

Application progress of cognitive behavioral therapy in coronary heart disease

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Competing interests

The authors declare no conflicts of interest.

Abbreviations

WHO: World Health Organization; CHD: Coronary Heart Disease; CBT: Cognitive-behavior Therapy; BT: behavioral therapy; REBT: Rational Emotional Behavior Therapy; VAS: visual analog score.

Citation

Zhong L, Zhou XY. Application progress of cognitive behavioral therapy in coronary heart disease. *TMR Integr Nurs*. 2021;5(5):160–162. <https://doi.org/10.53388/TMRIN2021160162>

Executive editor: Nuo-Xi Pi.

Received: 16 May 2021; Accepted: 7 August 2021;

Available online: 9 September 2021.

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Abstract:

To As one of the most common cardiovascular diseases, coronary heart disease has a high morbidity and mortality. In recent years, non-drug therapy has been put on equal importance with drug therapy due to its simple operation and fast onset. Cognitive behavioral therapy, as a kind of non - drug therapy, has been widely used to improve the physical and mental symptoms of patients with coronary heart disease. This article reviews the origin, concept, theoretical basis, characteristics, technology, and current research status of cognitive behavioral therapy in patients with coronary heart disease, in order to provide a reference for the clinical development of cognitive behavioral therapy.

Keywords: Cognitive behavioral therapy, coronary heart disease, angina pectoris, sleep quality, depression, anxiety, quality of life

Introduction

According to the World Health Organization (WHO), coronary heart disease (CHD) has become the main cause of human death [1]. At present, coronary heart disease has become the primary disease in developed countries in Europe and the United States. In the United States, the mortality rate of coronary heart disease is as high as 24.7%, so it is called "the plague of the times" [2]. According to the "China Cardiovascular Health and Disease Report 2019", China's cardiovascular disease patients are predicted to be 330 million, of which CHD patients are as high as 11 million, and the trend is increasing, which seriously affects the health of Chinese residents [3]. Due to its long course and recurring conditions, CHD not only brings pain to the patient's body and mind, but also causes a heavy economic burden to the family [4]. In recent years, psychological intervention has gradually become a special therapy to improve the symptoms of cardiovascular disease. Cognitive-behavior therapy (CBT), as a type of psychological therapy, has been proven to be effective in treating coronary heart disease. Cognitive behavioral therapy can not only alleviate the symptoms of angina and insomnia in patients with coronary heart disease, but also reduce the patients' anxiety and depression and other negative emotions, and improve their sense of well-being. This article reviews the application of cognitive behavioral therapy in patients with coronary heart disease, hoping to provide a reference for domestic clinical practice.

Overview of Cognitive Behavioral Therapy

Origin and concept

CBT is an integration of behavioral therapy (BT) and cognitive therapy (CT). BT originated in the 1950s and focused on solving people's bad psychology such as fear, anxiety, and compulsion, including system desensitization [5], "token economy system" [6], and compulsive behavior therapy [7]. The most representative one is the Rational Emotional Behavior Therapy (REBT) initiated by Eills [8]; CT was founded in 1976 by the American psychologist A. Beck and is mainly

used for the treatment of depression. In the 1970s, the psychology field "exploded" the cognitive revolution. Behavioral psychologists gradually changed the concept of behavioral dominance and began to integrate cognition into therapy [9]; A.Beck also drew corrective information from BT and found improvements The later CT treatment of anxiety is more effective [10]; the theoretical model proposed by Clark and Barlow in the treatment of panic disorder provides a bridge for the integration of BT and CT [11]; and then Albert's social cognitive theory facilitates the integration of the two into Cognitive behavioral therapy [12]. CBT is a system of short-term psychological therapy that corrects wrong perceptions by changing thinking, beliefs and behaviors, and achieves the goal of eliminating negative emotions and bad behaviors [13]. The core of CBT is to modify negative solidified thinking and potential confusion, in order to change the behavioral response of patients to deal with specific problems, while preventing the occurrence of negative emotions [14]. After half a century of development, CBT has become a psychotherapy paradigm with widespread influence today.

Theoretical basis and characteristics

The theoretical basis of CBT is learning theory and cognitive theory. Learning theory believes that all human behaviors can be obtained through learning, and bad behaviors can also be corrected through learning [15]. Therefore, CHD patients can be systematically trained to improve their self-management ability, so that patients are aware of the harm of bad behaviors to disease recovery, actively change the wrong behaviors, and finally achieve the goal of rehabilitation; cognitive theory believes that cognition determines The generation of emotions and behaviors, and changes in emotions and behaviors also affect cognition. This interactive effect can be summarized by the ABC model [16], A (Activating event) refers to evoked events; B (Belief) refers to cognition, that is, thinking Cognitive understanding of A; C (Consequences) represents the consequences of emotions and behaviors. Based on the hypothesis of cognitive theory, assess the self -cognition of patients with CHD, clarify and correct the factors that cause wrong thinking, to suppress, subside and replace the original bad behavior, and bring positive feedback to emotions.

Compared with drug therapy, CBT has the advantages of simple operation, quick onset, and short time [17]. Drug therapy focuses on the disease itself, and less on the mental and psychological evaluation of patients, while CBT emphasizes holistic treatment. It also emphasizes mental and psychological rehabilitation while curing the disease. It is in line with the biopsychosocial medical model respected by today's society; it is similar to other psychological therapies. Compared with that, it is currently recognized as the psychotherapy that provides the most evidence-based evidence [18]. Since CBT is widely used in chronic diseases, cardiovascular diseases and mental disorders, it is supported by a large sample of randomized controlled trials and systematic reviews.

Techniques of Cognitive Behavioral Therapy

There are various forms of CBT treatment, including individual CBT [19], computerized CBT (CCBT) [20], group CBT (GCBT) [21] and CBT combined with electrical stimulation [22], among which the most commonly used in patients with coronary heart disease is Individual CBT and GCBT. The basic technology is mainly divided into cognitive remodeling and behavioral training: 1. Cognitive remodeling is problem-oriented, guiding patients to identify their own bad cognitions about the disease, and helping patients by guiding imagination, encouraging self-talk and self-discipline training, etc. Reshape cognition; 2. Behavior training mainly arranges daily activities for patients, including muscle relaxation, music edification and exercise guidance, etc., to help patients associate negative emotions with the lack of positive reinforcement of the environment. To evaluate the efficacy of CBT on CHD patients, researchers often use scales as evaluation indicators: (1) Angina: Seattle Angina Questionnaire (SAQ); (2) Sleep quality: Pittsburgh Sleep Quality Scale (Oral Health) Impact Profile, PSQI; (3) Anxiety and Depression: Self-rating Anxiety (SAS) and Self-rating Depression (SDS); (4) Quality of Life: Concise Health Survey Table (SF-36). 3. The effect of CBT in patients with coronary heart disease

Physical symptoms of patients with coronary heart disease

The impact of angina pectoris

Pain is caused by disease stimulation, and the patient's unreasonable cognition will exaggerate the feeling of pain and increase the pain. Wang Xiaolei [23] found that the cognitive level of patients with coronary heart disease is negatively correlated with the degree of angina pectoris, that is, the higher the cognitive level, the lower the frequency of angina pectoris. CBT guides patients to correct irrational thinking and teaches them to learn muscle relaxation and other relaxation therapies to reduce the fear and dying feeling when angina pectoris occurs. Zhu Yike [24] and others intervened in patients with coronary heart disease through CBT such as artistic conception guidance and practical examples. The results showed that the frequency of angina pectoris decreased, the condition became stable, and the amount of activity increased. Xu Dan [22] used transcutaneous electrical nerve stimulation combined with CBT on 45 patients with coronary heart disease, and combined acupoint massage into CBT, and found that the number of angina pectoris in the experimental group was significantly reduced and the pain degree was relieved. At present, there is still a lack of research on CBT alleviating angina pectoris in patients with coronary heart disease. Therefore, more high-quality, large-sample random trials are needed to verify the effect of CBT on improving angina pectoris.

The impact of sleep quality

Due to symptoms such as angina pectoris and chest tightness at night, patients with CHD are prone to sleep disorders such as insomnia and difficulty falling asleep, which seriously interferes with the quality of life of patients. CBT helps patients relax physically and mentally and relieve tension by rebuilding their cognition and correcting the psychology of bad behaviors. Scholars such as Sogol Javaheri [25] in the United States adopted web-based CBT (wCBT). Experts created a web system that covers sleep diaries, sleep restriction therapy, and

relaxation training. CHD patients can fully understand their daily sleep status and get their personality. Based on the feedback, the results show that the effects of online courses and face-to-face courses are the same, and both can improve the patient's sleep quality, but wCBT is low in cost and more flexible and convenient in implementation. Adam Heenan [26] et al. discussed the therapeutic effect of CBT on sleep disorders in 47 CHD patients from sleep time, sleep efficiency and sleep latency, and found that CBT significantly improved the number and quality of sleep in patients, but the duration of nap was not significantly improved. At present, most researchers focus on night sleep, which suggests that noon sleep can be included in the research in the future to explore whether CBT can improve nap. Wang Kangli [27] and others implemented CBT for 28 patients with coronary heart disease for 12 weeks, and the sleep quality was significantly improved, which is consistent with the results of other domestic scholars [28, 29]. At present, domestic scholars are focusing on improving the sleep quality of patients with coronary heart disease. , Has not conducted in-depth research on other sleep problems.

Psychosocial impact of CHD patients

Among all cardiovascular diseases, coronary heart disease is most closely related to anxiety and depression. About 20% of CHD patients meet the diagnostic criteria for severe depression in the Diagnostic and Statistical Manual of Mental Disorders (DSM). The pessimistic attitude directly affects the quality of life and Disease outcome [30]. CBT is based on the cognitive theory of emotional disorders and changes the psychological distress caused by bad behaviors by changing inappropriate cognitive methods. In addition, CBT can increase the activity of the prefrontal cortex, help the amygdala, insula and anterior cingulate cortex to couple, improve mood, and enhance happiness [31].

CBT has become the accepted method of choice for the treatment of mood disorders due to its long-lasting effect and no adverse reactions. After Diane [32] conducted a 6-month CBT intervention on 48 elderly CHD patients, they found that the intervention group had significantly less depression than the conventional treatment group; during the day, the CBT group showed more positivity, but the negative emotions improved. There is no difference from the control group, which is consistent with the results of Adam Heenan's study [26]. Theoretically speaking, interventions to improve emotions should show consistency at the time points when negative emotions are obvious. This suggests that researchers can increase the sample size in the future to explore whether CBT interventions have different effects due to changes in the situation.

At present, domestic CBT research on patients with coronary heart disease focuses on negative emotion management and improvement of quality of life. Wu Meiqin [33] conducted group CBT on 80 elderly patients with coronary heart disease and found that the intervention group significantly reduced anxiety and depression, improved medication compliance, and improved quality of life; Cao Hongjing [34] and other individuals with coronary heart disease for 12 months. After CBT intervention, it was found that the experimental group can effectively relieve negative emotions and speed up the recovery process. The above research shows that no matter what form of CBT, it can significantly improve the anxiety and depression of patients with coronary heart disease and help them recover.

Conclusion

As a safe and effective non-drug therapy, CBT has been widely used in the psychosomatic care of patients with coronary heart disease, but there are still some limitations in its application, such as the short intervention time (mostly the period from admission to discharge) , The sample size is small, the follow-up time is not mentioned, and the operation methods are different. Therefore, in subsequent studies, the researcher should reasonably arrange the intervention time to further verify the intervention effect; expand the sample size and follow up patients to observe the long-term effect of CBT; and on the basis of the

original research, design a uniform and rigorous Intervention programs in order to guide the clinic and benefit more patients with coronary heart disease.

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