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Effect of citalopram combined with psychological intervention on cellular immunity and negative emotion in patients with primary liver cancer

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Abstract: Objective: To explore the effect of citalopram combined with psychological intervention on cellular immune function and negative emotion in patients with primary liver cancer.

Methods: 124 patients with primary liver cancer from June 2018 to August 2019 were selected. 62 in the observation and 62 in the control. In the control received routine interventional therapy for liver cancer, while in the observation were treated with ciplatan combined with psychological intervention. Before and after treatment, CD3 +, CD4 +, CD4 + / CD8 +, NK cells and other cellular immune indexes were compared; core quality of life scale scores of cancer patients before and after treatment were compared; MMSE, HAMD and HAMA scores.

Results: The levels of CD3 +, CD4 +, CD4 + / CD8 + and NK cells in the observation were higher than in the control after treatment. After treatment, MMSE 83.17 ± 4.47, HAMD 67.51 ± 7.71 and HAMA 60.42 ± 5.83 in the observation group were higher than those in the control group.

Conclusion: Citalopram combined with psychological intervention in the treatment of patients with primary liver cancer is conducive to the protection of cellular immune function, and has positive significance in regulating patients' mood, improving patients' psychology and improving patients' quality of life.

Keywords: Forsythiaside; spinal cord injury; inflammatory response; neuroprotection; p38MAPK signaling pathway

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1. Introduction

Liver cancer is one of the most important malignant tumors affecting human health. Previous studies have shown that the incidence of liver cancer in malignant tumors ranks sixth, and its mortality rate ranks third. In recent years, with the increase of environmental pollution and the changes in dietary structure, the incidence of primary liver cancer has been on the rise, and has become an important disease affecting public health [1-2]. It has been proposed that the treatment of primary liver cancer is not only affected by its low cure rate, but also may be affected by adverse emotions. Because cancer patients face the possibility of death and need to bear a large cost of treatment, most patients will experience fears, paralysis and other unhealthy psychology, which will lead to negative emotions such as anxiety, depression and resistance [3-4]. These negative emotions invisibly increase the difficulty of treatment of primary liver cancer. Moreover, previous studies have shown that excessive negative emotions may adversely affect the various systems of the body, leading to imbalances in the internal environment and affecting people's health. Therefore, conventional treatment combined with the necessary psychological intervention is of great significance for patients with primary liver cancer [5-6]. Citalopram is a widely used antidepressant in clinical applications, but it is currently not widely used in cancer. In order to improve the resistance of negative emotions in patients with primary liver cancer, and to improve the survival rate of patients, clinical research on the combination of citalopram and psychological intervention is urgent.

There were 124 patients with primary liver cancer involved in this study. The patients were 48-64 years old with an average age of 53.51±12.10 years. Among them, there were 70 male patients and 54 female patients. These patients were randomly divided into two groups, including citalopram group (n=62) and control group (n=62). The average age of patients (32 males and 30 females) in the citalopram group was 53.11±10.87 years old. The average age of patients (38 males and 24 females) in the control group were 53.60±11.24 years old. The age and gender had no statistically significant difference between the two groups in (P>0.05).

First, the levels of CD3+, CD4+, CD4+/CD8+, NK cells were compared between the two groups. After treatment, we found that the levels of CD3+, CD4+, CD4+/CD8+ and NK cells in the citalopram group were

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Table 1 Comparison of cellular immune indicators between citalopram group and control group

Group	Cases	CD3+（%）		CD4+（%）		CD4+/CD8+		NK cells（10^9/L）	
		PT	AT	PT	AT	PT	AT	PT	AT
Control	62	71.55±6.39	50.49±5.38	35.65±7.21	28.79±5.53	2.07±0.45	1.53±0.33	14.39±4.28	11.24±4.38
Citalopram	62	71.26±7.30	68.52±6.08	35.90±4.88	36.02±6.44	2.10±0.66	1.89±0.68	14.97±5.29	14.80±4.30
t		1.866	2.330	0.546	2.307	1.701	2.442	0.188	7.494
P		0.064	0.020*	0.997	0.024*	0.091	0.016*	0.855	0.000*

PT, prior treatment
AT, after treatment
*, P<0.05

Table 2 Comparison of the quality of life core scale between citalopram group and control group after treatment

Group	Cases	Physical function	Role function	Cognitive function	Emotional function	Social function
Citalopram	62	79.51±8.44	77.46±10.23	80.52±14.12	78.78±9.55	77.53±9.62
Control	62	65.36±11.20	66.54±13.25	65.28±12.09	68.61±13.15	64.52±10.88
t		3.020	2.887	4.112	2.121	2.058
P		0.010*	0.012*	0.002*	0.034*	0.045*

*, P<0.05

Table 3 Comparison of negative emotions between citalopram group and control group after treatment

Group	Cases	HAMA	HAMD	MMSE
Control	62	60.42±5.83	67.51±7.71	76.25±7.08
Citalopram	62	65.82±5.89	71.33±6.14	83.17±4.47
t		2.133	2.129	2.140
p		0.037*	0.037*	0.038*

HAMA, Hamilton Anxiety Scale
HAMD, Hamilton Depression Scale
MMSE, Mini-Mental State Examination
*, P<0.05

higher than those in the control group. The difference was statistically significant (P<0.05, Table 1). After treatment, the scores of physical function, role function, cognitive function, emotional function and social function of the citalopram group were higher than those of the control group, and the difference was statistically significant (P<0.05, Table 2). After treatment, we compared the negative emotions between citalopram group and control group. We found that Mini-Mental State Examination (MMSE, 83.17±4.47), Hamilton Depression Scale (HAMD, 71.33±6.14), and Hamilton Anxiety Scale (HAMA, 65.82±5.89) were higher than the control group. The difference was statistically significant (P<0.05, Table 3). These results suggest that on the basis of conventional treatment, the negative emotion level of the citalopram group with psychological intervention was significantly lower than that of the control group.

As the incidence of primary liver cancer continues to rise, how to ensure and improve the survival rate of liver cancer patients has become the focus of clinical research. At present, most researches on primary liver cancer are about how to improve the cure rate of drugs and surgery, and to some extent ignore the impact of psychological changes on liver cancer patients [8-9]. For

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patients with primary liver cancer, mental health is as important as physical health, and mental health directly affects the patient's treatment. Due to fear and resistance to cancer, patients often experience depression, anxiety, irritability and other emotions that seriously affect the physical and mental health of patients. These emotions are a potential risk to improve the survival rate of patients.

In this study, we found that the combination of citalopram and psychological intervention in the treatment of patients with primary liver cancer is beneficial to ensure the cellular immune function of patients, and has positive significance for improving patient psychology and patients' quality of life. In addition, citalopram is a widely used antidepressant drug that has a regulatory effect on depression and anxiety. Compared with tricyclic or tetracyclic antidepressants, citalopram does not exert greater resistance to adrenaline and choline [10-11]. In this study, patients with primary liver cancer were treated with low doses of citalopram to counter negative emotions. At the same time, we help patients rebuild a positive and good psychological defense against cancer by breaking the wrong perception of patients facing cancer. Moreover, psychological intervention based on cognitive behavioral therapy is conducive to the adjustment of patient emotions [12-13].

In addition, we also found that patients with primary liver cancer treated with citalopram and psychological intervention had higher levels of cellular immune function than the control group. These results indicate that citalopram combined psychological intervention can not only adjust the patient's mood, but also help improve the patient's cellular immune function. Some studies have suggested that there is a two-way relationship between the immune system and anxiety and depression. There are certain similarities between the two mechanisms [14-15]. On the other hand, the cellular immunity is related to the level of inflammation in the body. Furthermore, the level of inflammation is confirmed to have a close correlation with depression. The level of inflammatory factors in depressed patients is significantly higher than that in normal people. Therefore, citalopram combined psychological intervention can indirectly affect the patient's cellular immune function while regulating the negative emotions of patients.

In summary, the combination of citalopram and psychological intervention in the treatment of patients with primary liver cancer not only helps to ensure the cellular immune function, but also has positive significance for improving patient psychology and patients' quality of life.

Conflicts of interest - The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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