

Application Value of Evidence-Based Nursing in the Perioperative Care of Ankle Fracture Patients

Lin Wang*

Affiliated Hospital of Hebei University, Baoding 071000, Hebei Province, China

*Corresponding author: Lin Wang, 595930185@qq.com

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To analyze the value of applying evidence-based nursing in the perioperative care of patients with ankle fractures and propose corresponding measures to improve the quality of patient care. *Methods:* The study started in May 2022 and was terminated in March 2023. During this period, 50 patients with ankle fractures treated by our hospital were selected as research subjects. They were divided into a control group and a research group. The control group had 25 patients who received routine care, and the research group had 25 who received evidence-based care. The nursing effects of the two groups were observed and compared. *Results:* The pain scores, quality of life, incidence of adverse reactions, and nursing satisfaction of patients in the research group were all significantly better than those in the control group ($P < 0.05$). *Conclusion:* Evidence-based nursing can effectively improve the quality of care, reduce the risk of adverse reactions, and promote patient recovery, so it is suitable for clinical implementation.

Keywords: Ankle fracture; Perioperative nursing; Evidence-based nursing; Nursing quality

Online publication: November 27, 2023

1. Introduction

An ankle fracture is a fracture of the ankle joint between the tibia and fibula^[1]. An ankle fracture can be caused by a direct or indirect external force on the ankle joint. This external force can be impact, twisting, or impact^[2]. The fracture line can be located at the tibia, fibula, or talus, or it can involve the soft tissue structure of the joint^[3].

Clinical care of patients with ankle fractures is critical to their recovery and quality of life. Evidence-based nursing is a method of clinical decision-making and nursing intervention based on the latest research evidence^[4]. It relies on reliable research findings and evidence-based practices to provide quality care. In the perioperative care of ankle fractures, evidence-based care can provide the medical team with clear guidance to ensure patients receive the best recovery results^[5]. This paper aims to analyze the value of evidence-based nursing in the perioperative care of patients with ankle fractures.

2. Materials and methods

2.1. General information

The study started in May 2022 and was terminated in March 2023. During this period, 50 patients with ankle fractures treated by our hospital were selected as research subjects for analysis. They were divided into a control group and a research group, with 25 patients in each group. The control group consisted of 16 male patients and 9 female patients, aged 23 to 61 years old, with an average age of 35.66 ± 3.46 years. The research group consisted of 13 male patients and 12 female patients, aged 21 to 58 years old, with an average age of 31.45 ± 2.38 years.

Inclusion criteria: (1) Patients over 18 years old, (2) voluntarily participated in this study

Exclusion criteria: (1) Patients who have obvious cognitive dysfunction or mental illness, such as severe dementia or schizophrenia; (2) patients who have received similar or other nursing interventions.

2.2. Methods

The traditional group received routine care: (1) The patients' dressings were changed regularly to keep the wound dry and prevent infection; (2) the exudation of the wound was monitored closely, and the doctors were informed if any abnormalities were found; (3) the patients were encouraged to actively participate in rehabilitation.

The research team underwent evidence-based care. (1) Preoperative preparation: (i) A comprehensive assessment of the patients was carried out, including physical condition, disease history, allergy history, drug history, and family history, to understand the patients' overall conditions. (ii) The surgical process, anesthesia methods, postoperative care, and rehabilitation plan were explained in detail to the patients and their families to enhance their self-care ability and compliance. (2) Perioperative care: (i) The surgeries were conducted under aseptic conditions with a focus on maintaining proper hand hygiene. Wound dressings were regularly changed, and the wound conditions and signs of infection were monitored closely. Antibiotics were administered promptly for both preventive and therapeutic purposes. (ii) Analgesics, over-the-counter drugs, local anesthesia, and analgesic pumps, were administered based on the patients' pain levels, and the effect of the medications was observed closely. (iii) Deep vein thrombosis prevention measures were taken for high-risk patients, such as using elastic bands, surgical anticoagulants, intramuscular anticoagulant drugs, and regularly observing the swelling and pain of the lower limbs. (iv) The patients' nutritional status and postoperative needs were monitored, and the diets were adjusted accordingly to ensure sufficient nutritional intake. Oral supplements or intravenous infusion, were provided when necessary. (v) Patients' position changes were regularly monitored to ensure the appropriate positioning of the surgical site and prevent prolonged compression, thereby reducing the risk of pressure ulcers. Furthermore, the patients received structured rehabilitation training after surgery, including early mobilization, rehabilitation postures, and a combination of passive and active joint exercises, all of which contributed to the improvement of joint function and overall recovery. (vi) The psychological changes of patients were observed and their struggles were actively heard. The patients' were also encouraged to participate in the rehabilitation program actively. (vii) X-rays of the fracture site were taken regularly after surgery to observe the healing of the fracture. The care plan should be adjusted promptly upon communication with the doctors, and individualized recovery plans should be formulated for patients with complications or slow recovery. (3) Postoperative rehabilitation: (i) Appropriate medical interventions were taken based on the patients' conditions, such as surgical treatment, conservative treatment, and physical therapy, to promote the healing of the fracture. (ii) Individualized rehabilitation exercise plans were developed according to the needs of the patients, including muscle strength exercises, balance training, and joint exercises, so as to improve

muscle strength and joint mobility. (iii) Functional training is carried out according to the rehabilitation goals, such as standing, walking, going up and down stairs, and other activities, to help patients perform their daily activities. (iv) Auxiliary equipment like crutches, walkers, and braces were reasonably used to provide stable support and help patients regain their ability to walk. (iv) Patients were provided with life guidance, including safe techniques for getting in and out of bed and precautions related to daily activities. This guidance aimed to facilitate a quicker recovery and minimize the risk of recurrence.

2.3. Observation indicators

- (1) The pain levels of the two groups of patients were recorded and compared. The total pain evaluation score was 10 points. The higher the score, the more severe the pain.
- (2) Quality of life: The E-S-QUAL scale, which contained 43 evaluation items, was used to evaluate the quality of life of the two groups of patients before and after treatment. The scores were positively correlated with the patient's quality of life.
- (3) The incidences of adverse reactions in the two groups of patients were recorded and compared.
- (4) The nursing satisfaction of the two groups of patients was compared: satisfaction rate = (very satisfied + satisfied)/total cases × 100%.

2.4. Statistical analysis

The measurement data (t) and computational resources (χ^2) in this project were analyzed using SPSS 22.0. Measurement data were presented as (mean ± standard deviation), and count data were expressed as (n [%]). A statistically significant difference was considered when ($P < 0.05$).

3. Results

3.1. Pain score

The pain scores of the patients in the research group were lower than those in the control group, and the difference was statistically significant ($P < 0.05$), as shown in **Table 1**.

Table 1. Pain scores of the two groups of patients (mean ± standard deviation, points)

Group	Number of cases	Pain score
Control group	25	5.72 ± 1.42
Research group	25	4.79 ± 1.25
t	–	2.458
P	–	0.018

3.2. Quality of life scores

There was no significant difference in the quality-of-life scores of the two groups of patients before nursing ($P > 0.05$). After nursing, the quality-of-life scores of the patients in the research group were higher than those of the control group ($P < 0.05$), as shown in **Table 2**.

3.3. Incidence rate of adverse reactions

The incidence rate of adverse reactions in the study group was significantly lower than in the traditional group ($P < 0.05$), as shown in **Table 3**.

Table 2. Comparison of the quality of life scores between the two groups of patients (mean ± standard deviation, points)

Group	Number of cases	Physiological function		Physiological function		Emotional function		Mental health	
		Before care	After care	Before care	After care	Before care	After care	Before care	After care
Control group	25	64.88 ± 5.34	81.86 ± 4.29	68.51 ± 5.85	83.83 ± 3.11	63.74 ± 5.22	80.19 ± 4.04	66.21 ± 5.33	83.68 ± 4.63
Research group	25	64.81 ± 5.36	86.39 ± 3.28	68.54 ± 5.83	87.74 ± 3.52	63.24 ± 5.19	86.84 ± 3.81	65.88 ± 5.29	87.89 ± 3.04
<i>t</i>	–	0.046	4.194	0.018	4.162	0.339	5.988	0.219	3.800
<i>P</i>	–	0.963	0.000	0.986	0.000	0.736	0.000	0.827	0.000

Table 3. The incidence rate of adverse reactions in the two groups of patients (*n* [%])

Group	Number of cases	Muscle atrophy	Infection	Ankylosis	Incidence
Control group	25	2 (8.00)	4 (16.00)	1 (4.00)	7 (28.00)
Research group	25	0 (0.00)	1 (4.00)	0 (0.00)	1 (4.00)
χ^2	–	–	–	–	5.357
<i>P</i>	–	–	–	–	0.021

3.4. Nursing satisfaction

The patient care satisfaction rate of the study group was better than that of the traditional group, and the difference in data was statistically significant ($P < 0.05$). See Table 4 for details.

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

Group	Number of cases	Very satisfied	Satisfied	Not satisfied	Satisfaction rate
Control group	25	7 (28.00)	9 (36.00)	9 (36.00)	16 (64.00)
Research group	25	16 (64.00)	8 (32.00)	1 (4.00)	24 (96.00)
χ^2	–	–	–	–	8.000
<i>P</i>	–	–	–	–	0.005

4. Discussion

An ankle fracture is a fracture of the talus or tibia and ankle bone at the end of the lower limb. It is a common type of fracture. Since the ankle joint is one of the main weight-bearing joints in the human body, patients with ankle fractures require extra care during the perioperative period [6].

Evidence-based nursing is a model that decisions and practices are made based on scientific evidence. It ensures that patients receive the best treatment and nursing results. Evidence-based care has many advantages over routine care in the perioperative care of patients with ankle fractures.

Firstly, evidence-based nursing requires nursing staff to make decisions based on the latest research results when formulating care plans and performing care operations and avoid making decisions based on experience or subjective opinions. In the perioperative care of ankle fractures, evidence-based care can help caregivers choose the best care methods and operating procedures to improve patient outcomes and reduce complications [7].

Secondly, evidence-based nursing focuses on individualized care and integrates patients' needs and values into the care process. Every ankle fracture has different needs, and traditional routine care may only meet some

of their needs. Evidence-based nursing includes the assessment of the patient's physical, psychological, and social conditions, and a personalized care plan is developed for each patient, so as to better meet their needs [8].

In addition, evidence-based nursing focuses on evaluating and improving nursing effects, which can help nursing staff detect problems in time and take appropriate measures. By evaluating the nursing process and results, the nursing effect can be understood promptly, and the nursing plan can be adjusted and improved when necessary [9]. For patients with ankle fractures, evidence-based care can help caregivers detect and deal with postoperative complications in advance to avoid severe consequences [10].

Finally, evidence-based care promotes teamwork and multidisciplinary collaboration, which can improve the overall outcome of perioperative care for patients with ankle fractures. In evidence-based nursing, nurses are no longer independent decision-makers and executors but work closely with other medical staff to formulate and implement care plans. Through teamwork and multidisciplinary collaboration, the efficiency and quality of nursing work can be effectively improved, and mishaps can be reduced.

5. Conclusion

In summary, evidence-based nursing can effectively improve the quality of care, reduce the risk of adverse reactions, and promote patient recovery, so it is suitable for clinical implementation.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Sun X, 2021, Analysis of the Application Value of the Evidence-Based Nursing Model in Perioperative Patients with Ankle Fractures. *Diet and Health Care*, 1(8): 140.
- [2] Jiang X, 2022, Application of Evidence-Based Nursing Intervention in the Perioperative Period of Patients with Ankle Fractures. *Chinese Journal of Metallurgical Industry Medicine*, 39(4): 483–484.
- [3] Zhang W, Leng M, Hou D, Hu Q, Li M, 2020, Analysis of the Application Effect of Evidence-Based Nursing Concepts in Patients with Foot and Ankle Fractures. *Medical Theory and Practice*, 33(18): 3100–3102.
- [4] Hou K, 2020, Application Value of Evidence-Based Holistic Nursing in the Perioperative Period of Orthopedic Surgery. *Health Friends*, 1(21): 157.
- [5] Hu Y, Jiang F, 2022, Analysis of the Application Effect of Evidence-Based Nursing Concepts in Patients with Foot and Ankle Fractures. *Chinese Science and Technology Journal Database (Full-Text Version) Medicine and Health*, 1(3): 87–89.
- [6] Wu P, 2021, Evaluation of the Effect and Satisfaction of Evidence-Based Nursing in the Perioperative Period of Patients with Ankle Fractures. *Journal of Aerospace Medicine*, 32(6): 724–725.
- [7] Yin Y, Sun Y, Fang Z, 2020, Analysis of the Effects of Perioperative Nursing Interventions in Patients with Ankle Fractures. *The World's Latest Medical Information Abstracts (Continuous Electronic Journal)*, 20(29): 264 + 266.
- [8] Hao H, Xue M, Zhou X, et al., 2022, The Actual Effect of Evidence-Based Nursing Combined with A Rapid Recovery Model in Perioperative Care of Foot and Ankle Fractures. *Electronic Journal of Foot and Ankle Surgery*, 9(4): 60–64.
- [9] Xu Y, 2020, Application of Holistic Nursing Based on Evidence-Based Concepts in Postoperative Pain and Recovery of Ankle and Hindfoot Functions in Patients with Fractures Around the Ankle Joint. *Shanxi Medical Journal*, 49(19):

2699–2701.

- [10] Ji J, Liu Q, 2020, The Application Value of Evidence-Based Holistic Nursing in the Perioperative Period of Orthopedic Surgery. *Electronic Journal of Practical Clinical Nursing*, 5(12): 59–60.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.