

# Analysis of curative effect of fluoxetine and escitalopram in the depression treatment based on clinical observation

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**Abstract:** Depression is a common affective disorder or mood disorder, which seriously affects people's physical and mental health and the quality of life. This study compared efficacy of escitalopram and fluoxetine on depression patients, and analyzed the inflammatory factors, serum homocysteine (Hcy) levels and the effects of adverse reactions, so as to provide reference for the clinical. The results showed that the total effective rate of the observation group (90.7%) was higher than that of the control group (80%), but the difference was not statistically significant ( $p>0.05$ ). The total score of Hamilton Depressive Scale (HAMD) and mood in the observation group was significantly lower than that in the control group after treatment. To sum up, escitalopram and fluoxetine are effective in the treatment of depressive patients, but escitalopram can significantly improve the patient's micro inflammation and depressive symptoms

**Keywords:** Fluoxetine, escitalopram, clinical efficacy, interleukin, mental anxiety, drug reaction.

## INTRODUCTION

Fluoxetine is a selective serotonin reuptake inhibitor. With the rapid development of modern society, the improvement of people's living standard, the increase of working pressure and life pressure, people will have some mental pain more or less (Mannen *et al.*, 2010; Jia *et al.*, 2015). If serious may lead to depression, this is becoming more and more common in our lives. In China, the incidence has risen to 0.2%- 0.3% (Li *et al.*, 2015; Kawamoto *et al.*, 2016). The main manifestations of depression are low emotion, slow thinking, reduced daily speech and movement, slow motion and other symptoms, and more drugs are used in clinical treatment (Khera *et al.*, 2015; Lv *et al.*, 2015). However, due to the long course of depression, drug therapy is mostly slow onset, the effect is not ideal, and the clinical symptoms are relieved. Usually after 2 weeks, some patients will appear anxiety symptoms in the early stage of medication. Therefore, it is imminent to find a suitable and effective treatment. The traditional way of medication is single medication, and the classical antipsychotic drugs are not applied, but the side effects are relatively slow (Nishida *et al.*, 2015). Now more and more doctors have tried the non classical psychotherapy in the process of treatment, and the effect is relatively good (Presbitero *et al.*, 2003).

Depression is a common affective disorder or mood disorder. It is characterized by obvious and lasting mood or depression (Perl *et al.*, 2015). It is characterized by low emotion, reduced willpower, slow thinking and other physical symptoms (Sanomura *et al.*, 2014; Solinas *et al.*, 2015). Epidemiological studies have found that the

incidence of global depression is on the rise. Severe people even have suicidal tendencies, which seriously affect people's physical and mental health and quality of life (Singh *et al.*, 2016). At present, there are no effective drugs for the treatment of depression. Previous clinical research mainly focused on the efficacy and side effects of Escitalopram in the treatment of depression (Vagnarelli *et al.*, 2015; Trzeciak *et al.*, 2016). In this study, we observed the effects of escitalopram and fluoxetine on the efficacy of depression, inflammatory factors and serum homocysteine (Hcy) levels and adverse reactions, so as to provide references for clinical practice.

## MATERIALS AND METHODS

### *Inclusion and exclusion criteria*

Nash standard: (1) According to the classification of mental disorders and behavioral disorders in the classification of international diseases and related health issues, (2) The Hamilton Depression Scale (HA to ID) scored the first 17 scores more than 17. Exclusion criteria: (1) Those taking antidepressants; (2) Those with brain diseases; (3) With severe functions of lung, kidney, liver and heart; (4) Suicidal tendencies or actors; (5) Unconsciousness, intelligence disorders and aphasia; (6) Pregnant or lactating women.

### *Research object*

From 2015 to 2016, 130 patients with depression treated in our hospital were divided into the observation group and the control group according to the random number table method, each 65 cases. The general data of the two groups were compared, the difference was not statistically significant for  $>0.05$ , and the comparability was found in table 1. This study was approved by the Medical Ethics

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Committee of the hospital and the patients or their families informed consent and signed the informed consent.

#### ***Therapeutic method***

The patients in the control group were given Fluoxetine Hydrochloride Capsules 20-40mg/qd. The patients in the observation group were given Escitalopram Oxalate tablets 10 20mg/qd. The two groups were not combined with other antidepressant or antipsychotic drugs, all of them were treated for 6 weeks.

#### ***Evaluation criteria of curative effect***

Cure: Patients HA into ID reduction rate >75%, markedly effective: Patients HA into the ID minus rate is between 50% and 74%; effective: Patients HA entry ID reduction rate between 25% one 49%; invalid: HA HA ID entry rate reduction <25%. The total efficiency = (the number of cured cases + significant number of cases + effective number) / the total number of cases \*100%.

#### ***Observation index***

Before and after treatment, we extracted the fasting peripheral venous blood and placed it in ethylenediamine tetra acetic acid (EDAT) tube. In the EDAT tube, the serum was centrifuged and kept at 2 degrees centigrade. Enzyme-linked immunosorbent assay (ELISA) was used to determine the levels of interleukin (IL)-2, IL-6, tumor necrosis factor  $\alpha$  (TNF- $\alpha$ ), Hcy in two groups, and observed the total score of HAMD and mood, mental anxiety, sleep disorders, cognitive impairment and somatic anxiety score. Side reaction scale (TESS) was used to assess the adverse effects of two groups of patients

#### ***Statistical analysis***

SPSS19.0 software was used to analyze the data. Measurement data were expressed as  $\bar{x}\pm s$ , were compared with paired t test, comparison between groups using independent sample t test; count data in%, using a test. The difference was statistically significant in  $P<0.05$ .

## **RESULTS**

#### ***Comparison of clinical efficacy of two groups of patients***

The total effective rate of the patients in the observation group was compared with the control group, the difference was not statistically significant ( $p>0.05$ ). The comparison of the clinical efficacy of the two groups was shown in table 2.

#### ***Comparison of the levels of inflammatory factors before and after treatment***

Before treatment, there was no significant difference in serum IL-2, IL-6 and TNF- $\alpha$  levels between the two groups ( $P>0.05$ ). After treatment, serum IL -2, IL-6 and TNF- $\alpha$  decreased significantly in the two groups, and the

difference between the observation group and the control group was statistically significant ( $P<0.05$ ). The levels of inflammatory factors before and after treatment in the two groups were compared to table 3.

#### ***Comparison of serum Hcy level***

Before treatment, there was no significant difference in serum Hcy level between the two groups ( $P>0.05$ ). After treatment, the serum Hcy level of the two groups decreased significantly, and the observation group was significantly lower than that of the control group, the difference was statistically significant ( $P<0.05$ ). The level of serum Hcy before and after treatment in the two groups was compared to table 4.

#### ***HAMD score comparison***

Before treatment, compared two groups of patients with mood, mental anxiety, sleep disorders, cognitive disorders, anxiety score and HAMD score, the difference was not statistically significant ( $P>0.05$ ); after treatment, two groups of patients with mood, mental anxiety, cognitive disorder, somatic anxiety score and HAMD was significantly reduced, and the observation group was significantly lower than the control group, the difference was statistically significant ( $P<0.05$ ). The HAMD scores of the two groups were compared as in table 5.

## **DISCUSSION**

At present, the pathogenesis of depression is not very clear, which may be related to a variety of factors such as heredity and psychosocial factors (Heer *et al.*, 2015). In recent years, more and more attention has been paid to the correlation between depression and immune system, especially on the relationship between cytokines and depression (Galasso *et al.*, 2015; Balmadrid *et al.*, 2015). The results of this study showed that two groups of patients after treatment, serum IL-2, IL-6, TNF- $\alpha$  decreased significantly, and the observation group was significantly lower than the control group, indicating that escitalopram can reduce the serum cytokines IL -2, IL-6, TNF- $\alpha$  level, reduce the inflammatory state of patients. Hcy is a sulfur amino acid in human body. Research shows that Hcy is closely related to cardiovascular disease and stroke, and has a certain correlation with depression. Hcy level has a certain role in promoting the development of depression (Claassen *et al.*, 2012; Hess *et al.*, 2016). The results of this study showed that after treatment, the serum Hcy level of the two groups decreased, and the observation group was significantly lower than the control group, indicating that escitalopram can reduce the Hcy level of patients (Isorni *et al.*, 2015).

Escitalopram is a s-isomer of the racemic citalopram, which is a selective serotonin reuptake inhibitor (5-HT) reuptake inhibitor (Emir *et al.*, 2014). The 5-HT transporter is highly selective and has no or only very low

**Table 1:** General data comparison

Group	Gender		Age	Time of illness	Degree of disease		
	Male	Female			Slight	Moderate	Severe
Observation group (n=65)	30	35	36.2±5.4	2.6±1.3	22	35	8
Control group (n=65)	29	36	35.7±6.2	3.1±0.8	17	29	9
t	0.467		0.652	0.791	1.206		
p	>0.05		>0.05	>0.05	>0.05		

**Table 2:** Comparison of clinical efficacy

Group	Complete cure	Obvious effect	Partial validity	Invalid	Total effective rate
Observation group (n=65)	33	17	9	6	90.7
Control group (n=65)	26	15	11	13	80.0

**Table 3:** Comparison of the levels of inflammatory factors

Group	IL-2		IL-6		TNF-a	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Observation group (n=65)	115.7±14.2	89.1±4.6	52.6±4.1	35.6±4.5	11.7±2.4	4.3±1.4
Control group (n=65)	104.3±12.5	87.4±6.3	51.7±5.7	40.2±3.9	12.1±2.1	5.4±1.6

**Table 4:** Comparison of serum Hcy level

Group	Before treatment	After treatment	t	P
Observation group (n=65)	15.8±3.2	11.4±2.5	6.87	P<0.05
Control group (n=65)	16.2±4.1	13.6±2.1	4.5	P<0.05

**Table 5:** HAMD score comparison

Group	Period	Emotion	Mental anxiety	Cognitive impairment	Physical anxiety	Total score
Observation group (n=65)	Before treatment	6.84±1.56	5.48±1.23	4.54±1.35	5.72±1.28	22.29±3.15
	After treatment	3.28±0.74	3.12±0.42	1.57±0.23	2.56±0.84	12.04±1.86
Control group (n=65)	Before treatment	7.01±2.13	5.47±1.54	2.64±0.84	5.46±1.52	20.47±3.75
	After treatment	3.12±0.55	3.28±0.42	2.18±0.36	3.12±0.52	12.14±1.89

affinity for histamine receptor, adrenergic receptor, cholinergic receptor, and D1-5 receptor (González *et al.*, 2015; Fang *et al.*, 2017). Therefore, it is believed that these pharmacological characteristics may be the main causes of low and fast adverse effects. Studies have shown that Escitalopram has a significant effect on the treatment of depression and can significantly reduce the score of the patient's (Hamilton depressive scale) HAMD (Espinel *et al.*, 2015). The results of this study show that the total efficiency of the observation group (90.7%) was higher than the control group (80%), but the difference was not statistically significant ( $p>0.05$ ); patients in the observation group after treatment in patients with mood, mental anxiety, cognitive disorder, somatic anxiety score, HAMD and TESS scores were significantly lower than the control group, there are statistically significant difference ( $p<0.05$ ). The results showed that the overall efficacy of escitalopram and fluoxetine in the treatment of depression was similar, but Escitalopram could significantly reduce the patients' mood, mental anxiety, cognitive impairment and physical anxiety symptoms, and the side effects were mild (Akhter *et al.*, 2009).

## CONCLUSION

To sum up, escitalopram and fluoxetine are effective in the treatment of depression, but escitalopram can significantly improve the micro inflammatory state and depressive symptoms, reduce Hcy level and have mild adverse reactions. However, the sample size of this study is relatively small, the course of treatment is short, the research indicators need to be expanded, and further research should be further improved in the follow-up study.

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