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Therapeutic effects of rehabilitation therapy on controlling of Clostridium difficile infection

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Objective
To assess the prevalence of Clostridium difficile (CD) infection and therapeutic effects of rehabilitation therapy on treatment duration of CD infection in patients with stroke at tertiary university hospital

Materials and Methods
This is retrospective study. One thousand five patients who transferred to rehabilitation department were recruited. One hundred twenty four out of 1005 stroke patients who were concordant for Clostridium difficile (C. difficile) positively on culture and presence of toxigenic strain. The patients (n=124) diagnosed with CD infection were divided into two groups (Figure 1). Group 1 (n=67) consisted of patients who were hospitalized in rehabilitation department with greater mobilization through rehabilitation therapy, and group 2 (n=57) was patients with lesser mobilization who were hospitalized in neurology and neurosurgery department. We compared the differences of several risk factors, the treatment Method, and treatment duration between the two groups.

Results
There were no significant differences in demographics between two groups (Table 1). Among the risk factors related to CD infection, the period of use of antibiotics, H2 blocker, and enteral feeding was significantly higher in group 1 than that in group 2 (p<0.05, Table 2). The treatment duration of metronidazole PO medication was significantly shorter in group 1 than that in group 2 (p=0.011, Table 2)

Conclusions
This study showed that the group with rehabilitation therapy had shorter treatment duration of CD infection than that in the group without rehabilitation therapy. Rehabilitation therapy may be early and effectively controlling of CD infection in patients with stroke.

Table 1. Patients demographics and initial clinical data of CD infection risk factors (N = 124)

	Group 1 (n=67)		Group 2 (n=57)		P value
Age (years)	71.73±10.99		68.84±12.82		0.179
Sex, n (%)					0.065
Male/female	37(55.2)	/	22(38.6)	/	
	30(44.8)		35(61.4)		
Risk factor					
Pre-CD infection Antibiotics use	63(94.0)		50(87.7)		0.218
H2 blocker use	58(86.6)		39(40.2)		0.015*
PPI use	28(41.8)		16(28.1)		0.112
Enteral feeding	47(70.1)		38(66.7)		0.677

NOTE. Age value is mean ± SD

* P<0.05 by Mann-Whitney U test

Abbreviations: PMC, Pseudomembrane colitis; PPI, Proton pump inhibitor

Group 1: Patients with greater mobilization through rehabilitation therapy; Group 2: Patients with lesser mobilization

Table 2. Comparison of the risk factors and the treatment duration of CD infection between two groups

	Group 1 (n=67)	Group 2 (n=57)	P value
Antibiotics use (days)	17.21±18.51	11.71±9.46	0.039*
Gastric suppression			
H2 blocker (days)	33.20±23.65	19.75±19.92	0.003*
PPI (days)	22.71±19.51	16.25±15.32	0.480
Enteral feeding (days)	35.57±30.22	19.35±16.86	0.013*
Metronidazole PO medication (days)	12.69±6.49	16.05±6.53	0.011*

NOTE. Values are mean ± SD

* P<0.05 by Mann-Whitney U test

Abbreviations: PMC, Pseudomembrane colitis; PPI, Proton pump inhibitor

Group 1: Patients with rehabilitation therapy; Group 2: Patients without rehabilitation therapy

Patients with transferred to rehabilitation department (n=1005)

→ Excluded (n=877)
- Asymptomatic
- Negative for toxin assay

Positive for toxin assay (n=128)

→ Excluded (n=4)
Did not meet inclusion criteria

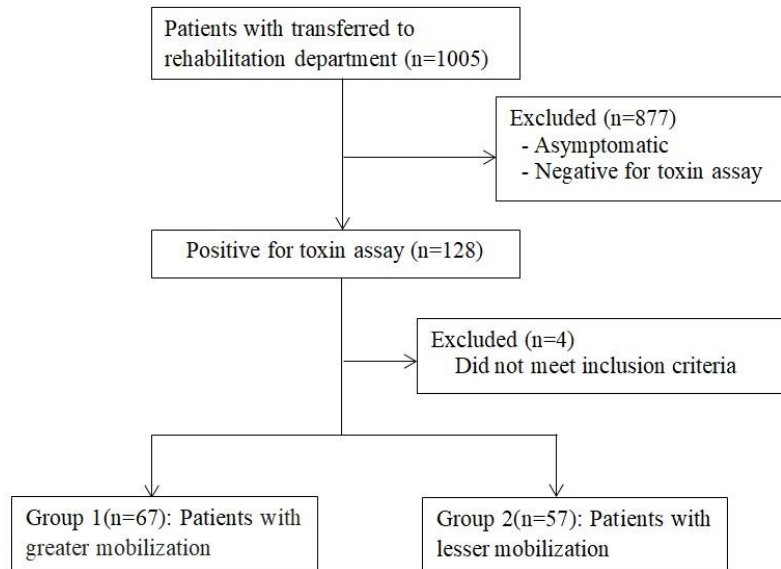Group 1(n=67): Patients with greater mobilization

Group 2(n=57): Patients with lesser mobilization

Figure 1. Flowchart of the study protocol