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Original Article

Application of systematic nursing in patients with maniac access of bipolar disorder and its impact on treatment compliance and quality of life

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Abstract: Objective: To explore the application of systematic nursing in patients with maniac access of bipolar disorder and its impact on treatment compliance and quality of life. Methods: Using a random number table method, 91 patients with manic episodes of bipolar disorder were divided into a control group (n=46, received conventional nursing) and an observation group (n=45, combined with systematic care including health education, ward environment, mental health nursing, and rehabilitation training, mental state assessment and family and social support). The treatment compliance of Morisky Medication Adherence Scale (MMAS), the manic state of Bech-Rafaelsdn Mania Rating Scale (BRMS), the mental state of Hamilton Depression Scale (HAMA) and Hamilton Depression Scale (HAMD), the quality of life of Generic Quality of Life Inventory-74 (GQOLI-74), the self-efficacy of Strategies Used by Patients to Promote Health (SUPPH), and the cognitive function of the Chinese Version of the Wechsler Adult Intelligence Scale Revised (WAIS-RC) before and 3 months after intervention were compared. Results: After intervention, the BRMS scores of the patients in both groups were significantly decreased, and those in the observation group were lower than those in the control group (all $P<0.05$). After intervention, the MMAS scores of patients in the observation group were significantly higher than those in the control group ($P<0.05$). After intervention, the scores of GQOLI-74, SUPPH and WAIS-RC in the observation group were significantly higher than those in the control group (all $P<0.05$). After intervention, the scores of HAMA and HAMD in both groups decreased, and those in the observation group were lower than those in the control group (all $P<0.05$). Conclusion: Systematic nursing for patients with maniac access of bipolar disorder can clearly relieve their bad moods, control their manic state, and improve their self-efficacy, quality of life and treatment compliance.

Keywords: Bipolar disorder, maniac access, systematic nursing, treatment compliance, mental state, quality of life

Introduction

Bipolar disorder is a common clinical mental disorder and mania with or without depression is the main manifestation of patients. The specific pathogenesis has not been fully clarified. However, the suicide rate of this disease is the highest among all patients with mental illness. It not only seriously affects the health of patients, but also greatly reduces their quality of life [1]. In addition to specific drug treatment, effective nursing intervention also plays a very important role in reducing the suicide rate of patients and improving their quality of life [2].

Systematic nursing is a kind of nursing model which takes patients as the core, and it provides all-round services for patients systematically, integrally and scientifically based on nursing procedures [3]. Systematic nursing is widely used in various departments, such as general surgery, obstetrics and gynecology etc., but it mainly focuses on postoperative complications and patient prognosis [4]. Research on mental illness is mainly focused on patients' psychology and cognition [5]. For example, Carnahan et al. have shown that systematic nursing can significantly improve the unhealthy psychology of patients with bipolar disorder [6]. This study mainly explores the application of systematic nursing in patients with manic episodes of bipolar disorder, and to analyze its impact on treatment compliance and quality of life. The reports are as follows.

Materials and methods

General materials

The 91 patients with manic episodes of bipolar disorder treated in our hospital from February 2019 to February 2020 were randomly divided into a control group (n=46, routine nursing) and an observation group (n=45, systematic nursing). Inclusion criteria: (1) The age of the patient was 24 to 65 years old. (2) Patients with manic episodes of bipolar disorder were diagnosed according to *Neurology (8th Edition)* [7]. (3) Treatment-naive patients. (4) Patients who were conscious and willing to cooperate with treatment and recovery. (5) Patients who signed the informed consent form. Exclusion criteria: (1) Patients with other mental disorders. (2) Dementia. (3) Patients with other serious diseases in internal medicine. (4) Patients with severe brain disease or trauma. (5) Patients with malignant tumors and so on. This study was approved by the Medical Ethics Committee of our hospital.

Methods

Patients in both groups received drug treatment, such as lithium carbonate tablets (Wanhui Double-crane Pharmaceutical Co., Ltd., China, specification: 0.25 g), with an initial dose of 0.50 g/d. According to the patient's condition, the dose could be increased to 0.75-1.50 g/d, and the dose could be reduced if the adverse reactions were obvious. Magnesium valproate (Hunan Xiangzhong Pharmaceutical Co., Ltd., China, specification: 0.25 g), with an initial dose of 0.25 g/d. According to the patient's condition, the initial dose can be increased to 0.75-1.50 g/d within 1 week, and the dose can be reduced if the adverse reactions were obvious, and the dose can be reduced if the adverse reactions are obvious. Both groups were treated continuously for 3 months.

The control group was given conventional nursing: First, the ward was ensured to be quiet and clean. Secondly, the patients' vital signs were observed closely, and patients were instructed to follow the doctor's advice to take medicine, to ensure the safety of medication, and so on.

The observation group was given systematic nursing [8, 9]. (1) Ward environment: A good and clean ward environment was prepared for patients with acute manic episodes. A closed ward with indoor facilities that was as simple as possible with no fragile items and a warm hospitalization environment was chosen according to their needs. (2) Health education: after the patient's condition tended to stable, they were educated about disease-related knowledge organized by the nursing staff once a week according to their specific conditions. It focuses on prevention of joint disease, clinical manifestation, treatment and possible adverse reactions, etc., aiming to enhance patients' awareness of the disease and the importance of following the doctor's advice. For example, preventive measures can be taken reasonably by releasing pressure and avoiding staying up late. Clinical manifestations such as emotional fluctuations were sometimes high, sometimes being depressed, sometimes with emotional outburst, sometimes they manifested as speechlessness. When excited, the sleep time was obviously reduced, and when depressed, it seemed as if there was nothing to do all day. The side effects of taking conventional drugs such as risperidone, haloperidol, lithium carbonate, sodium valproate or magnesium valproate and the possible adverse reactions such as fatigue, lethargy, retardation, gastrointestinal reaction, and elevated blood ammonia and so on, were evlauated. (3) Mental nursing: Patients communicated with psychological counselors 1-2 times a week, each for about 30 minutes, encouraging them to actively express their subjective feelings. Psychological counselors listened patiently, to analyze the source of patients' unhealthy psychology, and to guide patients to eliminate this unhealthy mentality to rebuild their personality. (4) Rehabilitation training: According to the development of the patient's condition, recreational activities such as playing chess, table tennis, Tai Chi, etc., could be arranged appropriately by the nurse-in-charge for the patients when their mood was relatively stable, and talent was displayed; other things such as reading and painting could also be provided to patients according to their needs. For those with good performance, they were rewarded to enhance patients' self-confidence. (5) Mental state evaluation: The scales of Hamilton Depression Scale (HAMA) and Hamilton Depression Scale (HAMD) (17 items) were used to evaluate the patients' anxiety, depression and other bad

psychological status once a week [10, 11]. For those who failed the evaluation, the psychological intervention measures were adjusted in time, and the targeted psychological intervention was given according to the actual situation of the patients, rewarding those who were qualified. (6) Family and social support: The patients' families were encouraged to communicate with patients to comfort and encourage them, understanding all kinds of abnormal behaviors. This let patients feel the warmth and the attention of their families, and helped them look forward to their return to society and family. When patients were in a healthy state, they were given attention to establish their own social support system, establish a relationship of mutual love and accommodation with family and friends. A simple and moderate social life was carried out to better prevent patients from falling into depression. The intervention effects of the two groups were compared after 3 months of intervention.

Outcome measurements

The main outcomes: (1) The Bech-Rafaelsdn Mania Rating Scale (BRMS) was used to evaluate the manic state before and after treatment, including 11 items with a 5-level scoring method used [12]. The score of 0 indicates that there is no such symptom or is similar to the patient's usual performance; The score of 5 indicates that the symptom is serious; The total score is 0-55. The higher the score, the more serious the manic symptoms. (2) The Morisky Medication Adherence Scale (MMAS) was used to evaluate patients' treatment compliance, with a total score of 20 [13]. The higher the score, the better the compliance. (3) The scales of HAMA and HAMD were used to evaluate the patients' mental state. In which the total scores of HAMA is 0-64, and HAMA ≥7 suggests that the patient may be accompanied by anxiety, while HAMA <7 suggests that the patient had no anxiety; HAMD of 7-17 points suggests that the patient may be accompanied by anxiety, and HAMD <7 suggests that the patients had no anxiety. The higher the score, the more severe the anxiety and depression. (4) Quality of Life: The Generic Quality of Life Inventory-74 (GQOLI-74) was used to evaluate the patients' quality of life [14]. The scores of material life status were 16-80, and the scores of social function, physical function and psychological function were all of 20-100 points. The higher the score, the better the quality of life.

Secondary outcomes: (1) The scale of Strategies Used by Patients to Promote Health (SUPPH) was used to evaluate patients' self-efficacy, including three dimensions of stress relief (10-50), self-decision (3-15) and positive attitude (15-75) [15]. The higher the score of each dimension, the stronger the sense of self-efficacy. (2) The scale of the Chinese Version of the Wechsler Adult Intelligence Scale Revised (WAIS-RC) was used to evaluate the cognitive function of patients, including three dimensions of verbal intelligence quotient (VIQ), performance intelligence quotient (PIQ) and full intelligence quotient (FIQ) [16]. The scores of each dimension were 0-20 points, and the scores of FIQ <11 indicated that the patients had cognitive impairment. The higher the score, the better the cognitive function.

Statistical analysis

SPSS 20.0 was used for data statistics, the enumeration data were expressed as n (%), and the comparison was carried out by χ^2 test. The measurement data were expressed by mean ± standard deviation ($\bar{x}$ ± sd), paired t-test was used for comparison before and after intervention, and independent t-test was used for comparison between the two groups. $P<0.05$ indicates that the difference was statistically significant.

Results

Comparison of baseline data between the two groups of patients

There was no statistical difference in the baseline data between the two groups (all $P>0.05$), and as such they were comparable, as shown in **Table 1**.

Manic state (BRMS)

Before intervention, the BRMS scores of patients in the observation group and the control group were 42.20±4.96 and 41.80±5.47, respectively. After intervention, the BRMS scores of the two groups were 28.86±4.30 and 34.44±4.08, respectively. There was no significant difference between the two groups

Table 1. Baseline data of the two groups of patients (n, $\bar{x} \pm sd$)

	Observation group (n=45)	Control group (n=46)	χ^2/t	P
Gender			0.885	0.347
Male (n)	24	20		
Female (n)	21	26		
Age (years)	36.6±5.4	37.2±6.3	0.488	0.627
Time from onset to treatment (months)	4.4±1.4	4.6±1.2	0.732	0.466
Education level			1.392	0.499
Junior high school and below (n)	28	31		
High school and junior college (n)	10	6		
Bachelor degree or above (n)	7	9		
Marital status			0.752	0.687
Married (n)	30	33		
Unmarried (n)	10	7		
Divorced (n)	5	6		
Family guardian			0.098	0.952
Parents (n)	28	30		
Children (n)	13	12		
None (n)	4	4		
Average monthly household income (yuan)			0.591	0.744
<5000	10	12		
5000-10000	28	25		
>10000	7	9		

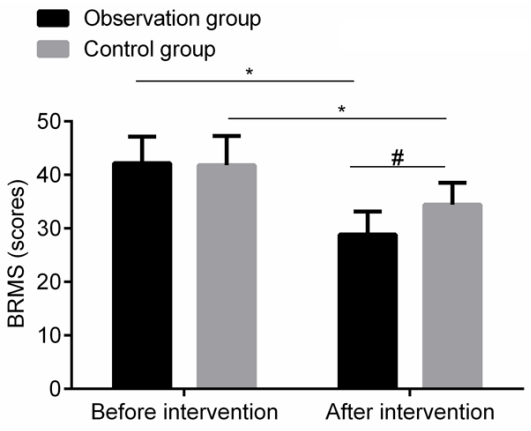

Figure 1. Comparison of BRMS scores between the two groups. BRMS: Bech-Rafaelsdn Mania Rating Scale. *P<0.05, #P<0.05.

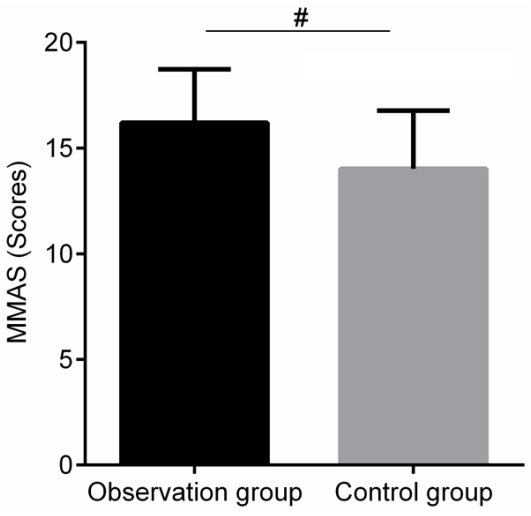

Figure 2. Comparison of MMAS scores between the two groups of patients after intervention. MMAS: Morisky Medication Adherence Scale. #P<0.05.

before intervention (P>0.05). After intervention, the BRMS scores of the two groups decreased significantly, and those of the observation group were lower those of control group (all P<0.05), as shown in **Figure 1**.

Medication compliance

After intervention, the scores of MMAS in the observation group (16.20±2.53) were significantly higher than those in the control group (14.02±2.75) (P<0.05), as shown in **Figure 2**.

Mental state

After intervention, the scores of HAMA and HAMD in both groups decreased, and those in the observation group were lower than those in

Table 2. HAMA and HAMD scores of the two groups before and after intervention ($\bar{x}$ ± sd, score)

Groups	HAMA scores	HAMD scores
Observation group (n=45)		
Before intervention	7.64±1.22	7.44±1.15
After intervention	6.07±1.04*,#	5.65±1.22*,#
Control group (n=46)		
Before intervention	7.88±1.53	7.80±1.76
After intervention	6.95±1.10*	6.43±1.39*

Note: HAMA: Hamilton Depression Scale; HAMD: Hamilton Depression Scale. Compared with before the intervention, *P<0.05; compared with the control group after the intervention, #P<0.05.

the control group (all P<0.05), as shown in **Table 2**.

Quality of life (GQOLI-74 scale)

After intervention, the scores of GQOLI-74 in both groups increased in all dimensions, and the scores in the observation group were higher than those in the control group (all P<0.05), as shown in **Table 3**.

Self-efficacy (SUPPH score)

After intervention, the scores of SUPPH in both groups increased, and the scores in the observation group were higher than those in the control group (all P<0.05), as shown in **Table 4**.

Cognitive function (WAIS-RC)

After intervention, the scores of WAIS-RC in both groups increased, and the scores in the observation group were higher than those in the control group (all P<0.05), as shown in **Table 5**.

Discussion

Bipolar disorder belongs to a kind of mood disorder disease, and patients with this disease need long-term medication. However, due to the fact that the disease easily relapses, in addition to drug treatment, careful and systematic nursing during medication is also very important to control the progress of the disease and reduce recurrence. Compared with conventional nursing, systematic nursing covers more and more specific nursing intervention. It includes not only rehabilitation nursing of patients' own diseases, but also nursing care of patients' psychology and cognition. Thus, systematic nursing is more detailed and better overall [17].

Studies have shown that patients with manic episodes of bipolar disorder can be accompanied by varying degrees of cognitive dysfunction [18]. If the treatment is not timely or the nursing intervention is not perfect, it can aggravate their cognitive impairment and reduce the patients' quality of life. In this study, the scores of all dimensions of GQOLI-74 (material life status, social function, physical function, psychological function) and WAIS-RC (VIQ, PIQ and FIQ) were increased in both groups after intervention, and the scores in the observation group were higher than those in the control group. The BRMS score in both groups decreased significantly, and the observation group was lower than the control group. This suggested that compared with conventional nursing, systematic nursing can more obviously control the manic state of patients with manic bipolar disorder, and also contribute to the improvement of patients' cognitive function and quality of life. The improvement of cognitive function of patients who received systematic and complete nursing intervention was more obvious. This is because the nursing care of patients in the observation group in this study includes health education, ward environment, mental health nursing, rehabilitation training, mental state evaluation, family and social support and so on. Miskowiak et al. confirmed that rehabilitation training helps to improve the cognitive function of patients with cognitive impairment, and under the joint action of systematic nursing interventions such as targeted psychological counseling by medical staff; it contributes to the improvement of patients' quality of life to a certain extent [19].

Patients with manic episodes of bipolar disorder often need long-term or even lifelong medication. Due to adverse drug reactions, drug treatment costs and other factors, some patients have poor compliance with medication. In addition, some patients also decreased their treatment compliance due to cognitive dysfunction, leading to a significant reduction in therapeutic effect [20]. Manic episodes of bipolar disorder belong to a type of mood disor-

Table 3. The scores of each dimension of GQOLI-74 in the two groups before and after intervention ($\bar{x}$ ± sd, score)

Groups	Material life state	Social function	Physical function	Mental function
Observation group (n=45)				
Before intervention	49.95±4.11	64.49±6.30	68.68±4.08	54.40±5.28
After intervention	61.77±5.50*,#	77.77±6.22*,#	76.66±4.85*,#	65.50±5.77*,#
Control group (n=46)				
Before intervention	50.45±4.96	65.05±5.86	69.22±5.25	53.97±5.64
After intervention	55.30±4.86*	70.09±6.90*	73.30±5.58*	59.98±5.05*

Note: GQOLI-74: Generic Quality of Life Inventory-74. Compared with before the intervention, *P<0.05; compared with the control group after the intervention, #P<0.05.

Table 4. The SUPPH score of the two groups of patients before and after intervention ($\bar{x}$ ± sd, score)

Groups	Relieve stress	Self-decision	Positive attitude
Observation group (n=45)			
Before intervention	28.38±4.55	7.70±1.50	43.30±4.73
After intervention	37.70±4.31*,#	12.39±1.37*,#	52.10±5.22*,#
Control group (n=46)			
Before intervention	26.97±4.49	7.06±1.63	42.70±5.17
After intervention	32.22±4.68*	10.15±1.44*	47.04±4.95*

Note: SUPPH: Strategies Used by Patients to Promote Health. Compared with before the intervention, *P<0.05; compared with the control group after the intervention, #P<0.05.

Table 5. WAIS-RC score of two groups of patients before and after intervention ($\bar{x}$ ± sd, score)

Groups	VIQ	PIQ	FIQ
Observation group (n=45)			
Before intervention	12.04±3.22	11.47±2.04	13.39±1.94
After intervention	17.37±2.04*,#	16.66±2.90*,#	17.04±2.93*,#
Control group (n=46)			
Before intervention	11.94±2.93	11.28±2.47	13.46±2.09
After intervention	14.40±2.48*	13.30±2.22*	15.50±1.97*

Note: WAIS-RC: Wechsler Adult Intelligence Scale Revised; VIQ: Verbal intelligence quotient; PIQ: Performance intelligence quotient; FIQ: Full intelligence quotient. Compared with before the intervention, *P<0.05; compared with the control group after the intervention, #P<0.05.

ders, patients have obvious bad psychology, and coupled with long-term hospitalization and insufficient family and social support, all of which are more likely to cause serious psychological problems. Serious cases can lead to depression, which is not only harmful to the recovery of the disease, but also aggravates the progression of the disease [21]. In this study, the MMAS score of patients in the observation group was significantly higher than that in the control group after intervention, while the scores of HAMA and HAMD in the observation group were lower than those in the control group. This suggested that compared with conventional nursing, systematic nursing can significantly improve the treatment compliance and psychological status of patients with manic episodes of bipolar disorder. Thus, it is acknowledged that health education can help patients understand the importance of active cooperation with treatment to a certain extent, which is conducive to the improvement of their treatment compliance. The implementation of mental nursing and regular mental state evaluation also eliminated the patients' bad emotions such as fear and progress to a certain extent. For those unqualified in the evaluation, psychological intervention measures were adjusted in time, and targeted psychological intervention was given according to the actual situation of the patients, so the effect of improving the psychological state of the patients is more obvious. Tung et al. also found that systematic nursing is significantly better than conventional nursing in improving the mental state of patients with mental disorders such as depression and mania [22].

"Self-efficacy" refers to the individual's own sense of self-related ability, that is, the expec-

tation of whether he or she has the ability to complete a certain behavior [23]. In this study, the scores of SUPPH in the two groups increased after intervention, and the scores in the observation group were higher than those in the control group, suggesting that systematic nursing can more effectively enhance the self-efficacy of patients with manic episodes of bipolar disorder. Goossens et al. also pointed out that the systematic nursing intervention model has a more obvious effect on the self-efficacy of manic patients [24].

However, this study is a single-center study with limited sample size, and it only investigated the effect of intervention for 3 months. The impact of this systematic nursing model on patients' long-term treatment compliance and quality of life still needs more in-depth research to confirm.

In summary, systematic nursing for patients with manic episodes of bipolar disorder can significantly alleviate their bad mood, control their manic state, and help them to improve their self-efficacy, quality of life and treatment compliance. As such, it is worthy of clinical promotion.

Disclosure of conflict of interest

None.

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