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Review Article

Effect of specific nursing combined with diet management on the activity and quality of life after total hip replacement for elderly patients with femoral head necrosis

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Abstract: Objectives: To investigate the effect of specific nursing combined with diet management on the activity and quality of life after total hip replacement for elderly patients with femoral head necrosis. Methods: 85 patients with femoral head necrosis in our hospital were selected and divided into group A (GA) and group B (GB). In GA, patients received specific nursing. In GB, patients received routine nursing. The patients' emotional and the recovery of related functions were observed. Adverse reactions, satisfaction and quality of life of patients were observed. Results: SAS and SDS scores after nursing in GA were lower than those in GB ($P < 0.05$). The activity and hip joint recovery of GA were better than those of GB ($P < 0.05$). Adverse reactions in GA were lower than those in GB ($P < 0.05$). The total satisfactory rate and quality of life in GA were higher than those in GB ($P < 0.05$). Conclusion: Specific nursing was beneficial to the recovery of patients with femoral head necrosis and the improvement of their quality of life.

Keywords: Specific nursing, diet management, femoral head necrosis, total hip replacement, activity, quality of life

Introduction

Femoral head necrosis is a debilitating and stubborn disease in orthopaedics. Femoral head necrosis is the final common way of a series of permutation disorders, which will lead to a reduction in blood flow to the femoral head, resulting in cell death, fracture and articular surface collapse [1]. This is followed by a lesion of the upper cartilaginous layer, which flattens the rounded surface of the head and connects it to the acetabulum, ultimately resulting in secondary osteoarthritis [2, 3]. Femoral head necrosis mainly develops in young and middle-aged people, and the disability rate is very high. The disease may lead to dyskinesia and affect the patients' quality of life [4]. It also has a great impact on the labor and subsequent economic conditions [5]. There are many surgical treatments for femoral head necrosis, including core decompression, vascularized bone transplantation and hip traction, but total hip replacement can provide excellent early pain relief and good functional prognosis for patients with femoral head necrosis [6, 7]. Total hip arthroplasty is considered to be one of the most successful orthopedic operations [8]. However, total hip replacement, a general surgery, is prone to complications such as hip dislocation, abductor dysfunction, fracture and nerve injury [9]. Specific nursing is to carry out special management according to the individual needs and preferences of patients, disease progression, and response and tolerance to treatment [10]. In this study, we added diet management on the basis of specific nursing, and found that it had a good outcome for patients. Thus, this study was designed to explore the effect of specific nursing combined with diet management on elderly patients with femoral head necrosis after total hip arthroplasty.

Materials and methods

Baseline data

A total of 85 patients with femoral head necrosis in our hospital were selected and divided

into GA and GB. In GA, 40 cases were treated with specific nursing. In GB, 45 cases received routine nursing.

Exclusion and inclusion criteria

Inclusion: The patients were diagnosed as femoral head necrosis [11] and they had complete clinical data; the study was informed and the consent form was signed by patients and their families. This study was approved by the ethics committee of our hospital.

Exclusion: Patients with liver, kidney and heart insufficiency were excluded; patients with major hematological diseases were excluded; patients who have communication barriers and hide from medical personnel were excluded; patients with diseases that affect movement were excluded.

Nursing methods

Specific nursing in GA: (1) Psychological nursing for patients: Patients will definitely suffer from stress and anxiety before and after the operation. Nursing staff should relieve patients' anxiety, keep patients happy physically and mentally by diverting attention, reduce patients' tension, adopt the opinions of patients, understand the deficiencies, carry out rectification and strengthening, and continue to provide specific nursing with high quality and high service for patients.

(2) Health education for patients: Before health education, patients' demands should be understood and their questions should be answered. Health popularization should also be carried out for patients to understand relevant medical knowledge and some first aid measures. In this process, nursing staff must continuously communicate with patients and observe the patient's situation.

(3) Life nursing for patients: Nursing staff need to take patients out for relaxation every day to avoid emotional depression and disinfect wards frequently.

(4) Rehabilitation nursing for patients: Within half a day after surgery, the patients can be helped to perform relevant ankle and toe movements for 5 minutes each time. One or two days after the operation, the patient can be helped to add back exercise on the basis of foot exercise for 10 minutes each time. After operation for one week, the patient can be helped to do leg exercises. Half a month after the operation, the patient can be helped to do overall lower limb exercise.

(5) Diet management for patients: According to the different stages of patients' recovery after surgery, different eating plans shall be formulated to tell the patients about diet taboos. Patients should avoid eating spicy food to stimulate the recurrence of wound infection, and supplement corresponding nutrition according to their own recovery over a period of time, so as to avoid the lack of nutrition and weakness of the patient.

(6) Nursing for patients with complications: Nursing staff must reasonably adjust the temperature and humidity of the ward and observe various physical indexes of the patients every day. The nursing staff should also ask the patient if there is any discomfort. If there is any situation, medical staff should contact the doctor as soon as possible to avoid delay in treatment. Nursing staff should guide patients to pay attention to their own health conditions and surgical wound conditions in time to observe whether there is bleeding or inflammation. If so, medical staff should contact doctors in time for relevant emergency situations.

(7) Pain nursing for patients: Nursing staff should help to relief minor pain of patients, and contact doctors in time if there is higher degree of pain, and inform doctors of patient details to provide basis for doctors' treatment.

In GB, patients received routine nursing. Nursing staff should observe the patient's condition changes, provide life guidance for patients, instruct matters needing attention, communicate with doctors about the patient's condition and solve it in time.

Outcome measures

(1) The anxiety and depression status of patients were observed by using the Self-rating Anxiety Scale (SAS) [12] and the Self-rating Depression Scale (SDS) [13]. The score was in direct proportion to anxiety and depression.

(2) Barthel index [14] was used to observe the patients' activity ability, with a total score of 100 points. Life ability was in direct proportion to score.

(3) According to Harris hip joint function score [15], the hip joint function recovery of patients was observed, with a total score of 100 points. The score was proportional to the hip joint function recovery.

(4) According to SF-36 scale [16], the physical function, life function, psychological function and quality of life of patients were scored in the two groups, with a full score of 100 points. The higher the score, the higher the quality of life.

Statistical methods

SPSS20.0 (SPSS, Inc., Chicago, IL, USA) was used for statistical analysis. T test was used for measurement data and expressed as mean ± standard deviation ($\bar{x} \pm sd$). The enumeration data were tested by chi-square test and expressed by percentage (%). The difference was statistically significant with all $P < 0.05$.

Results

The baseline data of patients in both groups

There were no significant differences in baseline data of patients in the two groups ($P > 0.05$). More details are shown in **Table 1**.

Anxiety of patients in the two groups before and after nursing care

Before and after nursing, SAS scores in GA were 39.32±2.56 and 18.76±1.49 respectively. Before and after nursing, SAS scores in GB were 38.98±2.47 and 24.36±2.13 respectively. There was no difference in SAS scores before nursing between the two groups ($P > 0.05$). The SAS scores of both groups decreased after nursing ($P < 0.05$). After nursing, the SAS score in GA was lower than that in GB ($P < 0.05$). More details are shown in **Figure 1**.

Depression of patients in the two groups before and after nursing care

Before and after nursing, SDS scores in GA were 40.24±3.25 and 20.57±1.96 respectively. Before and after nursing, SDS scores in GB were 39.79±3.24 and 26.25±2.43 respectively. There was no difference in SDS scores before nursing between the two groups ($P > 0.05$). The SDS scores of both groups decreased after nursing ($P < 0.05$). After nursing, the SDS score in GA was lower than that in GB ($P < 0.05$). More details are shown in **Figure 2**.

Comparison of Barthel index between the two groups after nursing

After nursing, Barthel index was 85.79±5.25 and 71.58±3.70 respectively in GA and GB. Barthel index in GA was higher than that in GB ($P < 0.05$). More details are shown in **Figure 3**.

Comparison of Harris hip joint function score between the two groups after nursing

After nursing, Harris hip joint function score was 82.69±6.35 and 67.25±4.26 respectively in GA and GB. Harris hip joint function score in GA was higher than that in GB ($P < 0.05$). More details are shown in **Figure 4**.

Adverse reactions in the two groups

In GA, the total incidence of adverse reactions was 17.5%. In GB, the total incidence of adverse reactions was 37.78%. The total incidence of adverse reactions in GA was lower than that in GB ($P < 0.05$). More details are shown in **Table 2**.

Comparison of nursing satisfaction of patients between the two groups

The total satisfaction in GA was 95%. The total satisfaction in GAB was 66.67%. The total satisfaction of GA was higher than that of GB ($P < 0.05$). More details are shown in **Table 3**.

Comparison of quality of life between the two groups

The scores of body function, life function, psychological function and quality of life in GA were higher than those in GB ($P < 0.05$). More details are shown in **Table 4**.

Discussion

Although routine nursing can save costs, the uniformity of routine care is not easy to find the changes and characteristics of the patient's disease. If the nursing effect is not good, it is easy to delay the treatment of the disease. Therefore, specific nursing appears clinically. Specific nursing plan is a novel patient-centered and mutually beneficial whole person treatment plan [17, 18]. Most patients usually

Table 1. The baseline data of patients [n (%)] ($\bar{x}$ ± sd)

Grouping	GA (n=40)	GB (n=45)	χ^2/t value	*P* value
Gender			0.128	0.719
Male	18 (45.00)	22 (48.89)		
Female	22 (55.00)	23 (51.11)		
Age/years old	56.24±6.27	57.53±6.24	0.949	0.345
Weight (kg)	62.58±2.46	61.75±2.34	1.593	0.114
Height (cm)	167.57±3.58	166.25±3.25	1.782	0.078
Nation				
Han nationality	31 (77.50)	33 (73.33)	0.197	0.656
Minority nationality	9 (22.50)	12 (26.67)		
Place of residence			0.012	0.911
City	28 (70.00)	31 (68.89)		
Rural	12 (30.00)	14 (31.11)		
Educational background			0.002	0.957
≥ high school	26 (65.00)	29 (64.44)		
< high school	14 (35.00)	16 (35.55)		
Economy			0.490	0.782
Poor	6 (15.00)	8 (17.78)		
Fair	19 (47.50)	18 (40.00)		
Rich	15 (37.50)	19 (42.22)		
Diabetes history			0.043	0.835
Yes	24 (60.00)	26 (57.78)		
No	16 (40.00)	19 (42.22)		
Hypertension history			0.015	0.900
Yes	25 (62.50)	37 (82.22)		
No	5 (12.50)	8 (17.78)		
Smoking			0.550	0.458
Yes	19 (47.50)	25 (55.56)		
No	21 (52.50)	20 (44.44)		
Drinking			0.630	0.427
Yes	17 (42.50)	23 (51.11)		
No	23 (57.50)	22 (48.89)		
Sit up late			0.070	0.790
Yes	26 (65.00)	28 (62.22)		
No	14 (35.00)	17 (37.78)		
Exercise			0.016	0.898
Yes	19 (47.50)	22 (48.89)		
No	21 (52.50)	23 (51.11)		
Disease types			0.005	0.938
Traumatic femoral head necrosis	19 (47.50)	21 (46.67)		
Non-traumatic necrosis of femoral head	21 (52.50)	24 (53.33)		
Stage			0.799	0.371
Stage I	7 (17.50)	5 (11.11)		
Stage II	12 (30.00)	13 (28.89)		
Stage III	14 (35.00)	17 (37.78)		
Stage IV	7 (17.50)	10 (22.22)		

develop mood disorders relatively late in the course of the disease, which is of great concern because the delay in mood remission reduces the success of subsequent treatment, and the

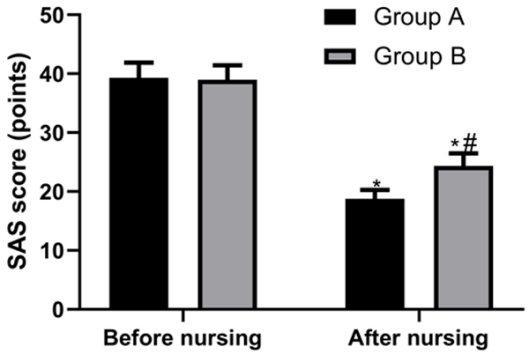

Figure 1. Comparison of anxiety of patients in the two groups before and after nursing. SAS scores of patients in the two groups before nursing had no significant difference ($P > 0.05$). The SAS scores of patients in the two groups decreased significantly after nursing ($P < 0.05$). The SAS score of patients in GA after nursing was significantly lower than that of GB ($P < 0.05$). Note: *indicates comparison with the same group before nursing ($P < 0.05$); #indicates comparison with GA ($P < 0.05$).

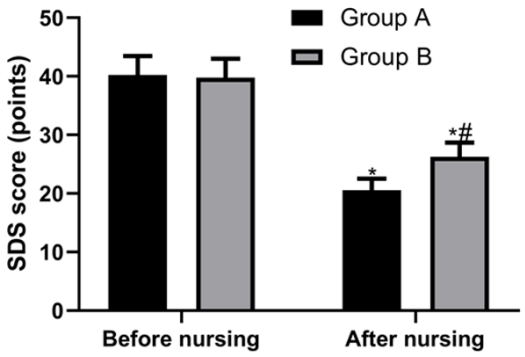

Figure 2. Comparison of depression of patients in the two groups before and after nursing. SDS scores of patients in the two groups before nursing had no significant difference ($P > 0.05$). The SDS scores of patients in the two groups decreased significantly after nursing ($P < 0.05$). After nursing, the SDS score of patients in GA was significantly lower than that of GB ($P < 0.05$). Note: *indicates comparison with the same group before nursing ($P < 0.05$); #indicates comparison with GA ($P < 0.05$).

development of depression have a negative cumulative effect on the brain and body [19]. There are also studies that indicated that negative emotions can seriously affect self-perception and are closely related to prevention and treatment [20]. Therefore, in this study, we asked the medical staff to conduct emotional counseling of patients throughout the whole process, reducing the resistance to surgery and treatment. We also compared the related

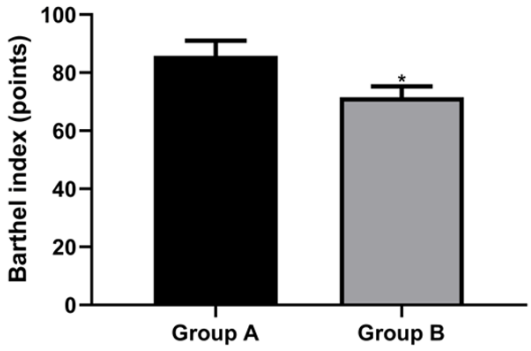

Figure 3. Comparison of Barthel index of patients after nursing between the two groups. The Barthel index after nursing in GA was significantly higher than that in GB ($P < 0.05$). Note: *indicates comparison with GA ($P < 0.05$).

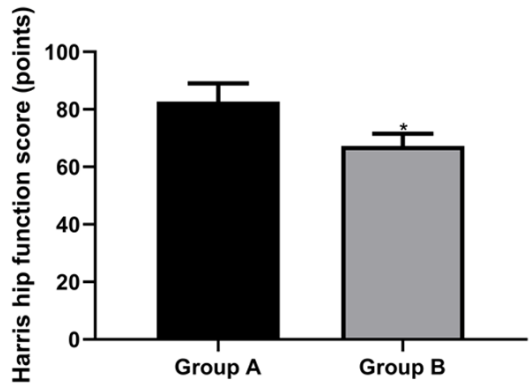

Figure 4. Comparison of Harris hip joint function score of patients after nursing between the two groups. The Harris hip joint function score after nursing in GA was significantly higher than that in GB ($P < 0.05$). Note: *indicates comparison with GA ($P < 0.05$).

anxiety and depression scores of patients in the two groups before and after nursing intervention. The results demonstrated that the related emotion scores of group GA were lower than those of GB, which indicated that specific nursing can improve the psychological perplexity and negative effects of patients [21]. It may be that medical staff often take patients out of activities and popularize medical knowledge to patients, so it plays a vital role in increasing patients' confidence and reducing patients' bad mood. After the operation, our medical staff carried out rehabilitation training and intervention on the patients' related activity, and they also scored the related activity index and hip joint function recovery of patients in the two groups. The results demonstrated that the

Table 2. Adverse reactions in the two groups [n (%)]

Adverse reactions	GA (n=40)	GB (n=45)	X^2	P
Deep venous thrombosis	2 (5.00)	5 (11.11)	-	-
Urinary system infection	2 (5.00)	4 (8.89)	-	-
Dyspepsia	1 (2.50)	1 (2.22)	-	-
Constipation	1 (2.50)	2 (4.44)	-	-
Pressure sore	1 (2.50)	2 (4.44)	-	-
Chest distress	0 (0.00)	1 (2.22)	-	-
Myasthenia of limbs	0 (0.00)	2 (4.44)	-	-
Overall incidence	7 (17.50)	17 (37.78)	5.952	0.014

Table 3. Comparison of nursing satisfaction of patients between the two groups [n (%)]

Satisfaction	GA (n=40)	GB (n=45)	X^2	P
Satisfactory	21 (52.50)	16 (35.56)	-	-
Rather satisfactory	10 (25.00)	12 (26.67)	-	-
Basically satisfaction	7 (17.50)	2 (4.44)	-	-
Dissatisfied	2 (5.00)	15 (33.33)	-	-
Total satisfaction degree	38 (95.00)	30 (66.67)	34.31	< 0.001

Table 4. Comparison of quality of life between the two groups ($\bar{x} \pm sd$)

Grouping	n	Physical function	Life function	Psychological function	Quality of life
GA	40	88.35±15.27	92.37±10.72	89.72±8.18	93.12±9.26
GB	45	77.83±13.28	81.17±12.47	80.38±9.27	82.29±10.78
t		3.397	4.413	4.898	4.937
P		0.001	< 0.001	< 0.001	< 0.001

activity and hip joint function recovery of GA were better than that of GB, indicating that specific nursing was beneficial to the recovery of patients. This may be due to the help of medical staff to patients' functional recovery exercise and strict control of diet. There are also studies that showed that specific nursing can solve the problems to be solved, including variables such as mood, functional state, happiness and psychological process. It seems to have more urgent benefits than conventional treatment [22]. In specific nursing, our medical staff paid close attention to the surgical incision and occurrence of complications of patients. The results showed that specific nursing significantly reduced the development of complications. In addition, we have also conducted a satisfaction survey on patients. Specific nursing has also significantly improved patients' satisfaction. This may be the strict monitoring of vital signs of patients by medical staff to timely stop the loss, as well as strict control of patients' diet. Some studies have shown that diabetic patients with specific nursing plan have better control of systolic blood pressure and low density lipoprotein, and are more likely to use statins than patients without care plan [23]. Finally, the quality of life results showed that the patients' quality of life was higher after specific nursing intervention, which indicated that specific nursing was beneficial to the improvement of patients' quality of life. This may be related to the health popularization of medical staff on patients, the implementation of them and the care and advice of medical staff to patients after discharge. Some studies also showed that the combination of specific nursing, prediction of treatment success, prevention of diseases and participation of patients in the formulation of treatment plans is a treatment method that is expected to greatly improve individuals with chronic disabilities [24]. In short, specific nursing has higher application value [25].

To sum up, specific nursing can reduce the impact of the activity of patients with femoral head necrosis and improve their quality of life.

Disclosure of conflict of interest

None.

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