Post-print: Nursing Experience of a Patient Undergoing Bilateral Knee Arthroplasty

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Abstract

This paper summarizes the nursing experience of one patient undergoing bilateral total knee arthroplasty (TKA). After admission, psychological care was provided based on assessment results and preoperative preparation was completed; postoperatively, an individualized enhanced recovery protocol was implemented to prevent complications, early rehabilitation training was guided, regular follow-up was performed, promoting early recovery of the patient.

Full Text

Preamble

Nursing Experience of a Patient Undergoing Bilateral Total Knee Arthroplasty

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Abstract

This article summarizes the nursing management experience for a patient undergoing bilateral total knee arthroplasty (TKA). Following admission, psychological care and preoperative preparation were implemented based on assessment results. Postoperatively, an individualized rapid rehabilitation protocol was carried out to prevent complications, with early rehabilitation guidance and regular follow-up to promote recovery.

Keywords: total knee arthroplasty; health education; Traditional Chinese Medicine nursing; Enhanced Recovery After Surgery (ERAS); transitional care

Introduction

Total knee arthroplasty (TKA) is an effective treatment for knee joint diseases. The majority of TKA patients suffer from osteoarthritis or rheumatoid arthritis that has responded poorly to medication and conservative treatments. Simultaneous bilateral TKA places high demands on surgical technique and nursing care, but can prevent the pain of a second surgery, reduce economic burden, restore normal joint function earlier, and improve patients' quality of life. This article summarizes the nursing experience and is reported as follows.

Clinical Case

The patient was a female, [X] years old, admitted with "right knee pain with severe activity limitation for [X] days" and diagnosed with bilateral knee osteoarthritis. Physical examination revealed: temperature [X]°C, pulse [X] beats/min, blood pressure [X] mmHg, height [X] cm, weight [X] kg, BMI [X] (obese). The patient presented with bilateral knee valgus deformity and limited joint range of motion. Admission VAS score was [X], SAS anxiety score was [X] (indicating mild anxiety), and Barthel Index was [X]. Fall risk assessment score was [X] grade. Neurological examination showed normal sensation and reflexes in all limbs.

Specialized examination revealed tenderness (+), bilateral peripatellar tenderness (+), infrapatellar fat pad tenderness left (-), right (+), medial collateral ligament tenderness left (-), right (+), and bilateral patellar grinding test (+). Imaging examination showed bilateral knee osteoarthritis with clinical manifestations of knee valgus, flexion contracture deformity, and pain, resulting in functional limitations in squatting, stair climbing, and walking. After completing relevant examinations, the patient underwent bilateral knee arthroplasty and received related nursing care. The patient was discharged [X] days postoperatively and followed up for [X] months, having returned to normal life.

Nursing Care

Preoperative Assessment and Psychological Care Upon admission, the patient was assessed for pain level, activities of daily living, and anxiety. The SAS (Self-Rating Anxiety Scale) score was [X], indicating mild anxiety. Negative emotions were primarily related to pain from bilateral knee osteoarthritis and lack of disease knowledge. The responsible nurse provided health education about the surgical procedure, treatment efficacy, postoperative complications, and precautions to help the patient correctly understand the disease and alleviate anxiety and fear.

Traditional Chinese Medicine (TCM) appropriate techniques are important methods for regulating patient emotions. This case integrated TCM concepts into psychological care, employing five-element music therapy and auricular point pressing for intervention. According to TCM theory, the five tones correspond to the five viscera, and the Jue tone (wood) enters the liver, having

calming and mind-settling effects. As recorded in *Lingshu · Kouwen*: "The ear is where all vessels converge." This case combined intradermal needling with auricular point therapy, selecting points based on the principles of strengthening the foundation, unblocking meridians, and calming the mind. Selected points included Hegu (LI4), Neiguan (PC6), Shenmen (HT7), kidney, liver, and endocrine points. Additionally, based on the patient' s TCM syndrome differentiation, customized herbal tea was prepared using the classic formula: three-flower tea with rose [X]g, Chinese rose [X]g, and white plum flower [X]g, which the patient consumed.

Preoperative Preparation Pain Management: The responsible nurse provided education on pain management, informing the patient that scientific use of analgesic measures facilitates recovery and improves pain-related knowledge. Preemptive analgesia was administered as ordered, including oral and intravenous medications. Postoperatively, combined analgesia with local incision ice compress therapy was implemented. Nurses instructed the patient to use the VAS scoring method correctly, with scores >[X] promptly reported to the attending physician for enhanced intervention. Relaxation therapy was guided, with the affected limb elevated and comfortable positioning for rest with appropriate knee immobilization.

Fall Prevention: This patient was at fall risk. The responsible nurse oriented the patient to the ward environment, placed the call button within easy reach, instructed proper use of a walker, reminded the patient to wear anti-slip shoes, and provided dedicated companionship for [X] hours. A fall risk sign was placed at the bedside as a warning. Position changes followed the "three-step" protocol: lie flat for 30 seconds, sit for 30 seconds, then stand for 30 seconds before walking to avoid sudden position changes, especially at night.

Postoperative Rapid Rehabilitation Protocol Following the ERAS concept, passive exercise equipment was provided immediately after anesthesia recovery. The patient used a Continuous Passive Motion (CPM) machine for isokinetic muscle training.

Prevention of Potential Complications:
Infection: To prevent incision infection, nurses regularly inspected the incision site and dressing cleanliness, observing for redness, swelling, or heat. Strict aseptic technique was maintained during dressing changes, nutritional support was enhanced to improve immunity, temperature was monitored [X] times daily, and leg circumference was measured at fixed times by designated personnel.

Deep Vein Thrombosis: To prevent lower extremity DVT, both mechanical and pharmacological prophylaxis were implemented. Mechanical prophylaxis included intermittent pneumatic compression (IPC) devices and wearing appropriately fitted graduated compression stockings (GCS). Pharmacological prophylaxis included subcutaneous low molecular weight heparin calcium injection

and oral rivaroxaban to promote lower extremity circulation, prevent hypercoagulable states, and avoid thrombosis.

On postoperative day [X], bilateral lower extremity drainage was [X] mL, and the drainage tube and urinary catheter were removed. An individualized rapid rehabilitation protocol was then established. Nurses timely assessed and documented the implementation of rehabilitation exercises and pain status to accurately grasp the patient' s postoperative recovery progress.

Postoperative Rehabilitation Exercises Based on the ERAS protocol, rehabilitation exercises were progressively implemented:

Postoperative Day [X]: After anesthesia recovery, nurses guided the patient in ankle pump exercises and active ankle dorsiflexion/plantarflexion to promote circulation. Method: Perform slow, full-range ankle flexion and extension with force, [X] repetitions per set, [X] sets daily until postoperative day [X].

Postoperative Day [X]: Straight leg raise exercises were performed daily. Method: While lying supine, extend the knee and lift the leg straight until the heel reached [X] cm, holding for [X] seconds, [X] repetitions per set, [X] sets daily until postoperative day [X].

Postoperative Day [X]: Bed-supported knee flexion exercises were performed daily. Method: While sitting on the bed, slide the heel toward the buttocks, bending the knee while keeping the sole on the bed surface, [X] repetitions per set, [X] sets daily until postoperative day [X].

Postoperative Day [X]: Knee pressure exercises were performed daily. Method: While sitting on the bed, press both hands crosswise above the operated knee to bring it as close to the bed surface as possible. Customized [X] kg sandbags were placed on both knees for [X] minutes per session until postoperative day [X].

Postoperative Day [X]: Cross-touch foot exercises were performed daily. Method: In a semi-reclining position with lower limbs straight and abducted shoulder-width apart, touch the left foot with the right hand and right foot with the left hand, [X] repetitions per set, [X] sets daily. These exercises were performed cyclically and progressively, with encouragement during training to improve patient compliance and ensure effective exercise.

Nurses utilized the HEALS education assistant to provide systematic functional exercise education, organizing patients and families to watch video explanations of various exercises. The HEALS assistant has online consultation functions with professional medical staff providing answers in the background, achieving extended nursing purposes. Nurses conducted discharge education and telephone follow-up [X] months after discharge.

Discussion

With the development of nursing practice, nursing measures have become more comprehensive and diversified. The nursing strategy in this case combined evidence-based nursing with TCM nursing techniques. Based on TCM theory, five-element music therapy, herbal tea, and auricular point therapy were used to regulate emotions and alleviate anxiety. Evidence-based nursing was also integrated with rehabilitation nursing based on the ERAS concept, implementing pain management, complication prevention, and early knee rehabilitation guidance to promote recovery. The diversified combined nursing approach demonstrated significant advantages in relieving pain, preventing complications, shortening hospital stays, and reducing economic costs, representing an ideal method for promoting postoperative recovery after TKA.

Conflict of Interest Statement: The authors declare no conflict of interest in this article.

References

[1] CAO H, MI L M. Perioperative nursing experience of double knee joint replacement[J]. J Nurses Train, .(in Chinese)

[2] GAO L, MOU S F, YAN S Z, et al. Effect of auricular point sticking combined with five-element music therapy in relieving preoperative anxiety in patients with total knee arthroplasty[J]. J Hunan Univ Chin Med, .(in Chinese)

[3] LIAO P F, CHE D Y, HUANG W L, et al. Efficacy observation of intradermal needling combined with auricular points on generalized anxiety disorder[J]. Shanxi J Tradit Chin Med, .(in Chinese)

[4] DU J, GUO H L, ZHANG Y Z, et al. Application of ice compress combined with acupoint application of traditional Chinese medicine after knee joint replacement[J]. J Clin Med Pract, .(in Chinese)

[5] ZHU M C, YANG Y J, ZHENG C Y, et al. Effect of intermittent inflation compression device combined with sequential compression elastic socks on preventing deep vein thrombosis after joint replacement[J]. Chin J Gerontol, .(in Chinese)

[6] MA J, WU H N, KANG F K, et al. Research progress on prevention of venous thromboembolism after total knee arthroplasty[J]. J Pract Orthop, .(in Chinese)

[7] QIU S. Study on clinical nursing and rehabilitation exercise after simultaneous total knee replacement[J]. Guide China Med, .(in Chinese)

Note: Figure translations are in progress. See original paper for figures.