COMPARATIVE ANALYSIS OF THE APPLICATION VALUE OF DIFFERENT NURSING MODELS IN ELDERLY PATIENTS WITH OSTEOPOROTIC FEMORAL FRACTURES

Lei Wang[1], Manli Tian[2], Yinghui Tan[3*]
[1]International Clinic Department, Qingdao Municipal Hospital, Qingdao, 266000, China - [2]Psychology Department, Qingdao Municipal Hospital, Qingdao, 266000, China - [3]Urology Department, Qingdao Municipal Hospital, Qingdao, 266000, China

ABSTRACT

Introduction*: This study aims to compare specific effects of evidence-based nursing care and routine nursing on elderly patients with osteoporotic fractures.*

Methods*: A total of 180 patients with osteoporotic fractures treated in our hospital, from March 2013 to March 2016, were selected as the study subjects. A randomized double-blind method was used to divide the mentioned patients into two groups, with 90 patients in each group. The observation group received evidence-based nursing interventions, while the control group received routine nursing interventions. Specific effects of the two different nursing approaches were compared in terms of complications during nursing and hospital stay, as well as the fracture healing rate.*

Results*: Based on statistics and follow-up visits, 7 patients of the observation group had complications during hospitalization with the probability of 7.78%. Besides, 28 patients in the control group had different degrees of complications with the probability of 31.11%. There was a statistically significant difference between the two groups ($P < 0.05$). The average hospital stay was (15.35 ± 2.73) and (28.56 ± 3.75) days for the observation group and the control group, respectively. However, the former was significantly shorter than the latter. Thus, there was a statistically significant difference between the 2 groups ($P < 0.05$). The rate of fracture healing was 98.89% (89/90) and 81.11% (73/90) for the observation group and the control group, respectively. However, the former was significantly superior to the control group. In this respect, there was a statistically significant difference between the two groups ($P < 0.05$).*

Conclusion*: The evidence-based nursing interventions had positive effects on the elderly patients with osteoporotic fractures, with a higher rate of fracture healing. This could help the patients restore their health in a shorter time. Therefore, this nursing method has a wide application value in clinical practice.*

Keywords: *Elderly patients, Osteoporotic femoral fractures, Evidence-based nursing care, Routine nursing care, Nursing effect.*

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Introduction

Osteoporotic fractures are the most common and serious complication of osteoporosis. Due to the bone mass decrease, bone microstructure damage, trabecular bone destruction, cortical bone thinning, increased brittleness, and stress below the fracture threshold in the elderly, there is an increased risk of bone fractures. The incidence of bone fractures is closely related to the decrease in bone density, with bone mineral density in patients with osteoporosis being significantly reduced. Osteoporotic spine fractures mostly occur in the absence of strong external forces. For instance, this could happen in daily activities, such as reversing the body, holding objects, opening windows, coughing, or ride vibrations[(1)]. Attacks suddenly accompany increased pain, yet some patients have no pain. However, some patients have spontaneous fractures in the absence of external forces. Hip fractures and distal radius fractures are mostly caused by falls. Clinical research and statistical results show that the incidence of male fractures begins to rise from age 65, while this figure begins to rise from age 45 in females. Female fractures account for 85% of the total fractures. The risk of various types of osteoporotic fractures

is estimated to be 30-40% in females and 10-15% in males. Fractures occur in fixed parts. Predilection sites of fractures include the thoracic spine, lumbar vertebrae (vertebral compression fractures), hips (proximal femur fractures), the distal radius (Colles fractures) and ankles. In osteoporotic fractures, spinal fractures, hip fractures, and distal radius fractures are most common ones[2].

In recent years, due to the rising trend of population aging, clinical fractures (Fig. 2) caused by osteoporosis (Fig. 1) have gradually increased[3]. Moreover, for reasons such as not paying attention to diet and calcium supplements in daily lives, not taking exercise, and other issues, patients suffer greater pain during treatment. Fractures caused by osteoporosis seriously threaten physical and mental health of the elderly and affect their quality of life.

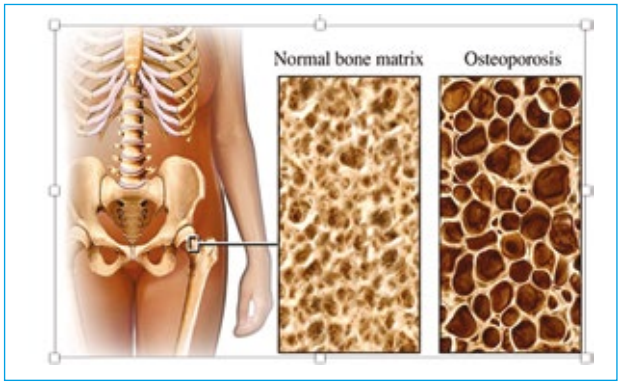

Fig. 1: Osteoporosis compared to normal bone.

Fig. 2: Elderly osteoporotic fractures.

In terms of the rate of morbidity, mortality, and medical care costs, osteoporosis is after cardiovascular and cerebrovascular diseases. Many elderly patients with osteoporotic fractures do not show a high level of cooperation and compliance with medical care during treatment, which reduces the nursing effect[4]. Ma and Han, through clinical analyses, found out that different nursing models for elderly patients with osteoporosis had significantly different nursing effects. Besides, they discovered that the routine nursing model could not meet requirements for improving nursing satisfaction[5-6]. To further improve the level of healthcare in China, the present research selected a total of 180 patients who were divided into two groups for evidence-based care and routine care. It turned out that evidence-based care achieved more satisfactory results. For further details, refer to the following figures.

Materials and methods

General information

The selected subjects were 180 cases of elderly patients with osteoporotic fractures treated in our hospital from March 2013 to March 2016. These subjects were divided into two groups according to a randomized double-blind method. In the observation group, there were 49 males and 41 females, with the mean age of (72.5 ± 4.6) years. In the control group, there were 51 males and 39 females, with the mean age of (73.6 ± 4.2) years. There was no statistically significant difference between the two groups in terms of general treatment ($P > 0.05$). In addition, the results were reliable.

Fig. 3: Elderly osteoporotic spine compression fractures.

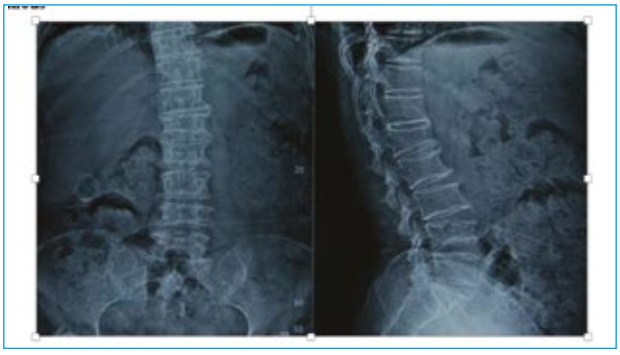

Fig. 4: Elderly osteoporosis and pathological vertebral compression.

All patients met clinical diagnostic criteria for osteoporotic fractures in the elderly. After the imaging examination (Fig. 3 and Fig. 4), the patients

were briefed on the purpose and significance of this comparative study of nursing and voluntarily accepted the corresponding nursing model. Besides, they signed informed consent forms. This study was reviewed and approved by the Ethics Committee.

Nursing methods

The control group was treated with routine nursing care. The main nursing measures included diet nursing, ward environment nursing, and postural nursing. Meanwhile, the patients' conditions were observed, with education of health knowledge provided.

The observation group was treated with the evidence-based nursing model. The main nursing contents included:

• Setting up an evidence-based nursing group and improving the training of the nursing staff so as to make them aware of basic concepts and methods of evidence-based nursing care. The nurses were required to make detailed analysis of the patients' clinical data and medical records to carefully observe actual conditions of the patients to work out a nursing care plan;

• Looking for evidence and searching for relevant nursing information on databases, such as Wanfang, HowNet, and the like, to adopt practical nursing measures[7] while considering the nursing staff's experiences in nursing;

• Practicing nursing, adopting differentiated and targeted care measures for patients' personalized features, and providing all-round psychological care, diet care, and early functional exercise care to alleviate patients' psychological pressure. Among other measures, one could refer to training patients in developing healthy eating and personal hygiene habits, instructing patients to do rehabilitation exercises to promote early healing of fracture sites, providing health education to patients to enhance their knowledge of the disease, and inviting successfully treated patients to make them explain their treatment process, precautions in treatment, and rehabilitation after treatment to enhance their confidence in treatment[8, 9];

• Carrying out nursing evaluations, making a comprehensive assessment of nursing effects based on nursing objectives after the end of nursing care, analyzing focal points and difficulties in the nursing process, listening to patients' feedback on care, appropriately adjusting nursing measures, as well as identifying and fixing problems in the nursing measures to improve quality of care[10].

Clinical observation indicators

To compare specific effects of the two different nursing modes in terms of complications in the nursing period, hospital stay, and the fracture healing rate, we used questionnaires to compare the nursing satisfaction level in the two groups.

Statistical methods

In this study, to determine the clinical value of the two different nursing methods of evidence-based nursing care and routine nursing care in elderly patients with osteoporotic femoral fractures, SPSS 17.0 was used to analyze the data. The count data were expressed by (n, %) and tested by a chi-square test. Besides, the measurement data were expressed by ($\bar{x}\pm s$) and tested by t. Only when $P < 0.05$, the difference would be considered statistically significant.

Results

Statistics and follow-up visits showed that 7 patients in the observation group had complications during hospitalization with the probability of 7.78%. In addition, 28 patients in the control group had different degrees of complications, with the probability of 31.11%. The difference was found to be statistically significant ($P < 0.05$).

Comparison of complications in the two groups is shown as Table 1.

Complication type	Observation group	Control group	X^2	P
Joint stiffness	2	9	4.745	0.029
Avascular Necrosis	1	7	4.709	0.029
Deep vein Thrombosis	4	12	4.390	0.036

Table 1: Comparison of complications in the two groups [(n, %), n = 90]res.

The average hospital stay was (15.35 ± 2.73) days for the observation group and (28.56 ± 3.75) days for the control group. However, the former was significantly shorter than the latter. Besides, there was a statistically significant difference between the two groups ($P < 0.05$).

Comparison of the recovery time between the two groups is shown as Table 2.

Group	Average hospital stay/d	Simple activity time/month
Observation group	15.35±2.73	5.35±0.88
Control group	28.56±3.75	4.12±0.82
t	27.018	9.701
P	0.000	0.000

Table 2: Comparison of the recovery time between the two groups [($\bar{x}\pm s$), n = 90].

The rate of fracture healing was 98.89% (89/90) and 81.11% (73/90) in the observation group and in the control group, respectively. Accordingly,

the observation group was significantly superior to the control group in this respect. The difference between the two groups was statistically significant (P < 0.05). The nursing satisfaction level was 98.89 (89/90) in the observation group and 77.78% (70/90) in the control group. Thus, the difference between the two groups was statistically significant (P < 0.05).

Comparison of nursing effects of the two groups is shown as Table 3.

Group	Rate of fracture healing	Nursing satisfaction
Observation group	98.89%(89/90)	98.89%(89/90)
Control group	81.11%(73/90)	77.78%(70/90)
X^2	8.049	17.936
P	0.000	0.000

Table 3: Comparison of nursing effects of the two groups [(n, %), n = 90].

Discussion

Recent years have been witnessing continuous improvements and developments in clinical care methods and concepts, with better nursing services provided to patients in clinics. Meanwhile, patients have been expecting more demanding requirements to be met by nursing services[11]. Due to the gradual degradation of body functions in elderly patients, there is a greater difficulty in the nursing process. If the degradation is not handled properly, patients and their families will be dissatisfied. In this case, patient satisfaction decreases, which leads to disputes between hospitals and patients, being very unfavorable for both patient treatment and hospital development[12, 13].

In this study carried out on the nursing process for elderly patients with osteoporotic fractures, our hospital provided sound evidence-based care to the observation group through treatment analyses and discussion about nursing measures. In the evidence-based care, the nursing staff combined scientific findings, clinical experience, and patient desire in the process of planning care activities quite carefully, clearly, and intelligently. This was done to obtain evidence as the basis for decision-making in clinical care, being an essential link between evidence-based medicine and healthcare[14-15]. According to the results of this study, hospital stay and activity time of the observation group were significantly less than those of the control group. Besides, postoperative rehabilitation complications of the observation group were significantly less than those of the control group, and nursing satisfaction was significantly higher in the observation group than that in the control group. In fact, the differences were statistically significant (P < 0.05). This finding is highly consistent with results from the nursing research by Cui Ying and Wang Tao, which proves the value of evidence-based nursing in clinical practice[16-20].

Conclusion

In summary, specific effects of evidence-based nursing interventions are significantly stronger than those of routine nursing interventions in elderly patients with osteoporotic fractures. Evidence-based nursing interventions could help shorten the time of fracture healing and improve nursing satisfaction among patients. It is recommended that these interventions be widely used in clinical care.

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Corresponding Author:
Yinghui Tan
Email: tyh219@163.com
(China)