Submitted: 19 April, 2023 Accepted: 19 May, 2023 Published: 30 June, 2023 DOI:10.22514/jomh.2023.046

ORIGINAL RESEARCH

JOMH Journal of Men's Health

Effect of the clinical nursing pathway on clinical symptoms, hip joint function, and nursing satisfaction in male patients with artificial hip arthroplasty

Lingting Bai[1], Xiaoyan Liu[1,*], Ye Li[1], Jianying Liu[1], Xing Liu[1], Qian Li[1]

[1]Department of Orthopedic, West China Hospital of Sichuan University, 610000 Chengdu, Sichuan, China

***Correspondence**
Liuxiaoyan_668@163.com
(Xiaoyan Liu)

Abstract

The purpose of this study is to explore the effect of clinical nursing pathway on the clinical symptoms, hip function and nursing satisfaction of male patients who undergo artificial hip replacement. A total of 102 male patients who had artificial hip arthroplasty and were admitted to the West China Hospital of Sichuan University were recruited. Participants were randomly divided into the study group (given clinical nursing pathway) and the control group (given routine nursing intervention). The hospitalization time, treatment cost, symptom checklist, nursing satisfaction and hip function score of the two groups were observed and compared. The hospitalization time and treatment cost of the study group were significantly lesser than those of the control group ($p < 0.05$). Both groups showed significant improvement in the scores of the symptom checklist, but the study group had significantly lower scores than the control group. Similarly, on the day of discharge, there was no significant difference in hip joint function scores between the two groups of patients. However, 30 days after surgery, the hip joint function scores of both groups of patients was remarkably improved ($p < 0.05$), yet, this improvement is significantly higher in the study group. The nursing satisfaction of the study group was higher than that of the control group, and the difference was significant ($p < 0.05$). The total incidence of complications in the study group was lower than the control group (5.88%, *vs.* 23.53%, $p < 0.05$). The clinical nursing pathway could effectively improve the clinical symptoms of male patients undergoing artificial hip arthroplasty, promote the recovery of hip joint function, and significantly improve the clinical nursing satisfaction. Therefore, it is one of the reliable schemes in the clinical practice of patients undergoing artificial hip arthroplasty.

Keywords

Clinical nursing pathway; Artificial hip arthroplasty; Clinical symptoms; Hip joint function; Nursing satisfaction

1. Introduction

The incidence of osteonecrosis of femoral head in the elderly is rising, and is closely linked with the increasing aging of the population [1, 2]. Although, the overall incidence of age-related fracture is lower in men than in women. Yet, recently there is significant increase in the number of hip fractures especially in men. At the same time, the age at first hip fracture is lower in men than in women but, the mortality rate of men is twice as high as that of women. Similarly, men affected by the condition tend to have lesser quality of life and more serious sequelae as compared to women. Thus, research on femoral head necrosis especially in elderly men is necessary. Clinical studies have shown that at present, the most effective treatment for osteonecrosis of the femoral head is artificial hip arthroplasty. However, following the surgery, a long time bed rest is needed for the patient's recovery [3–5]. Therefore, postoperative nursing care is particularly important for the overall success of the procedure. Targeted scientific nursing interventions are of great significance in the consolidation of postoperative effects and postoperative recovery in men undergoing artificial hip arthroplasty [6–8]. With the active summarization of clinical experience, clinical nursing pathway was implemented in male patients with artificial hip arthroplasty and remarkable results were achieved in our hospital. Hence, the purpose of this study is to explore the effect of clinical nursing pathway on clinical symptoms, hip joint function and nursing satisfaction in male patients with artificial hip arthroplasty.

2. Materials and methods

2.1 General data

A total of 102 male patients with artificial hip arthroplasty were admitted to the West China Hospital of Sichuan University. They were randomly and evenly divided into the study group and the control group. Each group has 51 male patients. There were no significant differences in the clinical data between the two groups. This open prospective randomized controlled study was reviewed and approved by the hospital ethics committee and all patients have signed an informed consent form.

Inclusion criteria: (1) Patients met the clinical diagnostic criteria for osteonecrosis of the femoral head; (2) Patients were with new closed fractures; (3) Patients met the indications for surgery; (4) Patients or their family members signed an informed consent form.

Exclusion criteria: (1) Patients with nerve damage or vascular injury; (2) Patients with concomitant hematologic diseases or acute infections; (3) Patients with cognitive dysfunction; (4) Patients with cardiac, liver and kidney dysfunction.

2.2 Methods

All patients were treated with conventional artificial hip arthroplasty. After treatment, the control group was given routine nursing interventions, while the study group was given a clinical nursing pathway.

As for the control group, patients were given routine nursing interventions, as follows: (1) Health Education: in addition to routine health education, the interventions for health education were refined. For example, patients and their family members were provided withe information regarding the surgery and preoperative dietary abstinence time; encouraged to perform pulmonary respiratory function exercise before surgery; informed about postoperative functional exercise methods and precautions; and issued with relevant handbooks to introduce disease-related contents. (2) Nutritional management: checked patients for the presence of hypoproteinemia on the day of admission; Albumin supplementation for hypoproteinemic patients; Work with dietitian for addressing the issues related to malnourished patients. (3) Intraoperative thermal preservation: temperature monitoring was performed throughout, and patients were managed with a variety of insulation measures to prevent intraoperative hypothermia. (4) Pain management: assessed the pain levels of patients; Intervene in patients with pain and optimize perioperative analgesia protocols under the guidance of anesthesiologists. (5) Respiratory exercises: preoperative guidance is provided to instruct patients on respiratory exercises. After the surgical anesthesia wears off, patients were encouraged to begin exercising in bed and were motivated to get out of bed early. Patients were given instructions on functional exercises and provided with explanations of precautions to be taken.

As for the study group, established clinical nursing pathway was given as follows:

Before hospital admission, (1) the patient's personal information was recorded. The patients and their family members were introduced with fundamental state, and they were made to be familiar with the hospital environment; (2) the patient's condition including psychological was evaluated; (3) guidance about the bedridden defecation and urination was given to the patients; (4) based on the patient's personal needs, a comfortable treatment environment was created and the patient was guided to quickly adapt to the environment of hospitalization; (5) the patients and their family members received comprehensive and meticulous introduction of the basic principles of disease occurrence and clinical treatment principles and were informed about the necessity of surgical treatment so that they could actively cooperate in carrying out clinical treatment; (6) the patients were guided to scientifically cooperate with clinical staff to implement various preoperative examinations and related treatments.

Two or three days after hospital admission, (1) the sleep state during hospitalization was assessed, and targeted guidance based on the individual situation was implemented to adjust the biological clock and ensure the quality of sleep, and if necessary, drug intervention was given in accordance with the doctor's instructions; (2) the patients were told to change their position regularly; the environmental health was examined and the patients were taught with sputum excretion in a right way; the frequency of daily rounds was more than 5 times; (3) the patient's psychological state was monitored so that psychological counseling and health education could be given timely when problems occur; the patients and their family members were helped with the establishment of confidence.

24 hours before surgery, (1) the patient's psychological state was evaluated and targeted psychological interventions were given to patients with serious anxiety and depression. The patients and their family members were comprehensively informed with surgical process so that they could build confidence, fully understand the surgical process, and cooperate with the surgical operation; (2) the patients were critically supervised not to eat or drink 6 hours before surgery; the preoperative examination and intestinal lavage were completed as well as the skin preparation.

On the day of the surgery and within 24 hours after surgery, (1) the preoperative preparations were completed in the morning and the patients were sent to the operating room according to the schedules of the day; (2) the patient's vital signs were closely monitored after surgery. Also, the state of postoperative indwelling catheter was monitored according to the patient's specific conditions; (3) the patient's postoperative psychological state was timely assessed and targeted psychological interventions were given based on the assessment results so that the postoperative anxiety and depression could be ameliorated in time.

From the fourth day to the day of hospital discharge, (1) a soft cushion was used at the pressure points because of the long-term bed rest to avoid the occurrence of pressure sores; (2) early postoperative limb training (both active and passive training) was carried out to prevent the occurrence of deep vein thrombosis in the lower limbs; (3) the patient's postoperative recovery was evaluated; (4) the patients were provided with guidance about off-bed activities at a frequency of 3 to 4 times/day according to their situation. Furthermore, an activity intensity of 5 to 10 minutes/time as well as targeted nursing interventions if pains occur was given to them; (5) dietary care was given. Specifically, a light diet is e maintained in accordance with the personal eating habits and tastes. Easily digested food and food with high-fiber and/or high protein

were encouraged. Besides, the patients were encouraged to drink enough water every day to prevent the occurrence of constipation.

From the fourth day to the day of hospital discharge, (1) the patients were guided with gradual increased exercise intensity of the affected limb and hip joint. Strengthening in the isometric contraction of quadriceps, ankle rotation, and active exercises of flexion and extension were emphasized; (2) trainings of curvature movement of the hip and knee were conducted according to the patient's individual situation. The patient was required to exercise at an angle greater than 90 degrees and a frequency of 3 to 5 times/day and a duration of 15 min/time; (3) activities such as sitting up by the bed, standing with walkers and walking slowly were carried out according to the patient's recovery of athletic ability; (4) the patient's postoperative rehabilitation was comprehensively evaluated. Patients were informed with the relevant precautions for postoperative rehabilitation.

Regarding postoperative follow-up visit, a telephone calls once a week were conducted regularly. During the calls, patients and their families were requested to answer various questions that arose during the postoperative rehabilitation after discharge in a timely manner.

2.3 Comparison of interventions between the two groups

See Table 1.

2.4 Observational index

The length of stay in hospital, treatment cost, score of symptom check list-90, nursing satisfaction and hip joint function were summarized and compared between the two groups. The symptom check list-90 includes somatization (score range, 0–48), obsessive-compulsive disorder (score range, 0–40), interpersonal sensitivity (score range, 0–36), depression (score range, 0–52), anxiety (score range, 0–40), hostility (score range, 0–24), phobia (score range 0–28), paranoia (score range, 0–24) and psychosis (score range, 0–40). Lower scores indicate milder symptoms. The scores of Harris hip function range from 0–100, and higher scores indicate better hip function.

2.5 Study endpoints

The primary endpoint of this study is the Harris Hip Score while the secondary endpoints are nursing satisfaction and self-assessment questionnaire scores for symptoms.

2.6 Statistics

SPSS 22.0 software (IBM, Armonk, NY, USA) was used for data analyses. The quantitative data and enumeration data were represented as mean ± standard deviation ($\bar{x} \pm s$) and proportion (%) respectively. Furthermore, test of associations were conducted using *t*-test for the quantitative data and Chi-square test for the enumeration data. A p value less than 0.05 was considered statistically significant.

2.7 Flowchart

See Fig. 1.

2.8 Sample size calculation

The sample size calculation formula is: $n1 = n2 = 2[(u_\alpha + u_\beta)\delta/\sigma]^2 + u_\alpha^2/4$. In this study, a two-sided test was used with $\alpha = 0.05$ and $\beta = 0.10$. Setting $u_\alpha = 1.96$, $u_\beta = 1.28$, and $\delta/\sigma = 1.47$. Therefore, the calculation yields $n1 = n2 = 46.38 \approx 46$. Considering a 10% attrition rate, each group would require 51 participants.

3. Results

3.1 Comparison of clinical data between two groups

There was no statistically significant difference in clinical data between the two groups of patients. See Table 2.

3.2 Comparisons of the hospital course between the two groups

Patients in the study group showed shorter stay in hospital and lesser cost of treatment than those in the control group. The difference was statistically significant ($p < 0.05$). See Table 3.

3.3 Comparisons of the symptom (SCL-90) between the two groups

Before the intervention, there was no significant difference in the scores of the self-rating symptom scales between the two groups. After the intervention, the scores of the self-rating symptom scales in both groups improved significantly. Interestingly, the scores of the self-rating symptom scales of the patients in the study group were significantly lower than those of the Control group (all $p < 0.05$). See Table 4.

3.4 Comparison of the hip joint function between the two groups

The hip joint function of patients was not significantly different between the two groups on the day of hospital discharge. However, there was remarkable improvement at 30 days postoperative with higher scores observed in the study group. The difference was statistically significant ($p < 0.05$). See Table 5.

3.5 Comparison of patient satisfaction and incidence of complications between two groups

The nursing satisfaction in the study group was higher than that in the control group. Also, the overall incidence of complications in the study group was lower than that in the control group, with a significant difference ($p < 0.05$). Refer to Table 6.

4. Discussion

At present, artificial hip arthroplasty is considered as one of the effective treatments for osteonecrosis of the femoral head [9, 10]. The procedure replaces the patient's own injured joints

TABLE 1. Comparison of the interventions between the two groups.

Contents	Control group	Study group
Fasting	Fasting 8 h before operation	Refining the timing and types of dietary restrictions and adding a preoperative 2-h glucose load.
Education	Admission education, preoperative education, functional exercise; health education.	Control group + pre-rehabilitation education + pulmonary function exercise
Nutrition	Evaluation of total protein levels and hemoglobin levels.	All patients undergo nutritional risk assessment and intervention based on the control group
Pain management	Multi-modal analgesia + individualized pain management	Increase assessment frequency and adjust pain management plan based on pain condition
Catheterization	Indwelling urinary catheter, drainage tube	Consideration of catheterization based on patient condition; early removal (within 24 h) for catheterized patients
Functional exercise	Encourage patients to engage in early ambulation, explaining methods and precautions for getting out of bed	Assess patients on the day of surgery, and eligible individuals can attempt ambulation if they meet the criteria

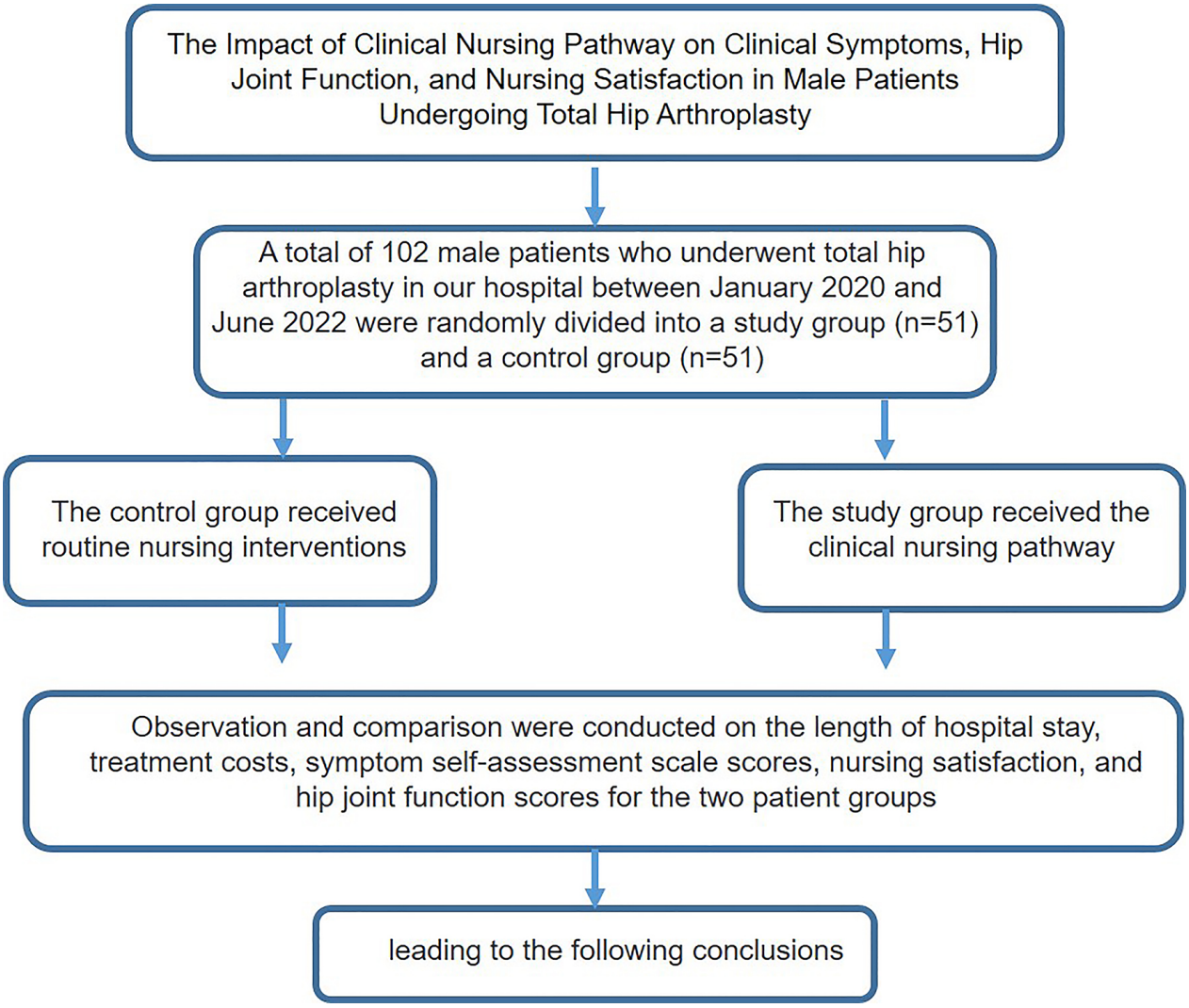

FIGURE 1. The Flowchart of study.

TABLE 2. Comparison of clinical data between two groups.

Indicators	Study group (n = 51)	Control group (n = 51)	Statistic value	*p* value
Average age (yr)	58.33 ± 1.05	58.53 ± 1.10	0.9392	0.3499
BMI (kg/m^2)	24.65 ± 2.16	24.69 ± 2.22	0.0922	0.9267
Pathogenesis (n, %)				
trauma	16, 31.37	17, 33.33	0.0703	0.9951
tired	14, 27.45	14, 27.45		
alcohol	13, 25.49	12, 23.53		
Location of lesion (n, %)				
Left	26, 50.98	24, 47.06	0.1569	0.6920
Right	25, 49.02	27, 52.94		
Internal fixation method (n, %)				
Proximal Femoral Nail Antirotation (PFNA)	19, 37.25	20, 39.22	0.2065	0.9019
Dynamic Hip Screw (DHS)	18, 35.29	19, 37.25		
Anatomical Locking Plate (ALP)	14, 27.45	12, 23.53		
Complicated with hypertension (n, %)				
Yes	36, 70.59	37, 72.55	0.0482	0.8263
no	15	14		
Residence (n, %)				
Local	5, 9.80	4, 7.84	0.0010	1.0000
No-Local	1, 1.96	1, 1.96		

TABLE 3. Comparisons of the hospital course between the two groups ($\bar{x} \pm s$).

Group	n	Length of stay in hospital (d)	Treatment cost (Yuan)
Study group	51	15.24 ± 1.14	33875.25 ± 201.00
Control group	51	29.61 ± 1.60	37856.35 ± 195.00
t value	—	52.2361	99.2089
p value	—	0.0010	0.0010

with the artificial hip joints made of specific materials to exert the joint-related functions. However, due to the requirement of a relatively long period of bed rest after surgery, patients are prone to a variety of complications, including infection, pressure sores, venous thrombosis, *etc.* Clinical studies believe that the application of targeted scientific nursing interventions is able to accelerate the patient's postoperative rehabilitation after artificial hip arthroplasty [11, 12], and it is of great importance in the promotion of surgical effect and improvement in the patient's postoperative living quality [13–15].

The clinical nursing pathway is more advanced than the traditional nursing model, which originated from developed countries such as Europe, the United States and Japan in the 1880s. In 2009, with the support of national ministries and commissions, the promotion of clinical pathways is gradually becoming popular. With the active summarization of clinical experience and the combination with the actual situation of the patients with artificial hip arthroplasty in our hospital [16, 17], clinical nursing pathway was implemented in the clinical nursing practice, and impressive results were achieved. Clinical nursing pathway is a targeted nursing pathway established on the basis of the specific characteristics of each department in the clinic [18]. In this study, the clinical nursing pathway was centered on the characteristics of the perioperative period in male patients with artificial hip arthroplasty. Based on the clinical nursing theory and the specific practical experience of our hospital, the detailed and targeted nursing plan was formulated. The plan has the chronological order of patient admission to the hospital as the coordinate axis and the content of specific nursing intervention as the vertical coordinate.

Regarding the detailed nursing plans, targeted contents of the nursing interventions were designed according to the characteristics of stage of hospitalization for every patient. Before surgery, to help patients build confidence and alleviate anxiety and depression caused by fear of surgery, emphasis is placed on the nursing of mental health and sleep. It is well known that psychological stress could lead worsen physiological indicators. Similarly, sleep disturbance may occur in patients with more severe disease condition, and it may increase the risk of complications of anesthesia during surgery. Therefore, improving the quality of sleep in patients could improve the chances of positive outcome of the surgery [19, 20]. After surgery, how to prevent the incidence of related complications should be seriously considered in the nursing process. Be-

TABLE 4. Comparisons of the symptoms between the two groups (Score, $\bar{x} \pm s$).

Indicators	Study group (n = 51)	Control group (n = 51)	*t* value	*p* value
Somatization				
Before intervention	39.25 ± 2.65	39.35 ± 2.74	0.1873	0.8518
After intervention	22.14 ± 1.02	31.61 ± 1.10	45.0822	0.0010
t value	43.0318	18.7209	——	——
p value	0.0010	0.0010	——	——
Obsessive-compulsive disorder				
Before intervention	30.35 ± 2.12	30.41 ± 2.09	0.1439	0.8858
After intervention	17.20 ± 0.57	21.35 ± 0.80	30.1712	0.0010
t value	42.7778	28.9119	——	——
p value	0.0010	0.0010	——	——
Interpersonal sensitivity				
Before intervention	30.25 ± 2.07	29.98 ± 2.10	0.6539	0.5147
After intervention	14.88 ± 0.38	21.78 ± 0.76	57.9917	0.0010
t value	52.1545	26.2212	——	——
p value	0.0010	0.0010	——	——
Depression				
Before intervention	40.25 ± 3.93	40.98 ± 4.01	0.8903	0.3754
After intervention	25.76 ± 1.01	34.86 ± 1.11	43.3035	0.0010
t value	25.5019	10.5041	——	——
p value	0.0010	0.0010	——	——
Anxiety				
Before intervention	33.25 ± 2.97	33.35 ± 3.02	0.1686	0.8665
After intervention	18.00 ± 0.53	24.14 ± 0.89	42.3305	0.0010
t value	36.0987	20.8907	——	——
p value	0.0010	0.0010	——	——
Hostility				
Before intervention	21.35 ± 2.09	21.63 ± 1.97	0.6962	0.4879
After intervention	11.12 ± 0.38	15.98 ± 0.51	54.5710	0.0010
t value	34.3916	19.8281	——	——
p value	0.0010	0.0010	——	——
Phobia				
Before intervention	23.14 ± 2.09	23.22 ± 1.98	0.1984	0.8431
After intervention	12.49 ± 0.50	16.92 ± 0.63	39.3342	0.0010
t value	35.3918	21.6531	——	——
p value	0.0010	0.0010	——	——
Paranoia				
Before intervention	36.25 ± 3.04	36.18 ± 2.98	0.1174	0.9068
After intervention	22.14 ± 1.02	31.61 ± 1.10	45.0822	0.0010
t value	31.4249	10.2742	——	——
p value	0.0010	0.0010	——	——
Psychosis				
Before intervention	33.25 ± 3.10	33.63 ± 2.97	0.6321	0.5288
After intervention	15.43 ± 0.50	21.24 ± 0.43	62.9168	0.0010
t value	40.5279	29.7792	——	——
p value	0.0010	0.0010	——	——

TABLE 5. Comparisons of the hip joint function between the two groups (Score, $\bar{x} \pm s$).

Group	n	The day of discharge	Postoperative 30 days	*t* value	*p* value
Study group	51	55.90 ± 5.14	82.94 ± 7.39	21.4518	0.0010
Control group	51	41.98 ± 4.05	71.25 ± 6.23	28.1305	0.0010
t value	—	15.1911	8.6371	——	——
p value	—	0.0010	0.0010	——	——

TABLE 6. Comparisons of the nursing satisfaction and incidence of complications between the two groups (n, %).

Indicators	Study group (n = 51)	Control group (n = 51)	Statistical value	*p* value
Nursing satisfaction status				
Great satisfaction	35 (68.63)	28 (54.90)		
Satisfaction	14 (27.45)	13 (25.49)	6.0444	0.0140
Dissatisfaction	2 (3.92)	10 (19.61)		
Satisfaction rate	49 (96.08)	41 (80.39)		
Incidence of complications				
Infection of incisional wound	1 (1.96)	4 (7.84)		
Deep venous thrombosis	1 (1.96)	3 (5.88)	6.3310	0.0119
Infection of urinary system	1 (1.96)	5 (9.80)		
Incidence of complication	3 (5.88)	12 (23.53)		

cause a long-term bed rest is usually required after surgery in the patients that undergo artificial hip arthroplasty, the indicators relevant to the patient's hemorheology are prone to be decreased. Therefore, patients need to increase the frequency of *in vitro* changes. Also, blood circulation in locally compressed tissues should be increased in the patients. This can be achieved through the application of several male-targeted interventions in order to reduce the risk of associated adverse complications. During the process of postoperative rehabilitation, the individual's level of physical activity, the condition of injury, surgery and recovery should be integrally considered in the key points of nursing care. If permitted, the patients should be encouraged to actively do bed exercise and take a walk in order to promote early recovery of exercise performance [21, 22].

The present study showed that patients in the study group had significantly shorter stay in hospital, less treatment cost, less score of symptom check after interventions, better hip joint function, higher nursing satisfaction, and lower incidence of side effects than those in the control group, and the difference was statistically significant ($p < 0.05$). Consistent with the previous reports (both local and international) these results indicate that the clinical nursing pathway has a considerable advantage in the clinical nursing practice for patients with artificial hip arthroplasty [23–25]. However, in practical setting, it is also important to note that treatment and care should be strictly carried out according to the scheduled timetable. Time management methods should be utilized to effectively allocate hospital resources. Proactive communication with relevant departments should be established to ensure that all examinations are completed on time and that test results are reported on the same day. Only by doing so can we ensure the effective implementation of the clinical care pathway.

A major limitation of this study is that only male patients undergoing total hip arthroplasty in our hospital were recruited. As a next step, we will examine the specific effects and enhancement directions of clinical nursing practice pathways in a broader scope in order to provide a more comprehensive, scientific, and accurate foundation for clinical nursing practice.

5. Conclusions

The adoption of clinical care pathways has been shown to effectively improve clinical symptoms and promote the recovery of hip joint function in male patients undergoing total hip arthroplasty. In addition, it significantly enhances the satisfaction with clinical care and stands as a reliable approach in the practical management of patients undergoing total hip arthroplasty. However, future research should focus on assessing the specific effects and improvement directions of applying clinical care pathways.

AVAILABILITY OF DATA AND MATERIALS

The authors declare that all data supporting the findings of this study are available within the paper and any raw data can be obtained from the corresponding author upon request.

AUTHOR CONTRIBUTIONS

LTB and XYL—designed the study and carried them out; LTB, XYL, YL, JYL, XL and QL—supervised the data collection, analyzed the data, interpreted the data; LTB and XYL—prepared the manuscript for publication and reviewed the draft of the manuscript. All authors have read and approved the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained from the Ethics Committee of West China Hospital (Approval no. 2021/268). Written informed consent was obtained from a legally authorized representative for anonymized patient information to be published in this article.

ACKNOWLEDGMENT

Not applicable.

FUNDING

This research received no external funding.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

[1] Geng T, Jia X, Guo Y. Lower limb joint nursing and rehabilitation system based on intelligent medical treatment. Journal of Healthcare Engineering. 2021; 2021: 6646977.

[2] Lin M, Zhang F. Effect of predictive nursing on postoperative rehabilitation and complications of patients undergoing hip replacement and maintenance hemodialysis. American Journal of Translational Research. 2021; 13: 1717–1725.

[3] Chen YR, Chen YL, Chen WY, Lin YC, Jane SW. Evidence-based nursing care of older adult patient with postoperative delirium and hip fracture. Journal of Nursing. 2021; 68: 90–96. (In Chinese)

[4] Liu J, Zhao Q, Wang J, Zhang J, Jiang J, Wang H. Effects of continuous nursing based on WeChat platform on the functional recovery and quality of life in elderly patients after total hip arthroplasty. American Journal of Translational Research. 2021; 13: 5623–5628.

[5] Wang H, Lin Y. Deep learning-based postoperative recovery and nursing of total hip arthroplasty. Computational and Mathematical Methods in Medicine. 2022; 2022: 7811200.

[6] Xu T, Zhang J. Effect of operation room nursing intervention and ceramic prosthesis on total hip arthroplasty. Scanning. 2022; 2022: 2421723.

[7] Zhu L, Li L, Yin B, Jiang X, Peng H, Hou X. Effect of continuous nursing combined with salcatonin on postoperative pains in elderly patients after hip replacement. American Journal of Translational Research. 2021; 13: 5264–5271.

[8] Ping H, Ling X, Xue Y, Dong F. Effect of ERAS combined with comfortable nursing on quality of life and complications in femoral neck fractures of the aged people. Evidence-Based Complementary and Alternative Medicine. 2021; 2021: 8753076.

[9] Zhao X, Bai R, Yang J. Effect of painless rehabilitation nursing for hip replacement patients. Computational and Mathematical Methods in Medicine. 2022; 2022: 5164973.

[10] Goltz DE, Ryan SP, Attarian DE, Jiranek WA, Bolognesi MP, Seyler TM. A preoperative risk prediction tool for discharge to a skilled nursing or rehabilitation facility after total joint arthroplasty. The Journal of Arthroplasty. 2021; 36: 1212–1219.

[11] Mao S, Lu H, Zhang Y, Yu J, Li X, Peng J, *et al*. Evaluation of psychosocial pathways to family adaptation of Chinese patients with liver cancer using the Mccubbin's family resilience model. Front in Psychiatry. 2021; 12: 703137.

[12] Jimenez-Murcia S, Granero R, Gimenez M, Del Pino-Gutierrez A, Mestre-Bach G, Mena-Moreno T, *et al*. Contribution of sex on the underlying mechanism of the gambling disorder severity. Scientific Reports. 2020; 10: 18722.

[13] Meng X, Yu Y. Effect of rehabilitation nursing under the guidance of the health action process approach model on perioperative nursing effect of artificial hip arthroplasty: effect on promoting quality of life and postoperative rehabilitation. Computational and Mathematical Methods in Medicine. 2022; 2022: 1247002.

[14] Yu P, Shen L, Tang J, He S. Perioperative nursing study of the operating room for autologous stem cells in the treatment of necrosis of the femoral head. The Journal of the Pakistan Medical Association. 2020; 70: 145–148.

[15] Mathuba W, Deer R, Downer B. Racial and ethnic differences in the improvement in daily activities during a nursing home stay. Journal of the American Geriatrics Society. 2022; 70: 1244–1251.

[16] Cheng D, Long X, Li W. Effect of evidence-based nursing on lower limb thrombosis and negative emotion after hip arthroplasty. To be published in Minerva Surg. 2022. [Preprint].

[17] Guo J, Zhao X, Xu C. Effects of a continuous nursing care model on elderly patients with total hip arthroplasty: a randomized controlled trial. Aging Clinical and Experimental Research. 2022; 34: 1603–1611.

[18] Statescu C, Gavrila BI, Deaconu A, Traistaru RM, Balseanu TA. Hip joint abnormalities during midstance in osteoarthritic patients. Current Health Sciences Journal. 2021; 47: 361–366.

[19] Kallies K, Dillingham TR, Edelstein A, Hume E, Polsky D, Schwartz R, *et al*. The effect of CMS's comprehensive care for joint replacement bundled payment model on trajectories of post-acute rehabilitation care after total hip arthroplasty. Archives of Physical Medicine and Rehabilitation. 2022; 103: 2398–2403.

[20] Kozaki T, Hashizume H, Taniguchi T, Nishiyama D, Iwasaki H, Tsutsui S, *et al*. S2 alar-iliac screw loosening as a preventive factor for hip joint osteoarthritis after adult spinal deformity surgery: a case-control study. European Spine Journal. 2022; 31: 3081–3088.

[21] Nishimura T, Miyachi R. Relationship between low back pain and lumbar and hip joint movement in desk workers. Journal of Physical Therapy Science. 2020; 32: 680–685.

[22] Chiang LY, Lin PC. Follow-up study of joint function and quality of life in patients after total hip arthroplasty. Journal of Nursing. 2021; 68: 44–53. (In Chinese)

[23] Longo UG, De Salvatore S, Piergentili I, Indiveri A, Di Naro C, Santamaria G, *et al*. Total hip arthroplasty: minimal clinically important difference and patient acceptable symptom state for the forgotten joint score 12. International Journal of Environmental Research and Public Health. 2021; 18: 2267.

[24] Watson MB, Wood BA, Tubog TD. Utilization of ketamine in total knee and hip joint arthroplasty: an evidence-based review. Journal of PeriAnesthesia Nursing. 2023; 38: 139–147.

[25] Su WC, Lai YC, Lee CH, Shih CM, Chen CP, Hung LL, *et al*. The prevention of periprosthetic joint infection in primary total hip arthroplasty using pre-operative chlorhexidine bathing. Journal of Clinical Medicine. 2021; 10: 434.

How to cite this article: Lingting Bai, Xiaoyan Liu, Ye Li, Jianying Liu, Xing Liu, Qian Li. Effect of the clinical nursing pathway on clinical symptoms, hip joint function, and nursing satisfaction in male patients with artificial hip arthroplasty. Journal of Men's Health. 2023; 19(6): 41-48. doi: 10.22514/jomh.2023.046.