

Original Article

Exploration of the improvement and management of refined nursing in neurology

Yanli Dong¹, Qingling Meng², Ruifeng Zhang³, Fengjuan Lu⁴

Departments of ¹Nursing, ²Obstetrics, ³Intensive Medicine, ⁴Cardiology, Rizhao People's Hospital, Rizhao, Shandong, China

Received June 22, 2018; Accepted July 20, 2018; Epub May 15, 2019; Published May 30, 2019

Abstract: This study aimed to explore the improvement and management of refined nursing in neurology by conducting a retrospective analysis of 127 patients. There were 67 cases in the observation group (conventional nursing and refined nursing) and 60 in the control group (conventional nursing). We compared the scores on patients' assessment scale of activities of daily living (ADL), Self-Rating Depression Scale (SDS), and Self-Rating Anxiety Scale (SAS) before and after nursing. We observed the incidence rate of adverse events and rated patients' satisfaction with nursing. There were no statistically significant differences between the two groups before nursing ($P > 0.05$); however, the scores of both groups improved after nursing. The ADL scores of both groups increased significantly, and the SDS and SAS scores decreased significantly ($P < 0.05$). The ADL scores of the observation group were significantly higher than those of the control group. There was a statistically significant decrease in the SDS and SAS scores compared to those of the control group ($P < 0.05$). The incidence rate of adverse reactions in the control group was significantly higher than that in the observation group ($P > 0.05$). The degree of satisfaction of the control group was significantly lower than that of the observation group ($P < 0.05$). The refined nursing management model can improve the self-management level of neurology patients, reduce the occurrence of anxiety, depression, and adverse events, and promote the doctor-patient relationship, making it suitable for clinical promotion.

Keywords: Refined nursing, neurology, ADL, SDS, SAS

Introduction

The aging of the population has now become a social problem that is faced by many countries. The continuous advancement of medicine and healthcare technologies has led to an increased life expectancy [1]. A study [2] showed that global life expectancy reached 71 years in 2013, while in some developing countries, for example, China [3], the life expectancy has reached 75 years, which is an increase of 6 years from 20 years ago. The majority of developed countries have surpassed this figure, and with the improvement of people's economic levels, the requirements for living standards and quality are higher. This poses a critical test for the governments of all countries.

Neurology is an independent department of the hospital, where most patients are older and have serious illnesses [4]. Most patients suffer

from multiple functional disorders during the onset of disease, resulting in relatively complicated treatments. As the degrees of adaptability and compliance vary among patients, there are multiple emergencies and adverse events during the nursing process [5, 6]. In addition, the special nature of neurology requires a higher quality of nursing. Traditional neurological nursing cannot adequately meet modern demands, making it necessary to introduce more scientific and effective nursing methods to improve the quality of care [7].

Refined nursing is a new type of model that has significant advantages over other care models [8]. It is based on refined management and includes physiological and psychological interventions. It requires a refinement of every aspect of treatment, nursing, and service as well as the preparation of care plans corresponding to patients' conditions to improve the therapeutic effects and create a more comfort-

Table 1. Comparison of the clinical data between two groups of patients

Group	Control group (n=60)	Observation group (n=67)	t/X ²	P value
Sex			0.927	0.336
Male	32 (53.33)	30 (44.78)		
Female	28 (46.67)	37 (55.22)		
Age, years			0.655	0.418
> 60	50 (83.33)	52 (77.61)		
≤ 60	10 (16.67)	15 (22.39)		
BMI (kg/m ²)	21.35±1.22	20.99±1.39	1.543	0.125
History of smoking			0.927	0.336
Yes	32 (53.33)	30 (44.78)		
No	28 (46.67)	37 (55.22)		
History of hypertension			1.433	0.231
Yes	50 (83.33)	50 (74.63)		
No	10 (16.67)	17 (25.37)		
History of alcoholism			0.182	0.670
Yes	15 (25.00)	19 (28.36)		
No	45 (75.00)	48 (71.64)		
Degree of education			0.632	0.427
≥ senior middle school	20 (33.33)	18 (26.87)		
< senior middle school	40 (66.67)	49 (73.13)		
Clinical symptom			0.379	0.984
Hematencephalon	21 (35.00)	23 (34.33)		
Cerebral infarction	18 (30.00)	20 (29.85)		
Vertiginous Syndrome	12 (20.00)	15 (22.39)		
Syncope	5 (8.33)	6 (8.96)		
Headache	4 (6.67)	3 (4.48)		

cases of cerebral hemorrhage, 20 cases of cerebral infarction, 15 cases of vertigo syndrome, 6 cases of syncope, and 3 cases of headache. The control group had 60 patients (32 males and 28 females). The age range was 53 to 76 years (average age of 64.5±7.1 years). There were 21 cases of cerebral hemorrhage, 18 cases of cerebral infarction, 12 cases of vertigo syndrome, 5 cases of syncope, and 4 cases of headache. The study was conducted with the approval of the hospital's medical ethics committee. All family members and patients were informed of the details of the study and provided informed consent. All subjects of this study signed the informed consent form. This study has been approved by the Ethics Committee of The Rizhao People's Hospital.

Inclusion and exclusion criteria

able environment [9]. However, its effectiveness on neurology patients is unknown.

Therefore, this study applied refined nursing to provide interventions for neurological patients as well as a theoretical basis for its significance in clinical practice.

Material and methods

Subjects

A retrospective analysis of 127 patients was conducted; participants were assigned into two groups: observation (conventional nursing and refined nursing) and control (conventional nursing) groups according to different nursing methods. The observation group included 67 patients (30 males and 37 females). The age range was 50 to 72 years (average age: 63.4±8.2 years). There were 23

The inclusion criteria for the patients were as follows: be over 18 years of age, have no immune deficiency and congenital heart diseases, have four limbs, have fully functioning cognition, and it was required for both patients and family members to cooperate with the treatment.

The exclusion criteria were as follows: patients with malignant tumors, severe organ dysfunction, incorrect clinical data, patients who did not follow-up, and patients with a history of mental illness.

Nursing methods

The specific procedures for conventional nursing in the control group were as follows: 1) Patients, especially those with a severe illness, were confined to the bed, and those in coma rested in a supine position, while ensuring that

Table 2. Comparison of SAS scores of ADL and SDSN before and after nursing care in two groups

Group	Control group (n=60)		Observation group (n=67)	
	Pretherapy	Post-treatment	Pretherapy	Post-treatment
ADL score	34.25±3.84	30.21±2.84*	33.84±3.71	27.15±2.53**
SDS score	57.35±6.84	45.35±5.24*	56.93±7.32	36.74±5.11**
SAS score	60.36±8.64	43.18±7.25*	60.86±8.25	34.93±6.21**

Note: *indicates that there is no difference between before and after treatment ($P > 0.05$). **it indicates that there is a difference between the two groups after treatment ($P < 0.05$).

they were able to breathe properly. 2) Bedsteads were provided to patients with vertigo syndrome, syncope, and headache to prevent falls. 3) Dietary guidance was provided in accordance with patients' conditions; patients with mild dysphagia consumed semi-liquid beverages, and patients in a coma or those with severe swallowing disorders used nasogastric feeding tubes. 4) Patients' vital signs were monitored, and emergency items were kept at the ready. 5) Patients' oral cavities were kept clean, and oral care was provided to those who used nasogastric tubes. 6) Sterile balloon catheterization was provided to patients with urinary retention; the catheter was opened at regular intervals, their bladders were cleaned twice a day, and their drainage bags were replaced at appropriate times.

The specific procedures for the observation group that received refined nursing care and management on the basis of conventional nursing were as follows In terms of management, a detailed system, refined management of nursing staff, and refined workflows were established. In terms of nursing, the following aspects were covered. 1) Psychological nursing: addressing patients' psychological problems, such as anxiety, depression, tension, and fear; guiding families through effective communication to help conscious patients overcome adverse psychological moods. 2) Nursing intervention at acute stage: at the time of the patient's admission to the intensive care unit, timely establishment of a vein channel, continuous monitoring of the patient, extracting the patient's blood in an orderly manner to perform related examinations, observing the patient's vital signs, and handling any adverse event in a timely manner. 3) Dietary care: assessing the patient's condition, using nasogastric feeding tubes, and elevating the head of the bed

to 30° for dysphasia patients. 4) Complications: (1) As neurology patients are mostly bedridden for a long term with a high occurrence of hypophysophilic pneumonia, nursing staff need to regularly clean patients' respiratory tracts, turn them over, and pound their backs. If a patient needs respiratory inhala-

tion, they should provide nebulizer therapy. (2) They need to ensure that the patient's catheter is sterile, observe urine output and color, regularly clean the urethra, and remind the patient to drink more water. (3) They must regularly observe and inspect the color of the patient's stool and vomit. If the stool is tar-like or the vomit is brown in color, nurses should monitor fasting and provide hemostasis treatment. (4) They must ensure good sleep quality, minimize the use of stimulant drugs, and prevent secondary epilepsy.

Observation indicators

Main observation indicators: A total of 100 points were scored on the assessment of activities of daily living (ADL) before and after nursing. The higher the score, the lower the patient's ability to perform ADL. Higher scores on the Self-Rating Depression Scale (SDS) indicated a more severe the degree of depression. In addition, a higher score on the Self-Rating Anxiety Scale (SAS) indicated a more severe the degree of anxiety.

Secondary observations: The incidence rate of adverse events and patients' satisfaction [Satisfaction = (very satisfied + satisfied)/total number * 100%].

Statistical analysis

Data analysis was performed using SPSS 20.0 software package (Shanghai Bekaa). GraphPad Prism 7 (Shanghai Bekaa) was used to plot the data; the enumeration data were expressed in rate (%) with the Chi-square test and Fisher's exact probability method. The measurement data were expressed as mean ± standard deviation (mean ± SD), and the measurement data of the two groups that matched the normal distribution were analyzed using the

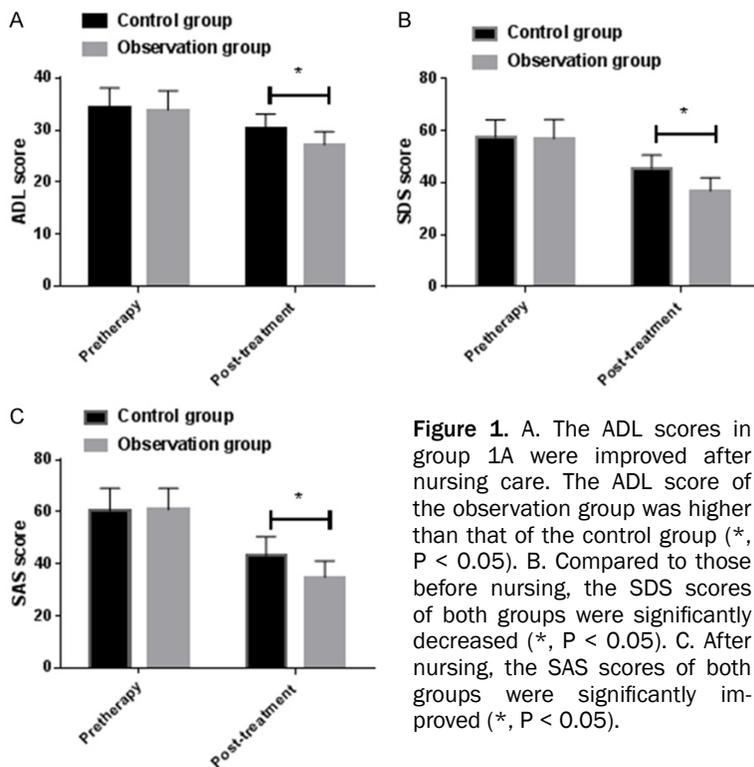


Figure 1. A. The ADL scores in group 1A were improved after nursing care. The ADL score of the observation group was higher than that of the control group (*, $P < 0.05$). B. Compared to those before nursing, the SDS scores of both groups were significantly decreased (*, $P < 0.05$). C. After nursing, the SAS scores of both groups were significantly improved (*, $P < 0.05$).

group compared to those of the control group ($P < 0.05$) (Table 2; Figure 1).

Incidence rate of adverse events during nursing for both groups

The incidence rate of adverse reactions in the control group was significantly higher than that in the observation group ($P > 0.05$) (Table 3).

Comparison of nursing satisfaction between the two groups

There was a statistically significant difference between the control and observation groups with regard to patients' satisfaction with nursing ($P < 0.05$) (Table 4).

Discussion

The department of neurology is an independent department of the hospital that mostly comprises elderly patients. As people get older, their tissues and organs gradually deteriorate, which increases the incidence rate of accidents and dangers to some extent [10, 11]. In addition, complications, such as fractures and traumatic brain injury, frequently occur during the hospitalization of neurology patients, which pose a great threat to their life safety [12, 13]. Apart from increasing the family's economic burden, the injury not only has an impact on the patient but also has a certain degree of influence on the hospital's reputation. Therefore, reducing the occurrence of adverse reactions and complications among patients has become one of the most urgent problems for medical workers.

Refined nursing is a very precise nursing model centered on refined management [14-16]. It involves the refinement of the operation and management of medical staff, especially in terms of implementation, to provide patients with more efficient care models [17]. Refined nursing is implemented mainly through strict control over the details of the nursing process, effective and feasible interventions during the

t-test. A $P < 0.05$ was considered statistically significant.

Results

Comparison of clinical data of the two groups

The comparison of the clinical data showed that there were no statistical differences in sex, age, BMI, education level, and smoking, hypertension, and alcoholism history between the control and observation groups ($P > 0.05$) (Table 1).

Comparison of the ADL, SDS and SAS scores of the two groups

We compared the ADL, SDS and SAS scores before and after nursing and found that there were no statistical differences between the two groups before nursing ($P > 0.05$). The scores of both groups had improved after nursing; the ADL scores were significantly higher for both the groups, while the SDS and SAS scores were significantly lower ($P < 0.05$). The ADL scores of the observation group were significantly higher than that of the control group. There was a statistically significant decrease in the SDS and SAS scores of the observation

Table 3. Incidence of adverse reactions in both groups

Group	Vomit	Food reflux	Cataclasis	Itching of the skin	Expiratory dyspnea	Total	P value
Control group (n=60)	4 (6.67)	3 (5.00)	3 (5.00)	3 (5.00)	3 (5.00)	16 (26.67)	0.010
Observation group (n=67)	1 (1.49)	1 (1.49)	1 (1.49)	2 (2.99)	1 (1.49)	6 (8.96)	

Table 4. Comparison of nursing satisfaction between two groups

Group	Very satisfied	Satisfied	Total	P value
Control group (n=60)	12 (20.00)	31 (51.67)	27 (45.00)	0.008
Observation group (n=67)	25 (37.31)	30 (44.78)	12 (17.91)	

monitoring process, improving patients' psychological mood, and monitoring nutritional status and real-time vital signs to reduce adverse reactions and the risk of complications, thereby improving patients' quality of life and care outcomes [18, 19]. While studies have shown refined nursing to be effective on diseases such as chronic obstructive pulmonary disease [20], its effect on neurology patients is unclear. Therefore, this study investigated the effects of refined nursing on neurological patients and provided references for clinical care.

In this study, we compared the ADL, SDS and SAS scores of the two groups before and after nursing. By rating on abilities concerning clothing, food, housing, transportation, and personal hygiene, the ADL score directly reflects patients' self-care abilities. In many countries, clinicians use the ADL to assess patients' life ability. The SDS is a self-assessed rating scale that reflects patients' depression. It is simple to use, does not require special training, and to some extent, understands the patient's recent mood [21]. The SAS, similar to the SDS, is a simple clinical tool for analyzing subjective symptoms and can well reflect the status of the patient's anxiety [22]. In this study, we found that the ADL scores of both groups increased after nursing. This indicates that both nursing methods improved the self-care ability of neurological patients. However, we found that the improvement of the ADL score in the observation group was significantly higher than that in the control group. This indicates that refined nursing and management were more successful in improving patients' self-care ability.

We also evaluated both groups' SDS and SAS scores before and after nursing and found that while both groups' scores decreased, those of

the observation group decreased more than the control group. This shows that refined nursing and management significantly improved anxiety and depression of neurology patients. In Gong's study [23], it was shown that refined nursing and management also have an ameliorating effect on maternal anxiety and depression in the context of cesarean sections. This shows that refined nursing and management are effective in the treatment of many diseases and result in improvement.

Based on the statistical analysis of the incidence rate of adverse events and nursing satisfaction during the patient care process, the incidence rate of adverse events in the control group was significantly higher than that of the observation group, while the satisfaction rate of the control group was significantly lower than that of the observation group. Refined nursing and management can reduce the incidence rate of adverse events and increase nursing satisfaction to promote doctor-patient relationships. Furthermore, in Tao's study [24], it was reported that refined nursing and management significantly reduced the incidence of adverse events and improved nursing satisfaction of patients in psychiatric wards. This suggests that refined nursing and management are applicable to multi-departmental care interventions.

In summary, the refined nursing management model can improve the self-management level of neurology patients, reduce the occurrence of anxiety, depression, and adverse events, and promote the doctor-patient relationship, which makes it suitable for clinical promotion.

Disclosure of conflict of interest

None.

Address correspondence to: Fengjuan Lu, Department of Cardiology, Rizhao People's Hospital, No. 126, Tai'an Road, Donggang District, Rizhao

276826, Shandong, China. Tel: +86-0635-336-5111; E-mail: fengjuanlux@163.com

References

- [1] Bone AE, Gomes B, Etkind SN, Verne J, Murtagh FE, Evans CJ and Higginson IJ. What is the impact of population ageing on the future provision of end-of-life care? *Population-based projections of place of death. Palliat Med* 2018; 32: 329-336.
- [2] Sanderson WC and Scherbov S. Faster increases in human life expectancy could lead to slower population aging. *PLoS One* 2015; 10: e0121922.
- [3] Yang J, Ou CQ, Guo Y, Li L, Guo C, Chen PY, Lin HL and Liu QY. The burden of ambient temperature on years of life lost in Guangzhou, China. *Sci Rep* 2015; 5: 12250.
- [4] Matsunaga A, Kishitani T, Ikawa M, Hayashi K, Yamamura O, Hamano T, Watanabe O, Tanaka K, Nakamoto Y and Yoneda M. Autoimmune limbic encephalitis associated with anti-NAE antibodies as a clinical subtype of hashimoto's encephalopathy. *J Neurol Sci* 2017; 381: 652.
- [5] Mendes Marques JI, Polónia JM, Figueiras AG, Costa Santos CM and Herdeiro MT. Nurses' attitudes and spontaneous adverse drug reaction reporting: a case-control study in Portugal. *J Nurs Manag* 2016; 24: 409-416.
- [6] Vandenberg AE, van Beijnum BJ, Overdeest VGP, Capezuti E and Johnson TM 2nd. US and Dutch nurse experiences with fall prevention technology within nursing home environment and workflow: a qualitative study. *Geriatr Nurs* 2017; 38: 276-282.
- [7] Tourangeau AE, Wong M, Saari M and Patterson E. Generation-specific incentives and disincentives for nurse faculty to remain employed. *J Adv Nurs* 2015; 71: 1019-1031.
- [8] Nair M, Parukkutty K and Kommadath S. Effect of a new social support program by voluntary organization in pediatric oncology department in a developing country. *Pediatr Hematol Oncol* 2014; 31: 212-216.
- [9] Kane-Gill SL, Hanlon JT, Fine MJ, Perera S, Cullley CM, Studenski SA, Nace DA, Boyce RD, Castle NG and Handler SM. Physician perceptions of the performance and importance of consultant pharmacist services associated with an intervention for the detection and management of adverse drug events in the nursing home. *The Consultant Pharmacist: The Journal of The American Society of Consultant Pharmacists* 2016; 31: 708.
- [10] Beynon C, Potzy A, Sakowitz OW and Unterberg AW. Rivaroxaban and intracranial haemorrhage after mild traumatic brain injury: a dangerous combination? *Clin Neurol Neurosurg* 2015; 136: 73-78.
- [11] Iwasaki S and Yamasoba T. Dizziness and imbalance in the elderly: age-related decline in the vestibular system. *Aging Dis* 2015; 6: 38.
- [12] Fraser JA, Burneo J and Fraser LA. Fracture risk associated with enzyme-inducing antiepileptic drugs in patients with epilepsy: a systematic review (P4. 274). *Neurology* 2015; 84: P4. 274.
- [13] Scott G, Ramlackhansingh AF, Edison P, Helyer P, Cole J, Veronese M, Leech R, Greenwood RJ, Turkheimer FE and Gentleman SM. Amyloid pathology and axonal injury after brain trauma. *Neurology* 2016; 86: 821-828.
- [14] Lihua L, Kai H and China P. The study of basic dataset on hospital running management. *Chinese Journal of Health Informatics and Management* 2014; 2: 007.
- [15] Blais K, Hayes JS, Kozier B and Erb GL. *Professional nursing practice: concepts and perspectives*. Prentice Hall NJ 2015.
- [16] Cherry B and Jacob SR. *Contemporary nursing: issues, trends, & management*. Elsevier Health Sciences 2016.
- [17] Lincoln P, Ahern J, Braudis N, Brown LD, Bullock K, Evans J, Guan YM, Luo W, Sheng N and Schroeder M. Pediatric cardiac intensive care-postoperative management: nursing considerations. In: editors. *Pediatric and congenital cardiology, cardiac surgery and intensive care*. Springer; 2014. pp. 1349-1370.
- [18] Ye Z, Ouyang AL, Liu ZS, Tang JY and Zhan LN. Application effects of fine management on building safety prevention process for outpatient infusion. *Nursing Journal of Chinese People's Liberation Army* 2012; 11.
- [19] Waterworth S. Time management strategies in nursing practice. *J Adv Nurs* 2003; 43: 432-440.
- [20] Fletcher MJ and Dahl BH. Expanding nurse practice in COPD: is it key to providing high quality, effective and safe patient care? *Prim Care Respir J* 2013; 22: 230-3.
- [21] Balcan B, Thunström E and Peker Y. Effect of one-year CPAP treatment on mood in patients with coronary artery disease and obstructive sleep apnea. *Sleep Medicine* 2017; 40: e256.
- [22] Khorvash F, Saffari-Mohammadabadi M, Ghasemi M, Maracy MR and Iraj B. Usefulness of the survey of autonomic symptoms questionnaire in diagnosis of diabetic autonomic neuropathy. *Journal of Isfahan Medical School* 2016; 33: 2388-2392.
- [23] Gong Z, Ma C and Li X. Effect of fined nursing model on the rehabilitation and nursing quality in cesarean section puerperae. *Journal of Clinical Medicine in Practice* 2017; 21: 115-119.
- [24] Tao Y, Wang J and Wang X. Application of fine nursing management mode in the psychiatric hospital in clinical ward. *Medical Equipment* 2015; 28: 162-164.