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Effect of Inter-departmental Stroke Meeting in Comprehensive Cerebrovascular Center : A pilot study

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Introduction
Stroke is the third leading cause of death and a primary cause of long-term disability in the korea(2012), with >60% of surviving stroke patients burdened with residual neurologic deficits. Effective rehabilitation after stroke can minimize functional disability, enhance recovery toward independence, and optimize community participation. Moreover, early rehabilitation interventions in the stroke patients improve their muscle strength and physical functioning, as well as decrease the duration of pre rehabilitation period. So, we evaluated the stroke meeting's effectiveness for hemorrhagic stroke patients management by comparing intervention before and after its initiation.

Method
Inter-departmental stroke meeting has been held from May 2014 once a week. In the meeting all the physicians such as neurologist, neurosurgeon, physiatrist participated in the review of acute stroke treatment, decision for secondary prevention and plan for rehabilitation. Medical records of 150 acute hemorrhagic stroke patients who had admitted at department of neurosurgery through emergency room in medical center that equipped for emergency care from September 2013 to August 2015 were reviewed retrospectively. Patients were classified into 3 groups : those admitted between September 2013 and April 2014 (group 1), those admitted between May 2014 and December 2014 (group 2), and those admitted between January 2015 and August 2015 (group 3). The patients of group 1 did not have Inter-departmental stroke meeting but the patients of group 2 and 3 did have. The independent T-test was used to analysis the mean of variables between groups.

Results
The number of group 1, 2, and 3 were 47, 52, and 51 respectively. (Table 1) The number of patients who were transferred to department of rehabilitation medicine was 65 out of 150. In comparison of transfer rate depending on whether or not the stroke meeting, there were not statistically different. Length of stay before transfer to department of rehabilitation medicine was reduced to 26 days from 33 days after performing the stroke meeting. Length of stay after transfer to department of rehabilitation medicine was reduced to 39 days from 58 days after performing the stroke meeting.

Conclusions
This study found that Inter-departmental stroke meeting was significantly correlated with improvement of length of stay. These results suggests that the therapeutic flow of

hemorrhagic stroke patients was more efficient due to the stroke meeting. Thus, stroke meeting is also very important intervention to hemorrhagic stroke patients.

Table 1

		Total	Phase 1	Phase 2	Phase 3	P - Value
Sex (% of male)		84 (56.0)	23 (48.9)	28 (53.8)	33 (64.7)	0.270
Age at onset (SD)		61.61 (14.16)	57.79 (12.68)	64.19 (14.51)	62.51 (14.61)	0.644
Education	≤12 year school age	121(81.2)	39 (84.8)	42 (80.8)	40 (78.4)	0.723
	>12 year school age	28 (18.8)	7 (15.2)	10 (19.2)	11 (21.6)	
Job state	White collar	15 (10.1)	5 (10.9)	5 (9.6)	5 (9.8)	0.342
	Blue collar	42 (28.2)	18 (39.1)	13 (25.0)	11 (21.6)	
	No occupation	92 (61.7)	23 (50.0)	34 (65.4)	35 (68.6)	
Insurance	% of NHS	131(87.3)	42 (89.4)	48 (92.3)	41 (80.4)	0.057
Hemorrhage type	ICH	105 (70.5)	30 (65.2)	33 (63.5)	42 (82.4)	0.177
	Cerebellar	8 (5.4)	1 (2.2)	5 (9.6)	2 (3.9)	
	Brain stem	1 (0.7)	0 (0.0)	0 (0.0)	1 (2.0)	
	SAH	33 (22.1)	14 (30.4)	13 (25.0)	6 (11.8)	
	IVH	2 (1.3)	1 (2.2)	1 (1.9)	0 (0.0)	
Mortality during admission		18 (12.2)	3 (6.5)	6 (11.5)	9 (18.0)	0.225
Total number of patients		150(100.0)	47(31.3)	52(34.7)	51(34.0)	

The phase 1 represents patients admitted between September 2013 and April 2014, phase 2 represents patients admitted between May 2014 and December 2014, and phase 3 represents patients admitted between January 2015 and August 2015 for the treatment of acute hemorrhagic stroke. Values are expressed as mean (standard deviation) or frequency (%) according to the characteristic. The p-values for statistical differences between transfer and non-transfer were calculated using the one-way ANOVA or Chi-square test.

SD, Standard Deviation; NHS, National Health Service; ICH, Intracerebral Hemorrhage; SAH, Subarachnoid Hemorrhage; IVH, Intraventricular Hemorrhage