

Impact of Comprehensive Nursing on Proximal Humeral Fracture Treated with Locking Plate through Subacromial Small Incision

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ARTICLE INFO

Article history:

Published online: 30th Nov, 2017

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Key words:

Locking plate
Subacromial small incision
Proximal humeral fracture
Comprehensive nursing
intervention

ABSTRACT

Objective: Probe into the impact of comprehensive nursing intervention on clinical efficacy of 45 cases of patients with proximal humeral fracture treated with locking plate through subacromial small incision. **Method:** equally divide 90 cases of patients with proximal humeral fracture into an observation group and a control group in a random manner. Both of the two groups were treated with locking plate through subacromial small incision. Give routine orthopedic nursing to the control group, while implementing comprehensive nursing intervention on the basis of routine orthopedic nursing to observation group, including mental intervention, comfortable nursing, recovery nursing, etc. Compare the nursing efficacy of the two groups. **Result:** operations were completed in small incision to cases of both groups. By adopting Constant scoring method and ASES and through statistical treatment, the differences in blood loss, operation time and duration of postoperative pain of patients with those applying traditional internal plate fixation, replacement of the humeral head and treatment with locking plate through deltoid & pectoralis major have statistical significance ($P < 0.05$). The duration of postoperative pain of patients is shortened and the blood loss is less. **Conclusion:** implementing the comprehensive nursing intervention to patients with proximal humeral fracture treated with locking plate through subacromial small incision can improve the treatment effect, alleviate the postoperative pain, lower the occurrence rate of complications, and improve prognosis as well as life quality. The clinical effect is satisfying.

Introduction

Comprehensive nursing intervention refers to a series of nursing activities according to the interventional methods predetermined and under the guidance of nursing diagnosis. Nurses determine the nursing intervention

measures based on the features of nursing diagnosis, results of nursing research, potential of patients in functional recovery as well as the ability of patients and nurses. The priority of a patient's health problems decides the type of intervention.^{[1]-[2]} Comprehensive nursing intervention measures can help patients reach the predetermined goal and prevent complications; promote,

keep or recover the physiological and mental functions of patients. Comprehensive nursing intervention measures mainly contain recovery treatment environment establishment, recovery nursing technique implementation, mental support and consultation, introducing the patient to other recovery members, recovery activities taught by other recovery members, the continuity of recovery activities maintenance, hospital discharge follow-up, etc. Proximal humeral fracture is one of the common fractures which accounts for 4% - 5% of whole-body fracture. It is common in clinical work and particularly often occurs in gerontal patients. These elders are usually with osteoporosis that mainly is accompanied with comminuted fracture which is relatively difficult for treatment. Usual clinical symptoms of proximal humeral fracture contain swelling of the shoulder, pain and limitation of motion. From June 2010 to June 2013, there were nearly 90 cases of proximal humeral fracture, including 56 male patients and 34 female patients who were 39 - 74 years old and 65 on average.^[3] We gave comprehensive nursing intervention to 45 cases of patients with proximal humeral fracture treated with locking plate through subacromial small incision and gained satisfactory results, and they are now reported as below:

1 Data and Methods

1.1 Clinical Data

Choose 90 patients with proximal humeral fracture who received treatment in our hospital from June 2010 to June 2013 as the object of study, including 56 male patients and 34 female patients whose ages are from 39 - 74 and 65 on average.^[4] Definite diagnoses are made via CT or X-ray. Equally divide them into an observation group and a control group in a random manner. There are 28 male patients and 17 female patients in the observation group whose ages are 39 - 74 and the average is 65; causes of injury: 12 patients of injury caused by traffic accident, 19 patients of falling injury when walking, 8 patients of falling injury when driving non-motor vehicle and 6 patients of injury by falling from high place. Types of fracture based on Neer classification: 7 patients of two part fractures, 24 patients of three part fractures and 14 patients of four part fractures.^{[5]-[6]} The duration of injury to operation time is 3 - 9 d and the average is 5.4 d. There are 35 male patients and 10 female patients in the control group whose ages are 28 - 70. Causes of fracture: 24 patients caused by traffic accident, 13 patients caused by falling injury, 7 patients of falling injury when driving non-motor vehicle and 1 patient caused by other reasons. The comparative difference in general data of two groups of patients has no statistical significance ($p > 0.05$).

1.2 Method

1.2.1 For the Control Group

Adopt brachial plexus block anesthesia or general anesthesia, lateral position with up affected shoulder, touch the acromion at the affected side, get subacromial anterolateral vertical incision (3 - 5 cm), cleave bluntly the deltoid (length no more than 5 cm), isolate the separated deltoid to both sides to expose the bursae subdeltoidea, carry out fracture fixation under X-ray fluoroscopy; after douching to hemostasis, place a drainage tube at subacromial incision, close the incision layer by layer, suspend the affected side with a triangular bandage, and give conventional intravenous infusion of antibiotics after the operation. Carry out elbow and wrist extension and flexion activity within 24 h after operation and give routine orthopedic nursing during and after the operation.^[7]

1.2.2 For the Observation Group

The operation solution is the same with the control group; meanwhile, give patients comprehensive nursing intervention: (1) Admission nursing: nurses should timely learn about the patient's condition after admission, appraise the patient's vital signs and set out specific comprehensive nursing measures like guiding the patient to take correct posture and build venous access for patients in critical condition, and treat with peripheral vein or deep vein catheterization and so on when necessary. As for the emergency operation patients, such preoperative preparations as skin preparation, blood matching, drug allergy test and mental nursing should be made. Carry out oxygen therapy to ensure the airway unobstructed when necessary. (2) For complete preparations before operation: enhance diet guide and mental nursing. On the day before determining the operation, nurses should learn about the mental changes and status of patients, carry out specific psychotherapy to patients, try to satisfy their physiological and psychological needs, explain and provide knowledge and attentions related to the operation and various treatments, do everything to remove the patient's fear and nervousness and worry, alleviate their stress reaction before the operation and let them actively cooperate with the operation. (3) For postoperative nursing: nurses should enhance their inspection of patients, observe carefully if there is errhysis, swelling or pain at the incision. If there is limited sensation abduction of shoulder, blunt senses or disappearance, it may show the occurrence of injury of axillary nerve. Should this happen, doctors should be informed immediately for treatment, observing closely the blood supply and circulation of finger tips of patients' affected limb, paying attention to the temperature, color

and radial artery pulse, as well as the factors causing vasospasm, preventing as soon as possible, and then further lessening the risk of thrombosis and occurrence of syndrome. (4) Recovery nursing: early and proper functional exercises can effectively prevent complications from occurring and make the operation to reach the expected effect.^[8] After awaking from anesthesia, guide patients to exercise motions like extending and grasping of fingers and elbow and wrist extension and flexion at the affected side. 2 - 3 days after operation, on the basis of active movement of elbow and wrist joints, move passively the shoulder joint. After three weeks, start active anteflexion and backward extension and abduction of the shoulder joint. Gradually extend the range of activity and increase step by step the muscle force of deltoid and rotator cuff by adopting low load, high repetition. Establish follow-up guidance system of the hospital. The follow-up time ranges from 6 months to 2 years and the average is 12.8 months. Make functional exercise prompting card, supervise and urge patients to exercise actively to recover the limb function.

1.3 Observational Index and Judgment Standard

Collect and sort the data of patients of the 2 groups: (1) Compare the clinical nursing efficacy of two groups, record three evaluation indexes of operation time, blood

loss during the operation, and duration of pain after the operation. Follow and observe such clinical indexes as range of motion, pain and deltoid force of the fracture site after the operation. According to Constant and ASES scoring methods, the total score is 100, among which the range of motion, deltoid force, daily living and pain respectively accounting for 40%, 25%, 20% and 15%. Excellent: above 90; good: 80 - 90; passing: 70 - 80; poor: below 70. Total effective rate = (excellent cases + good cases) / total observed cases × 100%. (2) By contrastive study of operation time, blood loss during the operation, duration of pain after the operation and through statistical treatment, the differences have statistical significance ($P < 0.05$). The duration of postoperative pain of patients is shortened. (3) Compare the postoperative complications of two groups, which includes malunion, brachial thrombosis, osteofascial compartment syndrome, radial postoperative nerve palsy, postoperative infection, etc.^[9]

1.4 For Statistical Analysis

SPSS13.0 statistical software is adopted for analysis; the enumeration data are expressed in percentage; χ^2 inspection is used, and the difference that P is less than 0.05 is of statistical significance.

2 Results

Table 1 Different Nursing Results with Various Nursing Methods - Comparison of Operation Time, Blood Loss and Postoperative Pain

Group n	Operation time	Blood loss	Duration of postoperative pain
Observation group (45)	80 - 120 min	160 - 280 ml	5 - 7 d
Control group (45)	40 - 80 min	90 - 160 ml	3 - 4 d

Note: $p < 0.05$ by comparing with the control group

2.2 Comparison of postoperative complication occurrence of two groups

3 Discussion

Proximal humeral fracture is one of the common fractures which accounts for 4% - 5% of whole-body fracture. It is common in clinical work and particularly often occurs in gerontal patients. These elders are usually with osteoporosis that mainly is accompanied with comminuted fracture which is relatively difficult for treatment. Conservative treatment and traditional internal fixation

have such weaknesses as long fixation time, liable to shoulder joint adhesion, nonunion and radial nerve damage, which can't satisfy the patients. With the development of medical technology, the application of locking plate is more and more extensive.^[10] It conforms better to the principles of biomechanics with small incision and trauma, short operation time, less bleeding, firm fixation and quick easement of pain, which is beneficial to functional exercise at early stage. Its efficacy is definite and the requirements to apparatus and operating room conditions are not high. The operational approach is easy to master as well and the cost is lower. It is easily accepted by patients.

Table 2 Comparison of Postoperative Complication Occurrence Rate of Two Groups (%)

Group n	Malunion Case %		Case of osteofascial compartment syndrome %		Case of postoperative nerve palsy %		Case of brachial thrombosis %		Postoperative infection Case %	
Observation group 45	1	2.1	0	0.00	1	2.22	2	4.44	0	0.00
Control group 45	2	4.44	3	6.67	6	13.3	5	11.1	2	4.44

Note: $p < 0.05$ by comparing with the control group

Our department, by combining with comprehensive nursing intervention measures at the same time of adopting locking plate treating proximal humeral fracture, gives comprehensive nursing intervention as early as possible to the mentality, diet and activity of patients. Patients tend to have negative emotions like anxiety, fear and resistance. At this moment, nurses should give patients effective psychological counseling to let them keep a positive attitude. Nurses can make exercise plan based on patients' actual situation to help them recover functions and lower the occurrence rate of complications. In early training, nurses may let patients exercise with the help of CPM machine to avoid joint inactivation and muscle atrophy. With the improvement of patients' condition, sport items and amount of training can be increased to promote the recovery of patients and improve their confidence.

In conclusion, it is reliable to adopt internal fixation with locking plate treating proximal humeral fracture. Comprehensive nursing intervention measures can shorten the fracture healing time, improve the shoulder joint function, lessen complications and effectively improve patients' satisfaction of nursing. It has a positive significance in improving the living quality and condition of patients, thus improving the clinical efficacy and shortening the length of stay. It is also beneficial to prognosis of patients and worthy of popularization and application in clinical nursing.

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