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Effects of Duloxetine Combined with Cognitive Behavioral Therapy on Patients with Postpartum Depression

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Abstract: Objective: To explore the effectiveness of duloxetine combined with cognitive behavioral therapy in the treatment of patients with postpartum depression. Methods: A total of 64 patients with postpartum depression who visited our hospital from July 2024 to July 2025 were included as study subjects. The observation group and the control group were divided using a random number table method, with 32 patients in each group. Relevant treatment indicators were compared between the two groups. Results: The total effective rate in the observation group was higher than that in the control group ($P < 0.05$). After treatment, there were significant differences in HAMD scores, PSQI scores, DAS scores, and serum inflammatory cytokine levels between the observation group and the control group ($P < 0.05$). However, there was no significant difference in the total incidence of adverse reactions between the two groups ($P > 0.05$). Conclusion: The combination of duloxetine and cognitive behavioral therapy is effective in the clinical treatment of patients with postpartum depression. It is beneficial for improving sleep quality, depressive symptoms, and dysfunctional cognition, and significantly regulates inflammatory cytokine levels with higher safety. This treatment approach can be widely promoted.

Keywords: Duloxetine; Cognitive behavior; Postpartum depression; Adverse reactions

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1. Introduction

Postpartum depression belongs to female mental disorders, and its main etiology is the physiological and psychological changes caused by postpartum sex hormones, psychological and social role changes [1]. This disease most commonly occurs within 6 weeks after childbirth and persists throughout the entire puerperium. If the condition is severe, it may continue until early childhood [2]. Postpartum depression is not conducive to the physical and mental health of the mother after childbirth, and has a great impact on the growth and development of the baby, and will bring serious effects on the cognitive behavior and emotions of the child [3]. Therefore, targeted

treatment for such patients is the key to improving the prognosis of mothers and infants. The following takes patients with postpartum depression as the research object, focusing on a comparative analysis of the efficacy differences of different treatment options for reference.

2. Materials and methods

2.1. Clinical data

The study selected 64 patients with postpartum depression. The earliest consultation time was July 2024, and the latest consultation time was July 2025. They were divided into an observation group (n = 32) and a control group (n = 32) based on a random number table method. In the control group, there were 21 primiparous women and 11 multiparous women, with ages ranging from 22 to 39 years old. The median age was (29.12 ± 3.21) years old. In the observation group, the ratio of primiparous to multiparous women was 20:12, with the oldest being 38 years old and the youngest being 21 years old. The average age was (29.09 ± 3.23) years old. The basic conditions of the two groups were similar, with no statistical significance ($P > 0.05$), indicating significant comparability.

Inclusion criteria: confirmed diagnosis of postpartum depression; normal blood and urine routine tests; active cooperation with the study. Exclusion criteria: allergy to study medications; presence of other mental illnesses; withdrawal from the study.

2.2. Methods

All patients received cognitive behavioral therapy, which included:

(1) Creation of an intervention team consisting of psychologists and professional nursing workers. Before participating in the study, they received professional training and were qualified through assessment to engage in clinical work.

(2) Cognitive remodeling. In terms of individual cognition, face-to-face communication was used to understand the reasons for patients' poor cognitive abilities. Video and oral teaching methods were combined to inform patients about key points related to the disease in simple and understandable language, emphasizing the necessity of actively cooperating with treatment and understanding the adverse effects of the disease on the health of both mother and child. Regarding medication cognition, detailed explanations were provided about antidepressant medications, enabling patients to form correct cognitions about medication efficacy, potential adverse reactions, and the positive impact of adherent medication on prognosis. In terms of repeated cognitive intervention, targeted interventions were combined with patients' cognitive deficiencies. Questioning and reasoning techniques were employed to correct patients' incorrect thoughts and promote active cooperation with treatment. Psychological support was provided to understand the causes of patients' depression, and family members were encouraged to actively participate in patients' psychological counseling.

(3) Behavioral training: Patients are required to participate in relaxation training, mainly including walking, Tai Chi, and meditation. If the degree of depression is relatively severe, a series of training such as meditation and deep breathing can also be adopted. Based on the patient's condition, psychological characteristics, and hobbies, play soothing music of different styles to successfully shift their attention. Help patients develop healthy habits. If patients suffer from insomnia, they can increase exercise intensity during the day, soak their feet, take a hot bath, and drink hot milk, which are all beneficial for relieving physical and mental fatigue and improving sleep quality.

The control group received oral Paroxetine Hydrochloride Tablets based on this, with an initial dose of 20 mg per day. The medication dosage was adjusted later based on the patient's condition, which could be increased by 10 mg per week. After 2 weeks of treatment, the daily medication dosage was not allowed to exceed 40 mg.

The observation group was treated with Duloxetine Hydrochloride Enteric-coated Tablets in combination, with an initial daily dose of 40 mg. After 1 week of treatment, the dose was increased to 60 mg per day. All patients took the medication after breakfast as a single daily dose for 8 weeks.

2.3. Evaluation indicators

(1) Evaluate the treatment effect and adverse reaction status between groups.

(2) Compare patients' HAMD scores, PSQI scores, DAS scores, and serum inflammatory cytokine levels before and after treatment.

2.4. Statistical analysis

Statistical software SPSS 21.0 was used to process the data from both groups, with $P < 0.05$ as the basis for statistical significance.

3. Results

3.1. Comparison of treatment effects between the observation group and the control group

The total effective rate of the observation group was compared with that of the control group, $P < 0.05$ (**Table 1**).

Table 1. Comparison of treatment effects between the two groups (*n*/%)

Group	n	Markedly effective	Effective	Ineffective	Total effective rate
Observation	32	20 (62.50)	11 (34.38)	1 (3.13)	31 (96.88)
Control	32	17 (53.13)	7 (21.88%)	8 (25.00)	24 (75.00)
χ^2 value					6.3354
P value					0.0118

3.2. Study on HAMD and PSQI scores before and after treatment in both groups

Before treatment, there was no significant difference in indicators between the groups ($P > 0.05$). After treatment, the relevant scores in the observation group were significantly different from those in the control group ($P < 0.05$) (**Table 2**).

Table 2. Analysis of changes in HAMD and PSQI scores in the observation group and the control group (mean ± SD)

Group	n	HAMD score (points)		PSQI score (points)	
		Before treatment	After treatment	Before treatment	After treatment
Observation group	32	22.89 ± 3.09	7.09 ± 3.03	15.44 ± 1.75	5.25 ± 0.68
Control group	32	22.86 ± 3.05	9.97 ± 4.21	15.47 ± 1.79	7.78 ± 0.99
t-value		0.0391	3.1409	0.0678	11.9162
p-value		0.9689	0.0026	0.9462	0.0000

3.3. Comparison of changes in DAS scores between the observation group and the control group

After treatment, there was a significant difference in the scores of various indicators between the groups ($P < 0.05$) (**Table 3**).

Table 3. Comparison of DAS scores before and after treatment between the two groups (mean ± SD)

Group	n	Vulnerability Score (points)		Perfectionism Score (points)		Dependence Score (points)		Autonomy Attitude Score (points)	
		Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment
Observation Group	32	18.49 ± 1.43	15.59 ± 2.22	19.54 ± 2.24	16.03 ± 2.24	19.89 ± 2.58	16.34 ± 2.00	19.94 ± 2.33	17.12 ± 2.11
Control Group	32	18.52 ± 1.47	18.24 ± 2.09	19.57 ± 2.22	18.47 ± 2.11	19.92 ± 2.60	18.89 ± 2.53	19.98 ± 2.35	18.84 ± 2.23
t-value		0.0828	4.9166	0.0538	4.4854	0.0463	4.4728	0.0684	3.1693
p-value		0.9343	0.0000	0.9573	0.0000	0.9632	0.0000	0.9457	0.0024

3.4. Analysis of serum inflammatory cytokine levels before and after treatment in both groups

Before treatment, there was no significant difference in serum inflammatory cytokine levels between the groups ($P > 0.05$). After treatment, the relevant indicators in the observation group were significantly different from those in the control group ($P < 0.05$) (**Table 4**).

Table 4. Study on changes in serum inflammatory cytokine levels in the observation group and the control group (mean ± SD)

Group	n	TNF-α (pg/mL)		IL-1 (pg/mL)		IL-4 (pg/mL)		IL-6 (pg/mL)		IL-10 (pg/mL)	
		Before	After	Before	After	Before	After	Before	After	Before	After
Observation	32	77.54 ± 6.43	47.73 ± 4.47	39.03 ± 4.47	18.65 ± 3.24	3.89 ± 0.85	7.96 ± 1.14	10.79 ± 2.12	5.11 ± 1.24	101.23 ± 11.13	155.03 ± 20.65
Control	32	77.56 ± 6.47	54.02 ± 5.15	39.05 ± 4.44	27.13 ± 3.54	3.86 ± 0.88	5.09 ± 1.10	10.83 ± 2.08	7.47 ± 1.15	101.21 ± 11.11	134.32 ± 17.79
t-value		0.0124	5.2178	0.0180	9.9961	0.1387	10.2484	0.0762	7.8940	0.0072	4.2982
p-value		0.9901	0.0000	0.9857	0.0000	0.8901	0.0000	0.9395	0.0000	0.9943	0.0001

3.5. Comparison of adverse reactions between the observation group and the control group

The total incidence rate in the observation group was not significantly different from that in the control group ($P > 0.05$) (**Table 5**).

Table 5. Comparison of adverse reactions between the two groups (*n*/%)

Group	n	Drowsiness n(%)	Nausea n(%)	Dry mouth n(%)	Total incidence n(%)
Observation group	32	1 (3.13)	1 (3.13)	1 (3.13)	3 (9.38)
Control group	32	2 (6.25)	2 (6.25)	1 (3.13)	5 (15.63)
χ^2					0.5714
P					0.4496

4. Discussion

Postpartum depression is mainly caused by a combination of factors that expose the mother to excessive mental stress, leading to a series of adverse psychological symptoms such as depression and fear, which accumulate and lead to illness [4]. Based on long-term clinical practice, it has been found that the mother's own condition (such as age at childbirth, educational level, etc.) can lead to differences in understanding of childbirth, infant feeding, and role transitions, which can also cause fear and easily increase stress [5]. Coupled with factors such as the mother's own personality traits, physical condition, and family economic ability, the combined effect of pressure from various sources significantly increases the incidence of postpartum depression [6]. Therefore, it is necessary to implement necessary therapeutic interventions for such patients to ensure their emotional stability [7].

Among them, cognitive behavioral therapy (CBT) is a form of psychotherapy that focuses intervention on the irrational cognitive aspects of patients, enabling them to gradually transform existing psychological issues (such as misperceptions about themselves, others, and things) during the intervention process, with the goal of improving anxiety and depression [8]. Clinically, paroxetine is the most commonly used antidepressant and antianxiety medication. However, depression patients require a longer treatment cycle, and long-term medication use can easily increase adverse gastrointestinal reactions, negatively affecting medication compliance [9]. Duloxetine can effectively inhibit the reuptake of neuronal 5-HT and NR without affecting dopamine uptake, making it safer in the treatment of depression [10].

Based on the comparison of the above research data, it was found that the total effective rate of treatment in the observation group was higher than that in the control group, $P < 0.05$. This indicates that the combined use of cognitive behavioral therapy and duloxetine can significantly enhance the treatment effect of postpartum depression [11]. For patients with postpartum depression, early symptoms are mainly sleep disorders. If insomnia worsens, it indicates an increased risk of recurrence of postpartum depression [12]. After treatment, the PSQI score of the observation group was lower than that of the control group, $P < 0.05$, confirming that the medication in the observation group significantly improved sleep quality. After treatment, the HAMD and DAS scores of the observation group were better than those of the control group, $P < 0.05$, indicating that the treatment regimen in the observation group had a significant effect on regulating patients' dysfunctional cognitive function and depressive emotions [13]. After treatment, the levels of various inflammatory cytokines were compared between the two groups, $P < 0.05$. This confirms that cognitive behavioral therapy combined with duloxetine can effectively regulate patients' cytokines and Th1/Th2 imbalance during treatment, achieving the antidepressant treatment goal [14]. The total incidence of adverse reactions in the observation group was compared with that in the control group, $P > 0.05$, indicating that duloxetine is safe in treating patients with postpartum depression [15].

5. Conclusion

Overall, in the clinical treatment of patients with postpartum depression, the combined use of cognitive behavioral therapy and duloxetine can improve patients' condition in a short time, which is beneficial to the improvement of their dysfunctional cognition [16]. It also alleviates the degree of depression and improves sleep quality to a certain extent, making the treatment safer and having high clinical promotion and application value.

Disclosure statement

The authors declare no conflict of interest.

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