

# 大腿骨近位部骨折で周術期にある認知症高齢者の生活機能を重視した療養支援のための看護師教育プログラムの効果

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論 文 要 旨

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The Effect of a Nursing Education Program that Focuses on Functional Capacity  
to Support Older Patients with Dementia after Surgery for Proximal Femora Fractures

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## **I. Purpose**

Older patients with dementia and with proximal femoral fractures who are in the perioperative period are likely to suffer anxiety and confusion from environmental changes due to the hospitalization, injuries, and surgical invasion, and their functional capacities tend to decline. This study aims to create and implement a nursing education program for nurses to support medical treatment, focusing on the functional capacities of older patients with dementia with proximal femoral fractures in the perioperative period, and to examine the effect of the program.

**[Definition of terms] Older patients with dementia:** Older patients, aged 65 and above, who are evaluated as suffering from dementia in their medical records, regardless of a differential diagnosis, and who score 23 points or less in a Mini Mental State Examination (MMSE). **Functional capacity:** Based on the ICF (International Classification of Functioning, Disability and Health) model, functional capacity is operationally defined as “body functions and structures: body and mental functions / body structures” and for “activities / participation: general activities in daily living including hobbies and roles such as housework / and other work”.

## **II. Development of the nursing education program in this study**

In this study we developed a nursing education program, the “Nursing education program to support older people with dementia after surgery for proximal femora fractures focusing on their functional capacity (Medical treatment support focusing on functional capacity)”. This program is based on the person-centered care theory, which places importance on support that meets the needs of persons with dementia and enables them to employ their abilities, structured from 11 items with the focus on emphasizing functional capacity. The program is comprised of two stages, a 20-minute introductory training and 3-months of practical support. The validity of the structure/contents of the program and the implementation method were examined by two university faculty specializing in dementia nursing, one nurse specializing in gerontological nursing, two instructors involved in the education of certified nurses in dementia nursing (one holding a certificate in this specialty), one nurse with experience in orthopedic ward duties, and three ward managers at the research facility.

## **III. Methods**

**1. Study design:** This is an intervention study to examine the effects of a “stage-based intervention” that provides introductory training and practical support to nurses by comparing intervention and control groups.

**2. Study participants:** We requested two orthopedic wards at one hospital for cooperation in this study. The intervention group is comprised of 23 nurses in the ward where this program is implemented, and the control group is comprised of 22 nurses in the ward where regular nursing takes place. Five older patients with dementia were observed for evaluation of the nursing activities of the intervention group.

**3. Intervention method:** In the introductory training, the researcher explained the focus and nursing methods of the “Medical treatment support focusing on functional capacity” using materials prepared by the researcher, and the researcher conducted the training and opinion exchanges. In the practical support stage, the researcher participated in the nursing conferences of the observed patients and provided advice so that the intervention group could share the awareness and care ideas from the “Medical treatment support focusing on functional capacity”.

**4. Evaluation methods:** Using a self-assessment form created by the researcher, the level of implementation of “Medical treatment support focusing on functional capacity” (0 to 100%) and the activities conducted (open-ended questions) were evaluated at three time points: [Before intervention] [After the introductory training], and [After the practical support]. In addition, statements at the nursing

conferences were transcribed and evaluated at these time points. For the functional capacities of the older patients with dementia, “body functions and structures (pain, nutritional status, delirium / Behavioral and Psychological Symptoms of Dementia (BPSD)” and “activities / participation (movement / walking, functional independence measure (FIM), hobbies / roles)” were extracted from the medical / nursing records, and evaluated at the three time points.

**5. Analysis:** Changes in the levels of implementation of the “Medical treatment support focusing on functional capacity” were statistically analyzed, and for the descriptions about the activities conducted, changes at the three time points were analyzed. For the statements made at the nursing conferences, changes in the transcribed statements were analyzed as they developed over time. Changes in the functional capacities of the older patients with dementia were analyzed by case considering the points in time.

**6. Ethical considerations:** This study was conducted with approval by the Ethics Committee of the School of Nursing and Social Services, Graduate School of Nursing & Social Services, Health Sciences University of Hokkaido (approval number: 16N041040).

#### **IV. Results**

**1. Participant demographics:** The number of participant nurses were 23 in the intervention group and 22 in the control group, and the median (interquartile range) of the ages was 25.0 (24.0-27.0) years and 24.5 (23.0-27.3) years, that of the length of nursing experience was 3.0 (1.0-5.0) and 3.0 (1.0-5.3) years, that of the orthopedic experience was 2.0 (1.0-4.0) and 2.0 (0.8-4.0) years, training participation experiences were 16 (69.6%) and 14 (63.6%) for the nurses with dementia nursing training, 4 (17.4%) and 4 (18.2%) for those with dietary support training. There was no statistically significant difference between the two groups. The five of the older patients with dementia (observed subjects) supported by the nurses in the intervention group were all female, aged in the late 70s to late 90s, and the scores in cognitive functioning (MMSE) were 6 to 23 points. Three patients had femoral neck fractures and 2 trochanteric fractures of the femur, and for locomotion prior to the injuries, all were recorded as “walking”.

**2. Changes in nurses:** The levels of implementation of the 11 items of the “Medical treatment support focusing on functional capacity” were statistically analyzed. Statistically significant differences between [Before intervention] and [After the practical support] were found in the following 4 items ‘Support to improve a sense of security and satisfaction by placing importance on the wishes of the patients’ ( $p=.046$ ), ‘Providing information by paying attention to the cognitive impairment of the patients’ ( $p=.017$ ), ‘Support from the view of the patients by considering their motivation to move to be an opportunity to recover functional capacity’ ( $p=.018$ ), and ‘Nutrition evaluated from that before injury, at admission, and at discharge’ ( $p=.002$ ). In the control group, the levels of changes in ‘Nutrition evaluated from that before injury, at admission, and at discharge’ were statistically significantly increased, but there were no significant differences in the other 3 items. The activities conducted related to the 11 items of the program were changed to nursing activities that aim to recover functional capacity by evaluating the necessary support from the viewpoint of the older patients with dementia. The statements at the nursing conferences also changed. Nurses came to express an awareness of and efforts to improve care based on the 11 items of the “Medical treatment support focusing on functional capacity”. Further, in the intervention group, ‘Difficulties in the nursing of older patients with dementia’ decreased ( $p=.003$ ), and ‘Self-development by nursing older patients with dementia’ increased ( $p=.003$ ).

**3. Changes in the older patients with dementia:** For the “nutritional status” in the functional capacities of the older patients with dementia, all five patients had decreases in weight and Alb levels after admission, but these tended to be improved at the discharge. For ‘movement / walking’, four patients (80.0%)

recovered the ability to walk. In the “Activities in daily living (FIM)”, all the observed patients were at the level that needs watching over when eating. All the patients used the toilet for voiding. Only one patient who did not recover the ability to walk was fully assisted in changing clothes and keeping clean, and the remaining four were only partially assisted. As “pain” became alleviated, these patients increased the length of time out of bed and the time spent on activities, enjoying watching TV, coloring, spending time with their family, taking walks, and practicing walking. The length of hospitalization was 22 (12-26) days, the number of days after surgery was 15 (10-24), 2 patients were discharged and returned to the facility where they lived before the injury, and 3 were transferred to another hospital to continue the rehabilitation.

## **V. Discussion**

We analyzed the changes in the level of implementation and activities provided by the 11 items of “Medical treatment support focusing on functional capacity”, and found that 4 out of 11 items have effectively increased levels of implementation. This suggests the effectiveness of a two-stage-based intervention that provides practical support after the introductory training. Further, in the control group there was only one improvement in the nutritional endpoints. This can be interpreted as a learning effect because supportive comments and the grounds for the comments were provided in the self-assessment sheet, which is a limitation of this study. However, changes in the statements at the nursing conferences of the intervention group and the changes that show self-development can be interpreted as an effect of the efforts by looking back on the nursing activities and sharing the awareness and ideas of the care in the team of the intervention group, with the advice for the practical support provided by the researcher and nursing managers. Support based on this program in the intervention group gradually improved the poor nutritional state in these older patients with dementia, it resulted in an increase in the acquisition of walking ability compared with that of previous studies, and led to discharge / transfer with a shorter length of hospital stay. These findings suggest that this program has the effect of changing the ideas of nurses providing the support for older patients with dementia, resulting in improvements in the recovery of the functional capacities of older patients with dementia.