Investigation and Analysis of Cognitive Function in 105 Patients with Alcohol Dependence and Depression

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Abstract: Objective: To investigate the cognitive function of alcohol dependence patients with depression in Qiqihar city. **Method:** From January to October 2018, 62 patients with alcohol dependence and depression and 43 patients with alcohol dependence and non-depression were selected as subjects. The general data of the two groups were compared, and the repetitive neuropsychological status test (RBANS) scores of the two groups were compared. **Result:** There was a statistically significant difference in family history of alcohol dependence between the two groups (P<0.05). The visual breadth, attention factor, time-lapse memory factor score and total RBANS score of alcohol-dependent patients with depressive symptoms were significantly lower than those of alcohol-dependent patients without depressive symptoms (P<0.05). Logistic regression analysis showed that low visual breadth and low attention level were risk factors for depressive symptoms in alcohol-dependent patients. **Conclusion:** Alcohol-dependent patients with low visual coverage and low attention factor scores may have a higher risk of depressive symptoms, and early intervention in alcohol-dependent patients with depressive symptoms is important for the rehabilitation of patients.

1. Introduction

Alcohol dependence refers to the uncontrollable strong desire for drinking after long-term heavy drinking, and the resulting alcohol-related diseases are serious medical and social problems in the world today [1]. Domestic and international research results [2] show that alcohol dependence is closely related to depressive symptoms. Among American depression patients, 16% can be diagnosed as alcohol-related problems, and about 15% of alcohol-dependent patients in China have severe depression. In recent years, research on alcohol dependence with depressive symptoms has received increasing attention from scholars. Studies [3] have shown that depressive symptoms are associated with cognitive impairment, especially attention to cognitive impairment, and cognitive impairment may be a risk factor for depressive symptoms. Although there are many studies on the relationship between depressive symptoms and cognitive impairment in patients with mental disorders, there are few studies on depressive symptoms and cognitive impairment in patients with alcohol dependence. Therefore, this study aimed to investigate the cognitive function of patients with alcohol dependence and depression in Qiqihar, and to explore the cognitive function of patients with alcohol dependence and depressive symptoms and its influencing factors. In order to reduce the incidence of depression in patients with alcohol dependence, early assessment of cognitive function changes, prediction of the risk of depression and early intervention were carried out.

2. Objects and methods

2.1 Research object

Sixty-two patients with alcohol dependence and depression who were hospitalized or clinically treated in four psychiatric hospitals in Qiqihar City from January to October 2018 were selected as the alcohol dependence and depression group. Another 43 patients with alcohol dependence who

were hospitalized or outpatient in the same period were selected as the alcohol dependence group without depression. Inclusion criteria: (1) At the same time, the diagnostic criteria of alcohol dependence in the International Classification of Diseases (10th edition) and the Diagnostic and Statistical Manual for Mental Disorders (5th edition) were met [4-6]. (2) The level of education at or above the primary level. (3) The patient scored greater than 17 points on the Hamilton Depression Scale 17 (HAMD-17) test, with depressive symptoms, or a test score of less than 7 points, without depressive symptoms. (4) Sign the informed consent form. Exclusion criteria: (1) history of abuse of other substances, history of major physical illnesses. (2) History of brain organic diseases unrelated to alcohol. (3) Mental retardation. (4) Serious language, hearing, and visual impairment, etc., cannot be filled in with the scale. All subjects were aware of the purpose of the study and volunteered to participate in the study.

2.2 Method

2.2.1 Evaluation method

Psychological tests were performed by two psychiatrists who were familiar with neuropsychological assessment. The patients were divided into groups to collect general sociodemographic data before the psycho-test, and were grouped according to the results of Hamilton Depression Volume 17 (HAMD-17) test. The repetitive neurological state test (RBANS) was used to test the psychological status of the two groups.

2.2.2 Observation index

The differences of social demographic data, total score of RBANS scale, instant memory, visual span, speech function, attention factor and delayed memory score between the two groups were compared.

2.3 Statistical Processing

SPSS20.0 statistical software was used. The measurement data were expressed by $\overline{x} \pm s$. The t test was used. The count data were analyzed by χ^2 test. Logistic regression analysis was used to investigate the related factors of depressive symptoms in alcohol-dependent patients. P<0.05 was considered statistically significant.

3. Result

3.1 Comparison of sociodemographic data of two groups of patients

The results showed that there was no significant difference in age, education level and marital status between the two groups (P > 0.05). There was significant difference in family history of alcohol dependence between the two groups (t = 1.269, P = 0.034) (see Table 1).

Table 1 General demographic data of alcohol dependence patients with or without depressive symptoms (n = 105)

Group	Number of cases	Age	Education Level (Example)			Family history of alcohol dependence (example)	Marital status (example)		
			Primary school	Junior middle school	High school and above		Married	Unmarried	Divorce or widowhood
Depression group	62	48.3±6.3	11	31	20	17	24	12	26
Non-depressive group	43	44.6±3.7	6	24	13	12	17	6	20
t/χ²		1.767	6.432*			1.269*	7.373*		
P		0.142	0.228			0.034	1.452		

* is χ^2 value, the rest is t value

3.2 RBANS analysis of two groups of patients

The visual span, attention factor, delayed memory factor and total score of BRANS in patients with depressive symptoms were significantly different from those in patients without depressive symptoms (P = 0.006, 0.000, 0.001, 0.004). There was no significant difference in immediate memory factor and speech function factor between the two groups (P > 0.05) (Table 2).

Table 2 RBANS analysis of alcohol dependence patients with or without depressive symptoms (n = 105)

Group	Immediate memory	Visual span	Speech function	Attention factor	Delayed retention	RBANS Score (Score)
Depression group	71.35±20.32	76.35±11.36	81.45±11.13	78.79±17.66	79.28±24.39	87.23±10.51
Non-depressive group	73.45±8.93	86.45±13.25	78.42±14.35	98.13±15.20	94.51±14.20	98.79±11.43
t	2.279	3.238	1.423	4.302	6.798	3.245
P	0.976	0.006	0.079	0.000	0.001	0.004

3.3 Multivariate analysis of depressive symptoms

Statistically significant family history of alcohol dependence, visual span factor, attention factor and delayed memory factor were assigned as independent variables in univariate analysis. Logistic regression analysis showed that the scores of visual breadth factor and attention factor had statistical significance (P=0.002, 0.017). Low scores of visual breadth and attention factors are risk factors for depressive symptoms in patients with alcohol dependence (Table 3).

Table 3 Logistic regression analysis of alcohol-dependent patients with or without depressive symptoms (n=105)

Project	Waldχ^2 value	OR value	95%CI	P value
Family history of alcohol dependence	6.778	1.456	0.996~6.741	0.798
Visual span	5.805	1.042	0.798~1.412	0.002
Delayed retention	1.423	1.075	0.468~1.299	0.325
Attention factor	4.794	2.374	0.095~4.571	0.017

4. Discussion

4.1 Analysis of Cognitive Function in Patients with Alcohol Dependence and Depression

With the accelerated pace of life, people's pressure is getting bigger and bigger. Many people use alcohol to relieve their stress. However, if the frequency and quantity of drinking are improperly controlled, it will easily lead to alcohol addiction. Long-term heavy drinking can cause multiple system damage, and the brain's neural structure will also change, resulting in cognitive impairment. Studies by relevant foreign institutions [7] have shown that long-term alcohol abuse causes adaptive changes in brain and cerebellar damage to be manifested as tolerance and dependence, and in function, general cognitive abilities such as learning, memory, decision-making, and sensory motor skills decline.Previous studies in China [8-9] have shown that alcohol addiction dependence is directly related to abnormal changes in the brain function network loop, and the level of attention factors in alcohol-dependent patients is decreased. The results of Fekete et al [10] showed that the attention deficit and visual span deficit of patients with mental disorder accompanied by depressive symptoms were significantly higher than those of patients without depressive symptoms. The low scores of visual span and attention factor indicated that such patients had cognitive impairment. The results showed that the total score of RBANS, visual span factor, attention factor and delayed memory factor in alcohol dependent patients with depressive symptoms were significantly lower than those without depressive symptoms. It suggests that cognitive function of alcohol dependence

patients with depression is impaired, and visual span and attention level are at a low level.

4.2 Risk factors of depressive symptoms in patients with alcohol dependence

In recent years, alcohol dependence has an increasing impact on individuals and society. Long-term excessive drinking causes serious poisoning of the central nervous system, which will bring a series of problems, easily lead to mild and severe depression, and even suicide. The study of depression caused by alcohol dependence has been highly valued in basic, clinical and nursing medicine. Foreign scholar Amy [11] found that alcohol dependence and its complications have higher hospitalization rate and longer hospitalization time than other non-substance dependence diseases, reflecting the difficulty of curing alcohol dependence. A survey conducted in the United States[12] found that 16% of people with depression suffer from alcohol dependence at the same time, which proves that there is an ineviTable link between depression and alcohol dependence. Su SH, et al. [13] concluded through a large number of clinical studies that the mental health of patients with alcohol dependence is low, and there are many psychological problems, among which anxiety and depression are most prominent. The logistic regression analysis of this study showed that cognitive impairment caused by alcohol dependence, such as low visual breadth and low attention level, is a risk factor for depressive symptoms in alcohol-dependent patients. It is suggested that the cognitive impairment caused by alcohol addiction is related to the depression caused by alcohol dependence, which is consistent with the related research results at home and abroad.

In summary, in the future clinical treatment, it is necessary to pay attention to the cognitive function changes of alcohol-dependent patients as early as possible, and early intervention of alcohol-dependent patients with cognitive impairment according to the test results is of great significance for the rehabilitation of patients. As a cross-sectional survey, this study has certain limitations. It is recommended that researchers further expand the sample size and increase the objective indicators in order to understand the changes of cognitive function in patients with alcohol dependence and depression.

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