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Orginal Article

The efficacy of the seamless transfer of care model to apply for the patients with cerebral apoplexy in China

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ABSTRACT

Purpose: To evaluate the efficacy of the Seamless Transfer of Care Model (STCM) to improve readmission occurrence of patients withstroke.
Methods: The sample was comprised of fifty-nine subjects with stroke who were hospitalized in the geriatric and neurology departments of a large university hospital in China. Subjects were allocated to an STCM group ($n = 30$) or a routine care (control) group ($n = 29$).
Results: Compared with the control group, the STCM group had a higher quality of life ($p < 0.05$), higher compliance ($p < 0.05$) and a lower readmission rate ($p < 0.05$).
Conclusion: Based on our results, the application of the STCM in Chinese stroke patients can improve quality of life and compliance, and reduce readmission rate.

1. Introduction

Stroke is a cardiovascular disease characterized by high world-wide incidence, mortality, disability rate and number of complications. The World Health Organization has estimated that in 1999 approximately 5.7 million persons died of stroke, accounting for 9.9% of all deaths world-wide [1]. The annual incidence of stroke has reached between 185 and 219/10 million, with 150–200 million new cases each year. In China, 75% of stroke cases lead to disability and 40% to severe disability, amounting to an annual cost of treatment as high as ¥12,000,000,000 per year [2]. The burden on human health and quality of life imposed by stroke has intensified efforts worldwide on arresting the progression and recurrence of this disease.

Independent living ability and life quality of patients decreases significantly during the first six months after the onset of stroke. The transition between hospital care to community or family care is one of the most critical periods in the care of individuals with stroke. After patient discharge, the patient's family is required to take over care responsibilities and to personally relay important information to the community care center [3]. Given the fact that patients and their families often lack detailed knowledge of apoplexy, compliance with discharge instructions is often low, which impacts recovery

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and leads to additional health problems. As a consequence, the short term incidence of adverse events and the readmission rate for stroke patients often increase [6].

It has been found that 82.7% of all CA patients consider post-hospital nursing services to be necessary [4], and that 83.7% of all CA patients and their family members have great demand for rehabilitation and psychological nursing [5]. María and Nicoletta researches found that the patient achieve nearly the same family care to the hospital carecan reducing the medical cost and improving the quality of life of patients [7,8]. Although research has shown that continuing nursing care for stroke patients can improve their compliance and quality of life [9], this research failed to account for the cost of such care, and the fact that health problems in these patients were usually resolved by re-admission to hospital. Here we set out to test the feasibility of the seamless transfer to care model in the post-hospital management of stroke.

In 1989, the Lake Medical Center of Florida pioneered the concept of seamless health management, at whose core was an individually-oriented, "one-stop" service that drew upon the expertise of different clinical departments. This novel health management concept achieved good results when applied in developed countries [10]. An important branch of the seamless health management concept is seamless transfer of care, which leverages information technology to integrate the family, community and hospital, providing continuous, omni-directional care across the entire life cycle of patient health services [11,12]. This model facilitates the treatment and referral of patients, but ensures the complete transfer of information on the patient as required.

The nursing service is comprised of a continuous series of services from the hospital to the community and family [13]. A survey has shown that approximately 60% of Chinese chronic elderly stoke patients expressed a desire to have treatment in a facility nearest their home [14]. A separate survey found that approximately 80% of elderly stroke patients expected care after discharge from hospital [15]. Although the primary mode of continuing nursing care in China is the service mode, it lacks the integrity of information transmission between hospital, community and family that is critical for successful continuing care. These could be increased caregiver blindness and randomness in nursing. As a consequence, the service mode is poorly-equipped to prevent recurrence of stroke and to improve quality of life in patients [16], which has led to increased interest in developed countries in the seamless transfer of care model (STCM) [17,18]. This model has been shown to improve nursing efficiency, quality and medical services and patient lifestyle of stroke patients, thereby reducing their readmission rate [12,17]. Leveraging our Health Knowledge database that we have set it up depend on literature of stroke patients we evaluated the efficacy of the STCM in improving quality of life and compliance in stroke patients.

2. Material and methods

2.1. Study design

A quasi-experimental study was used to compare the efficacy of the two different care modes. Patients were allocated to two groups according to admission date. Patients in the control group were admitted to hospital from May to July, 2013 and those in the STCM group were admitted from January to March,2014.

2.2. Patients

The setting for the study was the 5th hospital of Shanghai, Fudan University. 5th hospital is a teaching hospital with 750 open beds that has launched a remote medical service. Sixty stroke patients with stroke were recruited from the units of geriatric and neurology in the hospital, one of whom did not complete the study due to refusal to participate. Criteria were: persons aged ≥18 years; diagnosed with stroke; the long-term caregiver or patient has the education level more than secondary school; and resident in the nearby Maqiao community hospital. Exclusion criteria included mental disease, disturbance of understanding, or presence of additional critical diseases or tumors. The characteristics of subjects are shown in Table 1. There were no significant differences between the two groups with respect to gender, age, education, caregiver, complication, rehabilitation, training, type of stroke, incidence of disease or NIHSS (National Institute of Health stroke scale). The research was approved by the Ethical Committee of the 5th hospital of Shanghai, Fudan University. The patients or their immediate family members provided informed consent.

2.3. Intervention

The base of the STCM group was the 5th hospital of Shanghai, Fudan University. The seamless transfer of care group has eleven principal members, including one chief superintendent nurse as the chief responsible person. Three co-chief superintendent nurses were responsible for communication of community information and training management. Two nurses-in-charge were charged with management of database information. Four postgraduates were responsible for collecting and compiling data. One community staff carried out management of community work and the other discipline experts were invited to join this program for co-operation.

2.3.1. Education of health

A stroke health knowledge handbook was distributed to patients after discharge from the hospital. The contents of this book included: general knowledge about disease, emergency treatment, diet and rehabilitation guidance. After discharge, messages of health knowledge selected from the Health Knowledge Base were sent to patients by QQ, Fetion or Weichat.(those are common software that we can use it to connect with other people by word, voice and webcom in china)

2.3.2. Discharge process

Two days prior to discharge, patient data were entered into the database. These data, which determined the individual nursing plans of the patients, included: number of health card, clinical diagnosis, abnormal results of examination, nursing plan, nursing measures and nursing goals. The health status of patients was evaluated prior to the day of discharge and a care plan was prepared depending upon on the results