



Mini Review

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Awareness and Treatment of Cancer-Related Depression

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Cancer is one of the main causes of death and the incidence rate is increasing. Depression is one of the most common negative psychological states of patients. Cancer-related depression (CRD) refers to the emotional pathological reaction of patients who lose their personal mental normality due to diagnosis, treatments and comorbidities [1]. It is reported that the incidence of CRD is 3.7% -58 % [2].

The pathogenesis of CRD is currently not very clear. Cancer may affect the occurrence of depression through the nervous, endocrine, and immune systems. Depression may promote cancer angiogenesis, accelerate cancer cell invasion, inhibit cancer cell apoptosis, reduce immune function, and thereby promote growth and metastasis of cancer [3]. Kemeny et al. [4] found that CD4 +, CD4 + / CD8 +, NK, IL-2, and INF- α levels in the patients suffering from cancer with depression were lower than those without depression, suggesting that depression could reduce immunity. Lutgendorf [5] found that depression increased the level of serum VEGF (vascular endothelial growth factor, a marker of angiogenesis indicating poor prognosis in patients with ovarian carcinoma. CRD includes physical, psychological, and behavior disorders. The clinical manifestations are low mood, lack of interest, sleep disturbance, and fatigue. The DSM-IV (Diagnostic and Statistical Manual of Mental Disorders-IV) is used to diagnose CRD. In clinical or scientific research, the Hamilton Depression Scale (HAMD) and the Zung Depression Self-rating Scale are commonly used to help diagnose depressive disorders.

Antidepressants are the main treatments, including selective serotonin reuptake inhibitor (SSRI), tricyclic antidepressants (TCAs), and atypical antidepressants. Fluoxetine can relieve depression and improve the immune function of patients as well [6]. The atypical antidepressant olanzapine can stabilize mood, reduce nausea and vomiting, and improve treatment compliance and

quality of life [7]. Although antidepressants can relieve symptoms, their side effects and the interaction with anti-cancer drugs may become the obstacles of achieving remission, preventing relapse and recurrence. Clinicians should take the patients' psychological disorders, physical conditions and treatment plans into account.

Mindfulness intervention as a non-drug treatment method has a positive effect on the CRD, which has received much attention in this field recently. Mindfulness is a conscious, non-judgmental way to focus on the moment, and to achieve emotional improvement through cognitive changes [8]. Mindfulness intervention can effectively alleviate chronic pain, assist in the treatment of cancer and other diseases [9], relieve depression and anxiety symptoms and improve the quality of life [10]. Mindfulness and other non-drug psychological interventions are suitable for the special difficulties faced by cancer population. The positive results of mindfulness intervention are reflected in the aspects of psychology (depression, anxiety), cancer-related symptoms (pain, fatigue, insomnia) and biological indicators (immune, endocrine, autonomic nervous system) [11]. Besides, traditional Chinese medicine plays an important role in the treatment and rehabilitation of cancer. Chinese medicine decoction with syndrome differentiation can help alleviating the symptoms of depression, restlessness, chest pain, insomnia and anorexia. Regulating liver therapy with Chinese medicine can effectively regulate neuroendocrine immune to resist psychological stress [12]. Acupuncture serves the function of dredging channels and collaterals. HJ Park [13] believes that the occurrence of depression is related to hormones such as adrenocortical hormone, adrenaline, and cortisol. Acupuncture treatment can regulate immunity and hormone levels.

In summary, with the transform of modern medical model into a "biological-psychological-social" model, the interaction between physical, psychological and social factors have been



highly valued. Depression and other negative emotions can lead to decreased immunity or even recurrence and metastasis of cancer. Antidepressants may have side effects. Both mindfulness and traditional Chinese medicine treatment have potential advantages and need further evidence-based verification to provide more therapeutic approaches for CRD.

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