qing Gan Potion can reduce serum IL-6, IL-8, and the concentration of TNF- α , with the function of resisting anxiety by reducing serum inflammatory factors.

Modern Medicine has proposed the application of the "liver heart harmony" method to treat cardiac diseases. The Depression-Resolving Blood-Quickening Decoction developed by Chen Nanyang is composed of herbs such as Angelica sinensis, Chaihu, Baishao, Yujin, Xiangfu, etc. which has the function of activating and nourish the blood, coursing the liver and rectifying qi4, and resolving depression and quitting the spirit. Yang Te[18] et al. found that Depression-Resolving Blood-Quickening Decoction can improve the anxiety state of patients after PCI, and the mechanism may be related to neuro-endocrine regulation, and at the same time can regulate vasodilator and vascular endothelial function to achieve the objective of " Psycho-cardiology disease with one treatment". In addition, traditional Chinese medicine characteristic treatment has been widely studied and applied due to its significant therapeutic effect and reduced recurrence of cardiovascular events in the treatment of anxiety state after coronary heart disease PCI surgery. At present, relevant clinical observations [19-20] have confirmed that micro stone auricular acupuncture, angle modulation in the five tones, eight brocades and Tai4ji2 boxing can significantly improve the anxiety of patients after PCI surgery.

4. Summary and Outlook

In recent years, traditional Chinese medicine treatment on patients with anxiety after PCI has been widely applicated which was due to its ideal long-term treatment effect and good patient compliance. Therefore, in terms of treatment, a combination of traditional Chinese and Western medicine should be used, and traditional Chinese medicine should be combined with conventional medication such as Western medicine antiplatelet therapy after PCI. At the same time, psychological counseling should be emphasized for promoting the prognosis of cardiovascular disease after PCI, improving patients' anxiety, and improving their quality of life after surgery. Due to the limited literature search volume, further research and verification are needed in the future.

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