

Research Progress on Negative Emotions Influencing the Incidence of Breast Cancer

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Abstract: At present, breast cancer is the largest malignant tumor endangering women's health, and has become one of the most common cancer types in the world. In recent years, the relationship between psychosocial factors and the incidence of breast cancer has attracted extensive attention. Traditional Chinese medicine research of the motherland suggests that emotional disorder is an important factor leading to breast cancer, and emotional theory and negative emotional accumulation have something in common in some aspects. This article reviews the impact of negative emotions on the risk of breast cancer and the current research progress and explores the possibility of reducing the progress of breast cancer and improving the quality of life of breast cancer patients through negative emotion intervention.

Keywords: Negative emotions; Emotional disorders; Breast cancer; Pathogenesis mechanism

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1. Introduction

Breast cancer (BC) is one of the most common malignant tumors among women in several countries around the world. The Global Cancer Report 2020 pointed out that the incidence of breast cancer ranked first among female cancers worldwide ^[1], and in China, the incidence of breast cancer is among the major malignant tumors among women, and the situation of prevention and control is grim ^[2]. Accompanied by the gradual deepening of medical research, the clinical understanding of the causes of breast cancer has become increasingly clear, and a large number of research data that the psychological state and negative emotions can lead the body to produce a stress response, and can induce a variety of abnormal behaviors, long-term anxiety and depression, panic, anger, and other adverse emotional states can lead to myocardial infarction, malignant arrhythmia and other cardiac diseases such as the incidence of a significantly higher risk, but also induces psychological diseases such as depression, and the onset of some chemo-mammary tumors is also closely related to emotional problems ^[3]. Traditional Chinese medicine (TCM) has a more in-depth study on emotions and diseases, and it is believed

that the long-term accumulation of negative emotions will lead to abnormalities in psychological and somatic physiology and induce various diseases. This paper takes negative emotions, the pathogenicity of emotions in traditional Chinese medicine and breast cancer as the starting point, and discusses the research progress related to the influence of negative emotions on the risk of breast cancer by combining the association between emotional disorders and negative emotions in traditional Chinese medicine.

2. Negative emotions

Emotions can be divided into positive and negative emotions, and Watson D et al. (1988) believe that negative emotions, as opposed to positive emotions, belong to unpleasant subjective emotional experiences induced by various factors such as the environment, and common negative emotions mainly include depression, anxiety, sadness, anger, and panic, etc. ^[4]. In recent years, negative emotions have gradually become the most popular emotions among scholars at home and abroad, and they have become the most common negative emotions. In recent years, negative emotions have gradually become a research hotspot for scholars at home and abroad, and a large number of studies have found that negative emotions have a great impact on the physical and mental health of individuals ^[5].

3. Breast cancer

3.1. Research status of breast cancer in modern medicine

It is pointed out in the Global Cancer Report 2020 that the incidence rate of breast cancer and the death rate of the disease are significantly higher than that of other female malignant tumors ^[6] and the incidence rate of breast cancer in the adult female population in China also has a relatively high level ^[7]. Through the research and analysis of breast cancer, it can be seen that this disease belongs to the malignant tumor formed in the ductal epithelial tissue of the breast under the action of many types of carcinogenic factors, and in the early stage of the development of the disease, the patients only show that the breasts can be touched with painless lumps, and along with the continuous aggravation of the disease, the tumor can be metastasized to lymph nodes, which can lead to the local pain and the skin condition abnormality, and make the patient's quality of life decline. The causes of breast cancer are complicated, among which environmental factors and family heredity are important triggers. In addition, a poor lifestyle can also affect the health of the breast, leading to an increased risk of breast cancer ^[6,7]. According to the latest clinical research data, many hormone levels in breast cancer patients are abnormal, and it is believed that hormone disorders can promote the development of breast cancer. Since the pathogenesis of breast cancer is not clear in modern medicine, it is difficult to carry out primary prevention, and it is generally believed that physical examination can detect breast cancer at an early stage and reduce the mortality rate. Breast cancer adopts different treatment plans according to different stages of the disease, including surgery, chemotherapy, radiotherapy, endocrine tumor, targeted therapy and so on. In conclusion, as the most serious cancer threatening women's lives, the prevention and treatment of breast cancer is in a severe form, and it is of great practical significance to clarify the pathogenesis of adenocarcinoma and formulate the prevention and treatment plan accurately.

3.2. Research on breast cancer in traditional Chinese medicine

Traditional Chinese medicine theory has very in-depth and systematic research on breast cancer, and most of the Chinese medical texts classify breast cancer as breast stone carbuncle, breast rock and other categories ^[8], among which the name of breast rock was first recorded in the traditional Chinese medical text "Woman's

Complete Recipes.” According to Chinese medicine research on breast cancer, the development of breast cancer is a process of continuous accumulation of various factors, which leads to the formation of lumps in the local tissues of the breast, which are painless at the early stage of development and can lead to skin sores with the progression of the disease. According to some Chinese medicine research, the core factors of breast cancer are emotional upset, liver and stomach Qi against the egg, stagnation of Qi and blood stasis, and depression will turn into fire, which will eventually lead to the formation of local tumors.

3.3. Modern medical research on the correlation between negative emotions and breast cancer

Domestic research has found that any disease will seriously affect the health of the patient’s body and even threaten the patient’s life, and all kinds of treatments will make the patient’s body and mind suffer from different degrees of influence and lead to the emergence of anxiety, depression and other negative emotions easily ^[9,10]. Research has found that these negative emotions can lead to the destruction of the patient’s body functions, affecting the therapeutic effect of the disease ^[11,12]. Accompanied by the development of medical technology, the means of breast cancer treatment are becoming increasingly abundant, and most hospitals provide comprehensive treatment through radiotherapy, endocrine regulation and surgical treatment, biological therapy and other programs ^[13], which cause serious trauma to both the physiology and psychology of patients, resulting in the emergence of patients with negative emotions such as low self-esteem, depression, anxiety and other negative emotions ^[14]. Overseas studies have found that the incidence of anxiety, depression and other negative emotions in cancer patients is significantly higher than that in the normal population ^[15].

A study in the UK found that the prevalence of anxiety disorders, depression or both in breast cancer patients during the first year was about twice as high as that of the general female population, and then women in the recovery state showed similar levels of depression and anxiety to those of the general female population, but the levels of depression and anxiety increased dramatically after the disease recurred ^[16].

Regarding negative emotions, most researchers have confirmed that it is due to the disease or traumatic stress after the occurrence of negative emotions, but whether the emotions lead to the occurrence of the disease has become a research hotspot over the years, especially the application of the concept of humane medical concepts, humanistic care services and other concepts, the role of the psychological state, the psychological stress response in the incidence of breast cancer has received widespread attention, and the data of the relevant research data believe that Adverse emotional state can lead to severe psychological stress response and can induce abnormal behavior, which increases the risk of breast cancer and cardiovascular diseases ^[17]. Many scholars have also simulated negative emotional stress or accumulation of negative emotions through animal experiments ^[18-22], and found a variety of pathological manifestations in experimental animals, such as increased norepinephrine and dopamine, inhibition of T-lymphocyte proliferation, up-regulation of Ki67 and VEGF expression, promotion of proliferation and angiogenesis of tumor cells, activation of the HPA axis, elevation of plasma ACTH, and serum CORT. The content of plasma ACTH and serum CORT is also increased. The causes of psychological stress in the human body are complex, considering the correlation with the emotional state, the environment, the physiological state, etc., it can be considered that psychological stress is a complex system ^[23], that can cause physiological and pathological changes in the organism through the sympathetic nervous system (SNS), the HPA axis and the immune system, affecting the stable state of the internal environment ^[24,25]. The combined effects of the HPA axis and SNS in the neuroendocrine system can lead to different degrees of abnormal immune function, and can affect the endocrine system, causing the internal environment to be in a state of disorder, and can harm a number of physiological functions ^[26,27] and some relevant studies have found that catecholamines, through the role of the nervous system, may have a certain degree of tumor proliferation promotion ^[28-30]. Liu X et al. (2021)

have combined previous studies to describe the effects of emotional stress on the development of breast cancer from the perspective of the molecular biology of the endocrine system and immune system.

4. Research on the correlation between negative emotions and breast cancer in Chinese medicine

Ancient books of Chinese medicine have recorded the etiology and mechanism of breast cancer for a long time, and the research theory of Chinese medicine has clearly proved that the onset of breast cancer has a correlation with the disorder of liver Qi, and the main reason for the formation of the disorder of liver Qi is the lack of emotional and emotional well-being, and worries and troubles. In Chinese medical texts such as “Surgical Medical Mirror,” the relationship between emotion and breast cancer formation is clearly recorded, and it is believed that emotion can lead to the operation of qi and blood, resulting in liver depression and stagnation of Qi, and affect the balance of Yin and Yang of the organism, which will gradually aggravate the breast cancer. To sum up, the recognition of the etiology and pathogenesis of breast cancer in ancient Chinese medical texts is especially high for liver Qi stagnation and Chong Ren disorders, which shows that the influence of emotional factors on the onset of breast cancer is enormous. The modern research on negative emotions on the development of tumors is very similar to the pathogenesis of emotions and feelings in traditional Chinese medicine.

In conclusion, whether it is traditional Chinese medicine’s “emotion-causing disease” or the modern “bio-psycho-social” medical model of negative emotions on related diseases, all of them suggest the important influence of negative emotions on the onset of breast cancer, and it is important to study the pathogenesis of breast cancer and the effect of negative emotions on the onset of breast cancer. In-depth research on the pathogenesis of breast cancer and the search for therapeutic targets based on emotion regulation will open up new avenues in the prevention, treatment and improvement of prognosis of breast cancer.

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