2024Doctoral Dissertation (Abstract)

A Study of Multidisciplinary Interventions to Enable Elderly Stroke Patients to be Discharged Home：Multidisciplinary involvement before and after discharge from a rehabilitation unit to home

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I. Background

Stroke patients suffer from aftereffects of physical and mental functions, such as paralysis of the upper and lower limbs, which limits their Activities of Daily Living (ADL). A comprehensive study is needed that takes into account a number of factors which affect such patients in convalescent rehabilitation units. The purpose of this study is to investigate the interventions and issues that need to be addressed by multidisciplinary staff before and after the patients' discharge from a convalescent rehabilitation unit to maintain the daily functions of these elderly stroke patients who were considered difficult to be discharged home but in fact were able to do so.

II. Study 1

Study 1: Content and issues of multidisciplinary interventions for elderly stroke patients discharged home: Focus group interviews with health care professionals in a convalescent rehabilitation unit.

The purpose of this study was to reveal the content and issues of multidisciplinary interventions for elderly stroke patients by conducting Focus Group Interviews (FGI) with professionals in rehabilitation units who intervened in elderly stroke patients discharged home. The FGI was conducted with medical professionals in a rehabilitation unit who were in charge of seven elderly stroke patients discharged home. These patients were at first considered difficult to be discharged home but in fact were able to do so.

As a result, the following categories were extracted: [Supporting the patients' intention to be discharged home], [Determining whether discharging patients to home is possible through team discussion], [Understanding and supporting higher brain dysfunctions], [Supporting the patients' ADL according to their paralysis and dysphagia to enable them to be discharged home], [Providing care guidance for the patients to live in secure settings], [Coordinating and collaborating with nursing-care insurance services for the patients to live in secure settings] and [Understanding the status of patients after hospital discharge].

The results of the FGI revealed the specific interventions and coordination issues that were addressed by each professional in the convalescent unit. In the medical team, physicians made prognostic predictions in order to evaluate and determine whether discharge home was possible, and the team systematically evaluated the physical condition of the patients. Even in cases where physicians were reluctant to discharge patients to home, discharge coordination nurses and medical SWs played a central role in the medical team, involving patients and their families, and managed patients who had difficulty being discharged home through medical and nursing care. As a consequence, elderly stroke patients who were considered difficult to be discharged home were able to return home.

Multidisciplinary, interdisciplinary, and transdisciplinary model are commonly used as frameworks for multidisciplinary teams. In this study, the medical team demonstrated a high level of interaction through close collaboration among healthcare professionals working toward a

common goal. This collaboration resulted in a unified understanding of the patient's condition and treatment plan, enabling the team to function smoothly and facilitate the patient's discharge to their home. Therefore, we considered the interdisciplinary model to be an effective framework for multidisciplinary collaboration in this study.

Ever since the patients and their families expressed a desire to be discharged home, the medical team had discussed issues related to discharge home from the early stage of hospitalization, provided intensive individual rehabilitation, and offered care guidance to caregivers. This could be the reason why the patients were able to achieve this goal.

III. Study 2

Study 2: Content and issues of caregiver support specialist interventions for elderly stroke patients who were able to be discharged home: The results of interviews with caregiver support specialists

Semi-structured interviews were conducted with seven care managers who were in charge of elderly stroke patients discharged home from a convalescent rehabilitation unit, in order to reveal the content and issues of care managers' interventions for the elderly stroke patients who had been considered difficult to be discharged home but were able to do so. The seven care managers consisted of 7 care workers and one nurse.

From the results of the interviews, the following categories were extracted: [Preparation for the patients' lives after discharge in collaboration with the staff of the convalescent rehabilitation unit], [Observation of the status of higher brain dysfunctions and provision of support for the patients], [Assessment of caregiving ability of the families and provision of support for their home care], [Collaboration with medical professionals and provision of support for the patients' lives after discharge], [Provision of support to continue rehabilitation in order to maintain ADL] and [Coordination and collaboration of services for the patients to live in secure settings]. In addition, the following issues were extracted for multidisciplinary collaboration which were considered difficult when supporting elderly stroke patients discharged home: [Lack of medical information sharing with hospital medical professionals], [Difficulty in ensuring rehabilitation to maintain residual functions], [Inability to flexibly adjust services due to limitations of nursing-care insurance] and [Small-scale multifunctional home-based care and nursing care issues when using such services] were extracted.

Care managers could support the lives of elderly stroke patients who were considered difficult to be discharged home by collaborating with medical professionals in the convalescent rehabilitation unit and continuing to support patients and their families after hospital discharge in terms of both medical and nursing-care collaborations. In order for care managers to support patients who require medical interventions, it is necessary to establish a system that encourages cooperation with visiting physicians/nurses and provides timely medical support. In addition, it is desirable to promote flexible use of services according to the situations where continuation of rehabilitation or

new start of ST is difficult, or according to the situation of patients in the nursing-care insurance system.

IV. Study 3

Study 3: Evaluation of a multidisciplinary intervention that enabled elderly stroke patients to be discharged home: Assessments based on the patients' life functions and subjective QOL (quality of life) status after hospital discharge

1. Research Purpose and Subjects

The purpose of this study was to evaluate the status of post-discharge ADL and subjective QOL of elderly stroke patients who were discharged home from a convalescent rehabilitation unit, and to reveal the effects of multidisciplinary interventions and their influencing factors on the discharge of elderly stroke patients. The subjects included 117 elderly stroke patients aged 65 years or older, who had been discharged home from a convalescent rehabilitation unit for more than 3 months, and their care givers.

2. Analysis Method

A $\chi 2$ test was conducted in order to understand the characteristics of the two groups, the group which improved and the group which remained unchanged/worsened regarding the change in ADL from the time of discharge to the time of the survey, and in order to examine the independent influencing factors of each variable on the improvement in ADL, a binomial logistic regression analysis was conducted with the dependent variable being the change in ADL (improved=1, unchanged/worsened=0) and the independent variables being gender, major diseases, progress after discharge, use of rehabilitation services, use of care guidance, use of nursing-care insurance services (home-based care, home-based nursing case, home-based medical care, home-based rehabilitation, day-care rehabilitation, day-care services), cohabitation of caregiver, and health status of the caregiver.

The use of rehabilitation was associated with improvement in indoor mobility (OR: 3.18, 95% CI: 1.16-8.71), and the use of home-based nursing care was associated with improvement in toilet mobility (OR: 0.20, 95% CI: 0.05-0.79). The use of rehabilitation (OR: 5.71, 95% CI: 1.58-20.67) and home-based nursing care (OR: 4.65, 95% CI: 1.17-18.47) were significantly associated with improvement in eating independent. The improvement of eating patterns was significantly associated with the use of rehabilitation (OR: 4.94, 95% CI: 1.53-16.00), and the improvement of outdoor mobility (OR: 3.18, 95% CI: 1.16-8.71) and medication (OR: 3.16, 95% CI: 1.10-9.09) were associated with the caregivers' good health status.

To examine the factors related to quality of life, a multivariate analysis was performed using a generalized linear model. The results of the analysis revealed that the factors related to the PGC Morale Scale total score were significantly associated with the use of home-based rehabilitation services (β=3.564, p=0.001) and cohabitation of caregivers (β=3.146, p=0.009). Factors related to psychological agitation were also significantly associated with the use of home-based

rehabilitation services (ß=1.531, p=0.004) and cohabitation of caregivers (ß=1.318, p=0.02), and factors related to loneliness and anxiety were significantly associated with the use of home-based rehabilitation services (ß=1.223, p=0.013) and cohabitation of care givers (ß=1.458, p=0.006) as well. Only the use of home-based rehabilitation services (ß=0.811, p=0.012) was significantly associated with attitude tounit aging. In terms of the association between QOL and causative diseases, cerebral hemorrhage was more likely to be associated with less attitude tounit aging (satisfaction) compared to cerebral infarction and subarachnoid hemorrhage (ß=-1.019, p=0.043).

V. General Discussion

1. Cooperation and issues within the convalescent rehabilitation unit necessary to support elderly stroke patients discharged home

The medical SWs and discharge coordinating nurses played a central role in confirming the will of patients and their families and in determining whether elderly stroke patients could be discharged home through collaboration with medical professionals in the hospital and with care managers who would be in charge of the patients after discharge.

2. Cooperation and issues between medical professionals and care managers in convalescent rehabilitation units

The care managers provided support by checking the implementation status of the services coordinated at the time of discharge, coordinating rehabilitation services, coordinating with physicians and visiting nurses regarding the patients' medical conditions and treatment, and coordinating the services necessary for patients and caregivers to live in secure settings. On the other hand, the collaboration between medical professionals and care managers in the convalescent rehabilitation unit and the issues they faced included support for stroke patients requiring medical interventions to live at home. The support of care managers is essential to assist the lives of stroke patients who need medical interventions at home; it is necessary to develop a system that enables coordination with medical institutions and deepening of human relations and communications with multiple professions.

3. Multidisciplinary interventions and collaborations necessary to support elderly stroke patients discharged home

In the present study, as for multidisciplinary interventions that influenced on changes in each ADL from the time of discharge to the time of the post-discharge survey, the continuous use of rehabilitation services after hospital discharge was significantly associated with improvements in the patients' indoor mobility and their eating/swallowing. The fact that they continued rehabilitation after discharge was considered to have prevented the decline in ADL for indoor mobility and eating/swallowing, which are the basic abilities needed to live at home. In addition, both use of rehabilitation and home-based nursing care services significantly improved the level of independent eating compared to the group that did not use either one of these services. The results suggest that the use of home-based nursing care in addition to rehabilitation can improve the patients ADL.

The use of home-based rehabilitation services was associated with improved quality of life in elderly stroke patients discharged home. Since home-based rehabilitation is a one-on-one service, it provides an opportunity for the patients to communicate and interact with the therapists, which may have reduced the patients' sense of loneliness and anxiety and improved their attitude toward aging.
In addition, cohabitation of caregivers and their good health were significantly associated with the patients' QOL. It is considered that their continuous care giving, that they received guidance on at the hospital, enabled patients to engage in social activities such as walking and going out, which made it easier for them to adapt themselves to their home environment and improved their QOL by not limiting the range of their activities after discharge.