

Review Article

Quality of life and functional recovery of elderly patients after total hip replacement by targeted nursing

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Abstract: Objective: This study set out to explore the effect of targeted nursing combined with functional training on the quality of life and functional recovery of elderly patients after total hip replacement (THR). Methods: Ninety patients with osteonecrosis of the femoral head (ONFH) after THR in Taizhou Enze Medical Center Enze Hospital were selected. Among them, 40 patients were divided into group A and treated with targeted nursing, and 50 cases were divided into group B and received conventional nursing. Mood and recovery of related functions of patients were observed, so were the adverse reactions, satisfaction and quality of life. Results: SAS and SDS scores after nursing in group A were lower than those in group B ($P < 0.05$). The mobility and hip joint recovery of group A were better than those of group B ($P < 0.05$). Adverse reactions in group A were lower than those in group B ($P < 0.05$). The total satisfaction and quality of life in group A were higher than those in group B ($P < 0.05$). Conclusion: Exploring targeted nursing combined with functional training plays a vital role in the quality of life and functional recovery of elderly patients after THR.

Keywords: Targeted nursing, functional training, total hip replacement (THR), elderly patients, quality of life, functional recovery

Introduction

Osteonecrosis of the femoral head (ONFH) is a devastating global disease, which is also called avascular necrosis of the femoral head or femoral head necrosis, affecting millions of people [1]. ONFH is due to interrupted or destroyed blood supply of the femoral head, resulting in tissue death and subsequent repair of bone cells and bone marrow components, which leads to structural changes and collapse of the femoral head [2, 3]; and it is also a frequent cause of secondary osteoarthritis [4]. Non-traumatic ONFH in adults is an acquired femoral head ischemic disease related to various diseases. The initial manifestation is localized, and usually partially necrotic; but with the development of advanced stages of arthritis, the disease may develop into complete destruction of the femoral head [5]. ONFH mainly occurs in young and middle-aged people, and the disability rate is very high. The disease may lead to dyskinesia and affects the quality of life of patients [6]. It also has a

remarkable impact on the labor force and subsequent economic conditions [7]. There are many surgical treatments for ONFH, including core decompression, vascularized bone transplantation and hip traction, but total hip replacement (THR) can provide excellent early pain relief and good functional prognosis for patients with ONFH [8, 9]. Some studies also reveal that in advanced osteonecrosis, THR currently seems to be the best treatment method with good functional recovery [10]. However, large-scale operations such as THR are easy followed by complications such as hip dislocation, abductor dysfunction, fracture and nerve injury [11]. Targeted nursing is used to carry out special management according to the individual needs and preferences of patients, disease progression, and responses and tolerance to treatment [12]. This research is meant to explore the effect of targeted nursing combined with functional training on the quality of life and functional recovery of elderly patients after THR.

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Materials and methods

General data

Ninety patients with ONFH after THR in Taizhou Enze Medical Center Enze Hospital were selected. Among them, 40 patients were divided into group A and treated with targeted nursing, and 50 cases were divided into group B and received conventional nursing.

Exclusion and inclusion criteria

Inclusion: All patients underwent magnetic resonance imaging (MRI), showing abnormal femoral head and acetabular contour, extensive bone marrow edema and complex joint effusion [13] and they had complete clinical data. Patients and their families were informed about the research and they signed informed consent forms. This was approved by the Ethics Committee of Taizhou Enze Medical Center Enze Hospital.

Exclusion were as follows: Patients with liver, kidney and heart insufficiency; patients with major hematological diseases; patients who had communication barriers and hid from medical personnel; patients with movement disorders.

Nursing methods

Individual nursing in group A: (1) Psychological nursing for patients: Patients suffer from stress and anxiety before and after operation. Nursing staff help relieve their anxiety, keep them happy physically and mentally by diverting attention, reduce their tension, accept their opinions, understand the deficiencies, carry out rectification and strengthening, and continue to provide individual nursing with high quality and high service for patients. (2) Health education for patients: Before health education, patients' demands are listened to understood and their questions are answered. Health popularization is also carried out for them to understand relevant medical knowledge and some first aid measures. In this process, nursing staff must continuously communicate with patients and observe their situation. (3) Life care for patients: Nursing staff take patients out of the rooms for relaxation every day to avoid emotional depression

and disinfect wards frequently. (4) Functional training for patients: Within half a day after surgery, the patients are helped to perform relevant ankle and toe movements for 5 min each time. One or two days after the operation, they are helped to include back exercise on the basis of foot exercise for 10 min each time. One week after operation, they are helped to do leg exercises. Half a month after the operation, they are helped to do overall lower limb exercise. (5) Diet management for patients: According to different stages of patients' recovery after surgery, different eating plans are formulated to tell them about diet taboos, avoiding spicy food that may stimulate wound recurrence and infection, and supplement corresponding nutrition according to their own recovery over time to avoid lack of nutrition and weak body. (6) Nursing of complications for patients: Nursing staff must reasonably adjust the temperature and humidity of the ward and observe various physical indexes of the patients every day, and ask whether they are unwell, and if so, contact a doctor as soon as possible to avoid delaying treatment. Nursing staff should guide patients to pay attention to their own health conditions, pay attention to their surgical wound conditions in time to see whether there is bleeding or inflammation, and if so, contact doctors in time for relevant emergency situations. (7) Pain nursing for patients: Nursing staff can help to ease minor pain of patients, and contact doctors in time if there is higher degree of pain, and inform doctors and patients of details to provide a good basis for treatment. Group B adopted conventional nursing, and nursing staff observed patients' condition changes, offer them life guidance, told about any matters needing attention, and communicate with doctors about their condition to solve it in time.

Outcome measures

(1) Anxiety and depression of patients were observed via Self-rating Anxiety Scale (SAS) [14] and Self-rating Depression Scale (SDS) [15]. The score was proportional to the anxiety and depression. (2) According to SF-36 scale [16], the physical function, life function, psychological function and quality of life of patients in both groups were scored, with a full score of

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Table 1. General data table of patients [n (%)] ($\bar{x} \pm sd$)

| | | | | |
|---|-------------|-------------|-------|-------|
| Gender | | | 0.271 | 0.602 |
| Male | 23 (57.50) | 26 (52.00) | | |
| Female | 17 (42.50) | 24 (48.00) | | |
| Age (years) | 67.38±5.38 | 68.38±5.24 | 0.889 | 0.376 |
| Weight (kg) | 62.48±5.29 | 61.48±4.69 | 0.949 | 0.345 |
| Height (cm) | 172.59±7.49 | 173.48±7.24 | 0.570 | 0.569 |
| Nationality | | | 0.053 | 0.817 |
| Han | 32 (80.00) | 39 (78.00) | | |
| Ethnic minorities | 8 (20.00) | 11 (22.00) | | |
| Place of residence | | | 0.002 | 0.958 |
| Cities and towns | 29 (72.50) | 36 (72.00) | | |
| Countryside | 11 (27.50) | 14 (28.00) | | |
| Education | | | 0.530 | 0.466 |
| High school or higher | 30 (75.00) | 34 (68.00) | | |
| < High school | 10 (25.00) | 16 (32.00) | | |
| Economics | | | 2.416 | 0.298 |
| Poor | 15 (37.50) | 19 (38.00) | | |
| General | 7 (17.50) | 15 (30.00) | | |
| Rich | 18 (45.00) | 16 (32.00) | | |
| History of diabetes | | | 0.110 | 0.739 |
| Yes | 17 (42.50) | 23 (46.00) | | |
| No | 23 (57.50) | 27 (54.00) | | |
| History of hypertension | | | 0.002 | 0.962 |
| Yes | 21 (52.50) | 26 (52.00) | | |
| No | 19 (47.50) | 24 (48.00) | | |
| Smoking | | | 0.036 | 0.848 |
| Yes | 24 (60.00) | 29 (58.00) | | |
| No | 16 (40.00) | 21 (42.00) | | |
| Drinking | | | 0.009 | 0.924 |
| Yes | 22 (55.00) | 28 (56.00) | | |
| No | 18 (45.00) | 22 (44.00) | | |
| Stay up late | | | 0.438 | 0.508 |
| Yes | 29 (72.50) | 33 (66.00) | | |
| No | 11 (27.50) | 17 (34.00) | | |
| Movement | | | 1.125 | 0.288 |
| Yes | 34 (85.00) | 38 (76.00) | | |
| No | 6 (15.00) | 12 (24.00) | | |
| Disease type | | | 0.086 | 0.769 |
| Traumatic osteonecrosis of the femoral head | 26 (65.00) | 31 (62.00) | | |
| Non-traumatic osteonecrosis of the femoral head | 14 (35.00) | 19 (38.00) | | |
| Stages | | | 1.136 | 0.286 |
| Stage I | 16 (40.00) | 17 (34.00) | | |
| Stage III | 9 (22.50) | 15 (30.00) | | |
| Stage IV | 7 (17.50) | 12 (24.00) | | |

100 points. The higher the score was, the higher the quality of life was. (3) Mobility of patients

was observed via Barthel index [17], with a total score of 100 points, and the life ability

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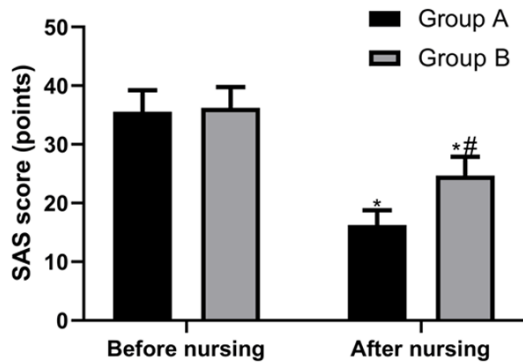


Figure 1. Comparison of SAS scores before and after nursing between the two groups. There was no difference in SAS scores before nursing between both groups ($P>0.05$). The SAS scores of both groups decreased after nursing ($P<0.05$), and those scores after nursing in group A were lower than those in group B ($P<0.05$). Note: * indicates comparison with the same group before nursing ($P<0.05$); # indicates comparison with group A ($P<0.05$).

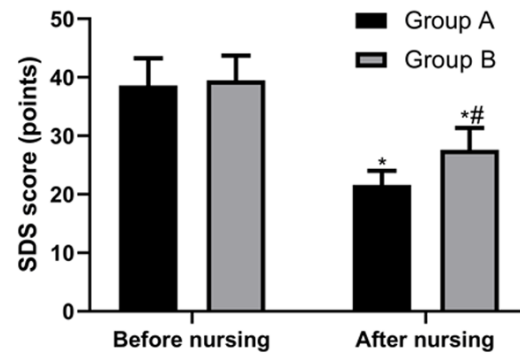


Figure 2. Comparison of SDS scores between the two groups before and after nursing. There was no difference in SDS scores between the two groups before nursing ($P>0.05$). The SDS scores of both groups decreased after nursing ($P<0.05$), and those scores after nursing in group A were lower than those in group B ($P<0.05$). Note: * indicates comparison with the same group before nursing ($P<0.05$); # indicates comparison with group A ($P<0.05$).

was proportional to the score. (4) According to Harris hip joint function score [18], the hip joint functional recovery of patients was observed, with a total score of 100 points, and the score was proportional to the functional recovery.

Statistical methods

Statistical analysis was performed with SPSS 20.0 (SPSS, Inc., Chicago, IL, USA). The measurement data were expressed by t test and mean \pm standard deviation ($x \pm sd$). The counting data were expressed by chi-square test and percentage (%). $P<0.05$ was a statistically significant difference.

Results

General data of patients in the two groups

There was no difference in general data between both groups ($P>0.05$) (Table 1).

Anxiety of patients in the two groups before and after nursing

SAS scores before and after nursing in group A were (35.56 ± 3.68) and (16.28 ± 2.51) respectively. SAS scores before and after nursing in group B were (36.24 ± 3.54) and (24.68 ± 3.22) 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 ($P<0.05$), and the

SAS scores after nursing in group A were lower than those in group B ($P<0.05$) (Figure 1).

Depression before and after nursing of patients in the two groups

The SDS scores of group A before and after nursing were (38.59 ± 4.69) and (21.59 ± 2.45) respectively, and those scores of group B before and after nursing were (39.48 ± 4.24) and (27.59 ± 3.76) respectively. There was no difference in SDS scores between the two groups before nursing ($P>0.05$). The SDS scores of both groups decreased after nursing ($P<0.05$), and those scores of group A after nursing were lower than those of group B ($P<0.05$) (Figure 2).

Comparison of quality of life after nursing between the two groups

The scores of physical function, life function, psychological function and quality of life in group A were higher than those in group B ($P<0.05$) (Table 2).

Comparison of Barthel index between the two groups after nursing

Barthel index after nursing was (86.67 ± 5.25) and (72.18 ± 3.70) respectively in groups A and B. Barthel index in group A was higher than that in group B ($P<0.05$) (Figure 3).

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Table 2. Comparison of quality of life after nursing between the two groups ($x \pm sd$)

| Group | n | Physical function | Life function | Psychological function | Quality of life |
|---------|----|-------------------|---------------|------------------------|-----------------|
| Group A | 40 | 88.35±15.27 | 93.37±10.25 | 88.52±7.46 | 94.54±9.34 |
| Group B | 50 | 75.32±13.22 | 82.57±12.75 | 80.28±9.35 | 82.19±9.46 |
| t | | 4.336 | 4.348 | 4.536 | 6.189 |
| p | | <0.001 | <0.001 | <0.001 | <0.001 |

Adverse reactions during the two groups

The total incidence of adverse reactions in group A was 12.50%, and that in group B was 36.00%. The total incidence of adverse reactions in group A was lower than that in group B ($P<0.05$) (Table 3).

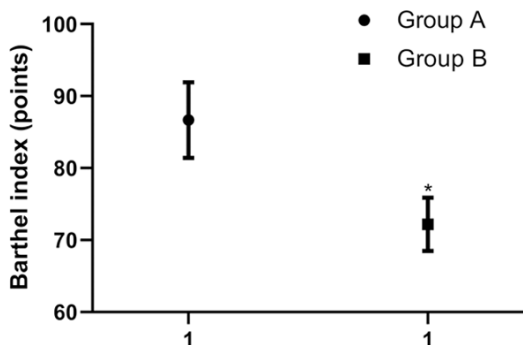


Figure 3. Comparison of Barthel index between the two groups after nursing. Barthel index in group A was higher than that in group B ($P<0.05$). Note: * indicates comparison with group A ($P<0.05$).

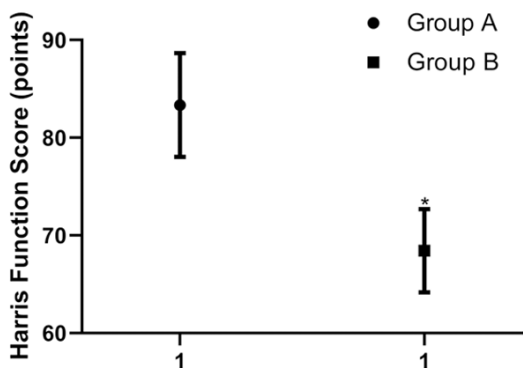


Figure 4. Comparison of Harris hip joint function scores between the two groups after nursing. Harris hip function scores after nursing in group A were higher than those in group B ($P<0.05$). Note: * indicates comparison with group A ($P<0.05$).

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

Harris hip function scores after nursing in groups A and B were (83.35 ± 5.32) and (68.43 ± 4.26) respectively. Those scores in group A were higher than those in group B ($P<0.05$) (Figure 4).

Comparison of nursing satisfaction of patients between the two groups

The total satisfaction of group A was 92.50%, and that of group B was 70.00%. The total satisfaction of group A was higher than that of group B ($P<0.05$) (Table 4).

Discussion

Currently, there is a broad consensus on the need for a continuous redesign of nursing delivery and better digital solutions that can help manage the growing complexity of healthcare and the needs of clinicians in a growing knowledge base [19]. Therefore, individual nursing has emerged clinically. The individual nursing plan is a novel patient-centered all-person treatment plan method based on mutual benefits [20, 21]. Long-term conventional nursing is a kind of nursing method that can save costs. However, due to its generality and unity, it is not easy to identify the changes and characteristics of patients' conditions, resulting in poor nursing effect and delayed treatment. However, most patients usually suffer from emotional disorders during the disease process, which is of great concern. The delay of emotional relief reduces the success of subsequent treatment, and depressive episodes have negative cumulative effects on brain and body [22]. Some studies indicate that negative emotions can seriously affect self-perception and are relevant to prevention and treatment [23]. Therefore, in this research, we have enabled medical staff to sort out patients' emotions throughout the process, reducing resistance to surgery and treatment. The scores of related emotions in group A were lower than those in group B. These can explain that individual nursing can improve the psychological distress and negative effects of patient emotions [24]. Barthel index is a widely used observer-based

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Table 3. Adverse reactions during the two groups [n (%)]

| Adverse reactions | Group A (n=40) | Group B (n=50) | χ^2 | P |
|-------------------------|-------------------|-------------------|----------|-------|
| Deep vein thrombosis | 1 (2.50) | 2 (4.00) | - | - |
| Urinary tract infection | 0 (0.00) | 3 (6.00) | - | - |
| Dyspepsia | 1 (2.50) | 1 (2.00) | - | - |
| Constipation | 0 (0.00) | 2 (4.00) | - | - |
| Pressure sores | 0 (0.00) | 3 (6.00) | - | - |
| Chest distress | 2 (5.00) | 4 (8.00) | - | - |
| Limb weakness | 1 (2.50) | 3 (6.00) | - | - |
| Total incidence | 5 (12.50) | 18 (36.00) | 6.451 | 0.011 |

Table 4. Comparison of nursing satisfaction of patients between the two groups [n (%)]

| Satisfaction | Group A (n=40) | Group B (n=50) | χ^2 | P |
|---------------------|-------------------|-------------------|----------|-------|
| Satisfied | 18 (45.00) | 12 (24.00) | - | - |
| More satisfied | 12 (30.00) | 13 (26.00) | - | - |
| Basically satisfied | 7 (17.50) | 10 (20.00) | - | - |
| Dissatisfied | 3 (7.50) | 15 (30.00) | - | - |
| Total satisfaction | 37 (92.50) | 35 (70.00) | 7.031 | 0.008 |

instrument for measuring body functions. Its structural effectiveness, reliability and interpretability are considered sufficient to measure and explain changes in body functions of elderly rehabilitation patients [25]. Pain and functional improvement after THR can be measured by Harris hip function score, etc. It is the most commonly used tool to evaluate the outcome after THR and is effective and reliable [26]. After the operation, our medical staff carried out rehabilitation training and intervention on patients' related mobility, and also scored the related activity index and hip joint function recovery of those in the two groups. The results manifested that the mobility and hip joint function recovery of group A were better than those of group B, indicating that targeted nursing combined with functional training is beneficial to their function recovery. Some studies show that patient-and family-centered nursing interventions can reduce ICU stay, and extensive interventions are also linked to the improvement of important family outcomes for many patients [27]. Not only that, during the targeted nursing, the medical staff monitored patients' relevant data throughout the process, and closely observed their relevant surgical incisions and assisted with prevention measures for complications.

The results revealed that the targeted nursing reduced the occurrence of complications dramatically. Some studies show that targeted needs assessment has enabled some process improvement plans to be implemented to help reduce medication differences during the transition from hospitals to skilled care and can improve communication between medical institutions. Open communication channels and adjusting the goals of healthcare entities may help prevent drug-related errors [28]. Finally, we found that patients' satisfaction and quality of life after targeted nursing were higher, which could illustrate that individual nursing is conducive to improve their quality of life. There are also studies that indicate it is possible to improve the prognosis of patients by making treatment decisions that combine the values and preferences of individuals and make personalized settings for their biology [29]. In short, a patient-centered nursing approach may

be the best choice for hip fracture patients [30].

In this research, we still have some limitations. We have not observed the inflammatory indicators of patients and their prognosis. We will continue to carry out this research and update our results.

Overall, targeted nursing combined with functional training can improve the quality of life and functional recovery of elderly patients after THR.

Disclosure of conflict of interest

None.

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