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Survival Rate according to the Severity of Stroke and Rehabilitation Treatment Intensity in Korea

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Introduction

Under the only National health insurance system of Korea, we analyzed the survival rate after stroke in both acute and chronic stage depending on rehabilitation treatment intensity (the medical cost and the length of hospital stay) matched with post-stroke severity grade.

Methods

It was a retrospective cohort study based on nation-wide one million population data. We enrolled 1,025,340 subjects from January 2008 to December 2013 who had a stroke event and underwent post-stroke rehabilitation and finally extracted 7,086 subjects who underwent inpatient rehabilitation therapy. We divided patients into four groups according to the medical cost and the hospital stay in both acute and chronic stage of stroke and analyzed the survival rate in each group. Each group was matched with three severity groups according to the Korean disabled registration after stroke. Cox proportional hazard model was used and every group was adjusted for age and gender. The survival rate of the patients has been followed up to 60 months after the onset.

Results

As the greater severity of the stroke and the older ages, the longer the hospital stay and the higher medical cost (Table 1, Table 2) in both acute and chronic stages. However, longer hospital stay and higher medical cost showed higher hazard ratio to survival rate in the same severity group (Fig.1, Fig. 2, Fig.3, and Fig. 4).

Conclusions

These results suggest that stroke rehabilitation in Korea reflects the lack of an effective and systematic delivery system. Stroke patients who are older, have higher severity, or have acute or chronic complications are receiving inpatient rehabilitation, not for returning to family and society. Based on this study, it is necessary to establish an effective rehabilitation delivery system after stroke considering the age, stroke severity, in both acute and chronic phases after stroke.

Table 1. The demographic data of the subjects classified by medical cost in the acute stage

	Medical Cost Group (Low→High)			
	1	2	3	4
Mean Age (mean ± SD)	67.92±13.20	66.98±13.24*	68.29±13.95*	67.75±13.95
Mean Disability Grade (mean ± SD)	0.32±0.61	0.35±0.62	0.50±0.71*	0.78±0.76*
Mean Hospitalization days	7.18±9.72*	14.57±10.96*	40.95±34.83*	137.85±76.68*

* $p < 0.05$

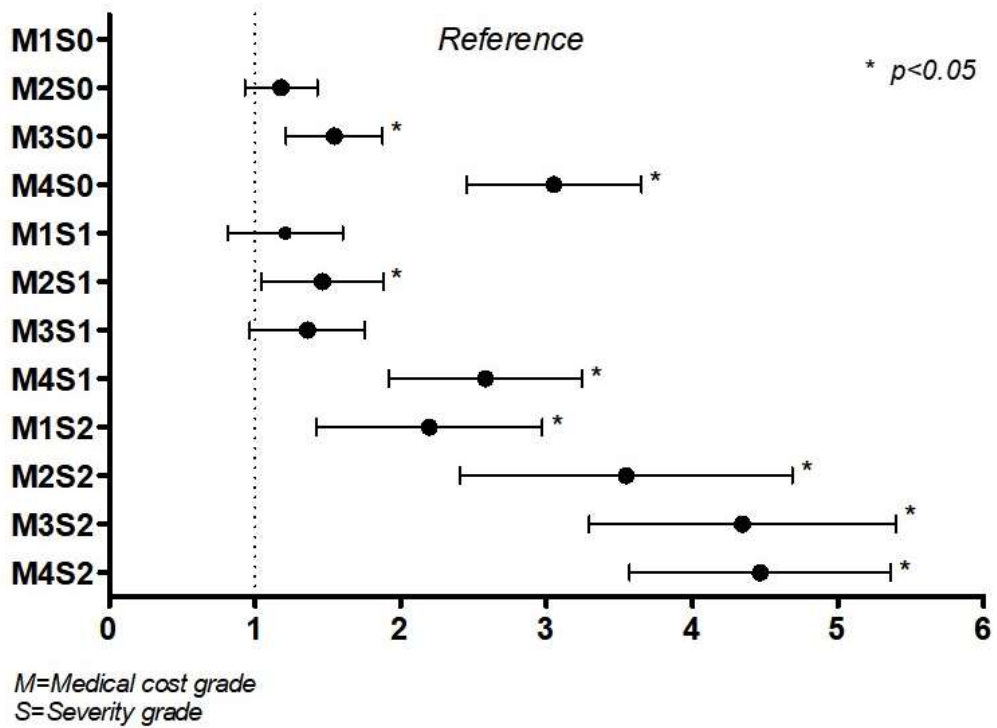
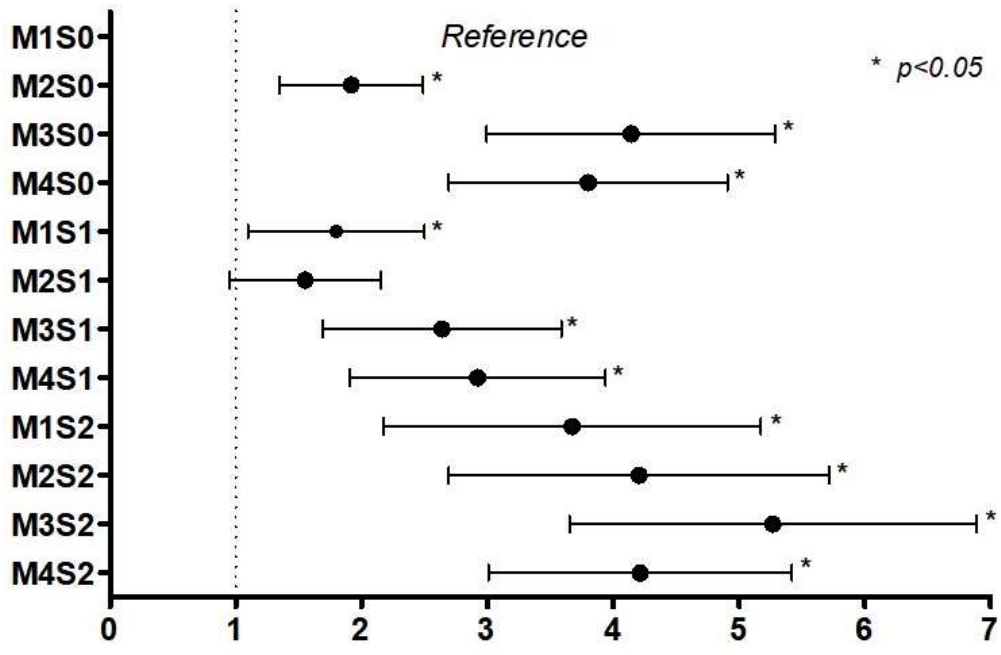


Fig 1. Hazard ratios according to the Medical cost and Severity of the Disability in the acute stage



M=Medical cost grade
S=Severity grade

Fig 2. Hazard ratio according to the Medical cost and Severity of the Disability in the chronic stage.