

Comprehensive effect of nursing intervention in perioperative elderly patients with femoral neck fracture: role of serum inflammatory mediators.

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Abstract

Objective: To study the effect of comprehensive nursing intervention on inflammatory factors level of serum in elderly patients with the surgery for femoral neck fracture.

Methods: A total of 70 elderly patients with the surgery for femoral neck fracture treated in Affiliated Hospital of North Sichuan Medical College from July 2016 to July 2017 were selected as the study objects. According to different nursing methods, they were divided into control group of 40 cases, in which routine nursing was given and experimental group of 30 cases, in which comprehensive nursing intervention was implemented. Clinical effects on nursing satisfaction and psychological condition were compared between the two groups with the comparative analysis on inflammatory factors before and after treatment.

Results: After the nursing intervention, the nursing satisfaction score (93%) and The European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire-Core 30 (QLQ-C30) score (75.70 ± 9.60) of the experimental group were significantly higher than those of the control group, of which were 60% and 53.33 ± 9.70 respectively ($P < 0.05$). Compared with the control group, the experimental group had a lower score in psychological status and a lower level of Interleukin 4 (IL-4) as well as C-Reaction Protein (CRP) in serum ($P < 0.05$).

Conclusion: Comprehensive nursing has significant effects in the elderly patients with the surgery for femoral neck fractures, which can effectively improve the quality of life and satisfaction of nursing, improve the patients' psychological status and reduce levels of inflammatory factors in serum of a certain value in clinical application and research.

Keywords: Femoral neck fracture, Comprehensive nursing, Elder.

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Introduction

Femoral neck fracture is a common disease in the elderly and is commonly treated by surgery. Femoral neck fractures in the middle aged and elderly are results of osteoporosis, frail femoral neck bones, and accidents in daily life [1]. Operative alternatives for displaced femoral neck fractures differ throughout the world but primarily include arthroplasty and internal fixation [2]. The elderly patients would frequently have incomplete self-care ability, which will aggravate the discomfort of surgery patients both physically and psychologically in life and then affect the treatment effect [3]. In order to analyse the influence of comprehensive nursing intervention on the elderly femoral neck fracture, we analysed in this study 70 cases of elderly patients with femoral neck fracture as follows.

Data and Methods

General data

A total of 70 elderly patients with the surgery for femoral neck fracture treated in Affiliated Hospital of North Sichuan Medical College from July 2016 to July 2017 were selected as the study objects. According to different nursing methods they were divided into control group and experimental group. In the control group there were a total of 40 cases including 24 males and 16 females aged 61-79 with the average age of (68.63 ± 6.56), unilateral fracture in 15 cases and bilateral fracture in 25 cases. In the experimental group there were a total of 30 cases including 18 males and 12 females aged 60-78 with the average age of (68.18 ± 6.10), unilateral fracture in 21 cases and bilateral fracture in 9 cases. No statistically significant difference was found between the two groups in basic data ($P > 0.05$).

Methods

Routine nursing was conducted in the control group. The fracture patients were told to be fasted with skin preparation the first day before operation and were guided to go through rehabilitation training after operation. The observation group were given comprehensive nursing intervention as follows.

Psychological care and health guidance: For newly admitted patients, the environment in hospital and the occurrence of fracture would make them have some negative emotions such as nervousness and anxiety. At this time the nursing staff should take the initiative to communicate with the patients with enthusiasm and explain them the reason of fracture with a smile in the face to increase their trust.

Preoperative nursing: for surgical patients, the nursing staff should illustrate the procedure of surgical treatment and matters needing attention with patience to stabilize their mood. Besides the patients were given some preoperative guidance, including toilet-training in bed, drinking forbidden for 6 h and 12 h fasting with skin preparation a day before the surgery.

Postoperative nursing: The patients and their families were informed of some matters needing attention with corresponding guidance in postoperative posture and emiction training before catheter withdrawal. In addition, the nursing staff assisted and urged the patients to take rehabilitation exercise with daily health education to reduce postoperative complications.

Diet nursing: The patients were told to intake the food of high protein, high vitamin and high calcium with supplement of vitamin D according to their own situation. Early advice of light, digestible and semiliquid diet was given to the patients after surgery. Adequate nutrition should be ensured in the course of fracture therapy to promote the rehabilitation of the disease and later on the patients should take some high-protein foods such as meat and bone soup.

Healthy education of patients discharge: The education could be performed by means of oral discourse, propaganda pamphlets and board. The patients were told to eat more food of high protein and nutrition and take medicines by following the doctor's advice. The intensity of functional training of the fracture was considered proper when there was no feeling of pain, which was to prevent ankylosis and thrombosis.

Observation index and evaluation index

The nursing satisfaction was scored by the patients themselves in the form of questionnaire, the score of 80 or above suggested extreme satisfaction, 60-70 satisfaction and 60 or

below dissatisfaction, the satisfaction rate=(extreme satisfaction cases+satisfaction cases)/total number of cases \times 100% [4]. After admission, a symptom checklist-90 (SCL-90) questionnaire was performed on the patients, the higher the score, the more severe the symptom [5]. The patients' quality of life was evaluated by the quality of life scale, The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 score (EORTC QLQ-C30) with a total score of 100, the higher the score, the better the effect [6]. Before and after nursing intervention, Interleukin 4 (IL-4) and C-Reaction Protein (CRP) levels in serum were detected by enzyme-linked immunosorbent assay.

Statistical processing

In this study, SPSS18.0 software was used for statistical analysis. The measurement data were described as ($\bar{x} \pm s$) and examined by t-test. The count data were expressed as (%) and assessed by χ^2 , $P < 0.05$ suggested there was statistical significance.

Results

Comparison of nursing satisfaction between the two groups

The nursing satisfaction of the control group was 60%, significantly lower than that of the experimental group, that was 93.33%, and there was statistical significance in such difference ($P < 0.05$), as shown in Table 1.

Table 1. Comparison of nursing satisfaction between the two groups (n (%)).

Group	n	Extreme satisfaction n	Satisfaction n	Dissatisfaction n	Total
Control group	40	9 (22.50)	15 (37.50)	16 (40.00)	24 (60.00)
Experimental group	30	12 (40.00)	16 (53.33)	2 (6.70)	28 (93.33)
					6.731
P					<0.05

Comparison of SCL-90 between the two groups

After nursing intervention, the psychological score of the experimental group was significantly lower than that of the control group of statistical significance ($P < 0.05$), as shown in Table 2.

Table 2. Comparison of psychological status between the two groups ($\bar{x} \pm s$).

Group	n	Coercion	Depression	Anxiety	General symptoms
Control group	40	35.20 \pm 2.30	36.00 \pm 1.36	39.00 \pm 3.68	41.00 \pm 2.03
Experimental group	30	20.00 \pm 1.36	21.00 \pm 1.05	20.00 \pm 2.56	28.00 \pm 4.60

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t	6.531	6.782	7.003	9.015
p	<0.05	<0.05	<0.05	<0.05

Comparison of EORTC QLQ-C30

After nursing, the scores of EORTC QLQ-C30 in the experimental group were significantly higher than those in the

control group of statistical significance (P<0.05), as shown in Table 3.

Table 3. Comparison of EORTC QLQ-C30 between the two groups ($\bar{x} \pm s$).

Group	n	Physical status	Social status	Role status	Total
Control group	40	50.53 ± 9.89	60.2 ± 10.39	50.49 ± 9.91	53.33 ± 9.70
Experimental group	30	78.90 ± 9.50	80.82 ± 9.98	69.56 ± 10.42	75.70 ± 9.60
t		7.043	7.321	6.048	8.294
p		<0.05	<0.05	<0.05	<0.05

Comparison of inflammatory factors like IL-4 and CRP levels in serum between the two groups

Before nursing, there was no significant difference between the two groups in the level of IL-4 and CRP (P>0.05). After

nursing, the level of IL-4 and CRP in the experimental group were significantly lower than those in the control group (P<0.05), as shown in Table 4.

Table 4. Comparison of inflammatory factors like IL-4 and CRP levels in serum between the two groups.

Group	n	IL-4 (pg/ml)		CRP (mg/L)	
		Before nursing	After nursing	Before nursing	After nursing
Control group	40	23.44 ± 3.76	15.54 ± 2.05	26.17 ± 2.21	17.63 ± 3.18
Experimental group	30	23.47 ± 4.02	10.97 ± 1.62	26.19 ± 3.04	11.03 ± 2.75
t		0.154	5.128	0.276	6.032
p		>0.05	<0.05	>0.05	<0.05

Discussion

The low physiological, social and psychological function often leads to slow recovery in elderly patients with femoral neck fracture. Therefore, the patients should be given surgical treatment followed by comprehensive nursing to alleviate negative moods like anxiety and depression and improve nursing satisfaction [7-10]. In order to clarify the effect of comprehensive nursing, we studied 70 cases of femoral neck fracture in our hospital reported as follows.

The results of this study show that: in the control group with routine nursing, the nursing satisfaction was 60%, significantly lower than that in the experimental group with comprehensive nursing, which was 90%, indicating that the implementation of comprehensive nursing intervention enables to enhance the trust from the patients. Moreover, the patients are unfamiliar with the environment of hospital on admission and at this point the nursing staff talk with them with smile and in gentle language, which helps to make them familiar with the circumstance and eliminate tension as soon as possible. The

nursing staff informs the patients of surgical matters needing attention and discharge guidance of health education with skilled nursing manner and professional knowledge, which can increase the patient's trust of nursing staff and raise the satisfaction of nursing service [11-14]. The results show that the total score of psychological status in the control group was significantly higher than that in the experimental group, indicating that the comprehensive nursing intervention can reduce the patient's bad mood. According to the analysis result, psychological comfort and guidance given by nursing staff in the whole process of surgery enable the patients to overcome the fear of the entire surgical procedure and reduce adverse emotions.

Meanwhile the results of this study show that the total score of EORTC QLQ-C30 in the control group with routine care was significantly lower than that in the experimental group, it was scored (75.70 ± 9.60), indicating that comprehensive nursing intervention is effective to improve the quality of life of patients. Due to the decrease of every function of elderly patients, the nursing staff is required to provide assistance,

guide them to do rehabilitation exercises by following the principle of gradual improvement in activity amount, intensity and time. The patients are advised to take high protein food to ensure the adequate intake of nutrition, accelerate fracture healing, facilitate the rehabilitation and effectively improve the quality of life [15].

Fracture is a stimulus for patients, and they will experience the increase in the level of such inflammatory factors as IL-4 and CRP in a reflex action [16,17]. The results in this research show that there was no significant difference between the two groups in IL-4 and CRP levels before nursing ($P>0.05$) but after nursing levels of IL-4 and CRP in the experimental group were significantly lower than those in the control group ($P<0.05$), suggesting that comprehensive nursing intervention can effectively reduce the level of inflammatory factors in serum of patients. Limited by external conditions, number of cases and time, the effect of comprehensive nursing intervention on postoperative complications of the elderly patients with femoral neck fracture remains to be further explored.

In summary, comprehensive nursing turns out to be of significant effect in the elderly patients with femoral neck fracture, which manages to raise the quality of life and satisfaction of nursing in the patients, improve their psychological status and effectively reduce the levels of inflammatory factors in serum of a certain value in clinical application and research.

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