



ELSEVIER

Contents lists available at ScienceDirect

# Health Policy

journal homepage: [www.elsevier.com/locate/healthpol](http://www.elsevier.com/locate/healthpol)

## Effective strategy for improving health care outcomes: Multidisciplinary care in cerebral infarction patients



Kyu-Tae Han<sup>a,b</sup>, Eun-Cheol Park<sup>b,c</sup>, Sun Jung Kim<sup>d</sup>, Woorim Kim<sup>a,b</sup>,  
Myung-Il Hahm<sup>e</sup>, Sung-In Jang<sup>a,b,c</sup>, Sang Gyu Lee<sup>b,f,\*</sup>

<sup>a</sup> Department of Public Health, Graduate School, Yonsei University, Seoul, Republic of Korea

<sup>b</sup> Institute of Health Services Research, Yonsei University College of Medicine, Seoul, Republic of Korea

<sup>c</sup> Department of Preventive Medicine, Yonsei University College of Medicine, Seoul, Republic of Korea

<sup>d</sup> Department of Health Administration, Namseoul University, Cheonan, Republic of Korea

<sup>e</sup> Department of Health Administration and Management, Soonchunhyang University, Asan, Republic of Korea

<sup>f</sup> Department of Hospital Management, Graduate School of Public Health, Yonsei University, Seoul, Republic of Korea

### ARTICLE INFO

#### Article history:

Received 3 November 2014

Received in revised form 19 June 2015

Accepted 24 June 2015

#### Keywords:

Collaborative care

Multidisciplinary care

Stroke

30-day mortality

### ABSTRACT

Multidisciplinary teams provide effective patient treatment strategies. South Korea expanded its health program recently to include multidisciplinary treatment. This study characterized the relationship between multidisciplinary care and mortality within 30 days after hospitalization in cerebral infarction patients. We used the National Health Insurance claim data ( $n = 63,895$ ) from 120 hospitals during 2010–2013 to analyze readmission within 30 days after hospitalization for cerebral infarction. We performed  $\chi^2$  tests, analysis of variance and multilevel modeling to investigate the associations between multidisciplinary care and death within 30 days after hospitalization for stroke. Deaths within 30 days of hospitalization due to cerebral infarction was 3.0% ( $n = 1898/63,895$ ). Multidisciplinary care was associated with lower risk of death within 30 days in inpatients with cerebral infarction (odds ratio: 0.84, 95% confidence interval: 0.72–0.99). Patients treated by a greater number of specialists had lower risk of death within 30 days of hospitalization. Additional analyses showed that such associations varied by the combination of specialists (i.e., neurologist and neurosurgeon). In conclusion, death rates within 30 days of hospitalization for cerebral infarction were lower in hospitals with multidisciplinary care. Our findings certainly suggest that a high number of both neurosurgeon and neurologist is not always an effective alternative in managing stroke inpatients, and emphasize the importance of an optimal combination in the same number of hospital staffing.

© 2015 Elsevier Ireland Ltd. All rights reserved.

### 1. Background

Since South Korea introduced the National Health Insurance (NHI) for the entire population in 1989, the health

status of South Koreans has improved rapidly. However, new health problems associated with an aging population have emerged (individuals aged greater than 65 years, who represented 12.2% of the total population in 2013), and consequently, there has been increases in morbidity and mortality for chronic diseases [1].

Among them, stroke is a major cause of death in South Korea, (ranking third among all-causes mortality) [2]. According to a 2013 report by the Organization for Economic Cooperation and Development (OECD), the

\* Corresponding author at: Department of Hospital Management, Graduate School of Public Health, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 120-752, Republic of Korea. Tel.: +82 2 2228 1524; fax: +82 2 392 7734.

E-mail address: [LEEVAN@yuhs.ac](mailto:LEEVAN@yuhs.ac) (S.G. Lee).

mortality in South Korea surpassed that in other OECD countries (case fatality in adults aged  $\geq 45$  years within 30 days after admission: South Korea: 3.4 per 100 admissions, OECD average: 8.5 per 100 admissions) [3]. However, prevalence of stroke is expected to further increase due to an aging population; likewise, the cost-burden due to stroke is also expected to rise in South Korea [4,5].

In response to the increased demand for superior quality healthcare and the cost-burden, the South Korean government has introduced several strategies for controlling the needs and cost-burden of patients with chronic diseases [6,7]. Recently, the importance of treatment using multidisciplinary teams has been recognized. In August 2014, the South Korean government has provided additional incentives for multidisciplinary care; a governmental program providing an additional fee for multidisciplinary has expanded.

As described in previous studies, multidisciplinary care refers to the provision of medical services to patients by incorporating a multidisciplinary team care including medical, nursing, and other staff for patient's care. Providing care by those teams led better health outcomes in patients [8–11], with reduced duration of hospitalization [12,13]. In particular, providing multidisciplinary care to stroke patients can provide a more effective care to patients.

Despite many advantages and evidences being proven, programs providing incentives to multidisciplinary care is only appointed for the treatment of cancer patients in the present. This is because such programs for multidisciplinary care may incur an increased cost-burden, as many human and technical resources are needed in multidisciplinary care [14–16]. Still, it is expected that coverage for multidisciplinary care will gradually expand to other areas such as stroke inpatient care, considering the advantages of multidisciplinary and the increase in the number of stroke patients.

However, expanding such a program without an in-depth review process could cause excessive healthcare expenditures, and has the potential to induce demand as a part of making profit [17]. In addition, there are only a few evidence-based studies about multidisciplinary care in South Korea, especially study about the multidisciplinary care consisting of neurosurgeon and neurologist. Therefore, it is worthwhile to investigate the impact of multidisciplinary care in stroke inpatient to establish evidence for an effective strategy. Thus, this study characterized the relationship between multidisciplinary care and mortality within 30 days after hospitalization for stroke in South Korea. In addition, we performed a subgroup analysis to investigate whether such associations depended on the combination of each specialist (i.e., neurologists and neurosurgeons).

## 2. Methods

### 2.1. Study population

There are about 1730 hospitals including 40 public hospitals during the 2010–2013 year in South Korea, but the data we used in this study only included 160 hospitals (120 private and 40 public) after extracting through propensity

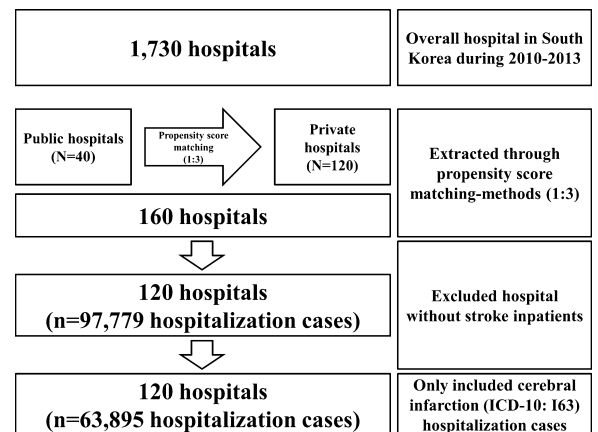


Fig. 1. Selection flow for study population.

score matching-methods (1:3), which adjusted some variables including: region of hospitals, nursing staffing level, number of total beds, number of intensive care unit beds, number of emergency room beds, and number of doctors. Afterwards, we excluded the hospitals without cerebral infarction inpatient cases ( $N = 40$ ). Cerebral infarction was classified according to the International Classification of Diseases (ICD-10: I63). Lastly, 120 hospitals (public = 32 vs private = 88, 63,895 hospitalization cases) excluding hospital without cerebral infarction inpatients cases were included for analysis. The unit of analysis was one hospitalization case (Fig. 1).

### 2.2. Variables

The outcome variable in this study was death within 30 days after hospitalization for cerebral infarction. We identified the patient's first hospitalization in the calendar year as the first index hospitalization. Next, a 30-day death was defined as death within 30 calendar days based on the first index hospitalization.

The primary variable of interest in relation to death within 30 days after hospitalization was hospital treatment via multidisciplinary care for cerebral infarction. Multidisciplinary care was defined as availability of multidisciplinary by the presence of both a neurologist and a neurosurgeon in the same hospital. If both types of specialists worked in a specific hospital, that hospital was defined as a 'yes' for multidisciplinary care.

We adjusted for inpatient- and hospital-level variables when analyzing the relationship between multidisciplinary care and death within 30 days after cerebral infarction. Inpatient-level variables included in the analysis were: length of stay, sex, Charlson Comorbidity Index (CCI), type of insurance coverage, age and year. CCI was calculated that comorbid conditions at hospitalization were weighted and scored for comorbid conditions, with additional points added to consider comorbidities which could affect outcomes of cerebral infarction inpatients. Types of insurance coverage defined as NHI normally applies to the general population, and beneficiaries of Medical Aid are defined as patients categorized as people with low

Download English Version:

<https://daneshyari.com/en/article/6239399>

Download Persian Version:

<https://daneshyari.com/article/6239399>

[Daneshyari.com](https://daneshyari.com)