

Department of Physical and Rehabilitation Medicine, Inha University School of Medicine

Delirium is an acute fluctuating disorder of attention and awareness, which often complicates the clinical course of several conditions, including stroke. However, limited studies have assessed the impact of delirium on the prognosis of stroke patients. Therefore, the aim of this study was to investigate whether delirium impacts the outcome such motor function, activities of daily living, and, cognition in stroke patients.

We studied 50 stroke patients, divided into two groups with and without delirium. Patients with delirium were assessed using the Delirium Rating Scale (DRS-R-98). DRS-R-98-severity total score of 16 or more was considered as a delirium group. The study outcomes were measured using Fugl-Myer Assessment (FMA), Modified Barthel Index (MBI), and Mini-Mental Status Examination (MMSE) at admission and discharge. To examine the impact of delirium, repeated-measures analysis of variance (ANOVA) was used to determine the association between the presence of delirium and outcomes.

Among the 50 patients, 24 were in the delirium group (Table 1). Length of stay, ICU (Intensive Care Unit) admission, and infection, which were known to be associated with delirium, were significantly higher in the delirium group ($p < 0.001$). Functional assessments conducted at admission and discharge revealed significantly lower scores in the delirium group compared to the non-delirium group ($p < 0.001$) (Table 2). The improving rate of functional assessment of motor function ($p = 0.999$), activities of daily living ($p = 0.160$), and cognition ($p = 0.165$) did not differ significantly between groups from admission to discharge (Figure 1).

The figure consists of three line graphs arranged in a 2x2 grid, with the bottom-right cell empty. Each graph plots a clinical score on the y-axis against two time points, 'Admission' and 'Discharge', on the x-axis. Two data series are shown in each graph: 'No delirium' (solid blue line) and 'Delirium' (dotted red line). In all three graphs, the 'No delirium' group shows a higher score and a greater improvement from admission to discharge compared to the 'Delirium' group.

- Fugl-myer assessment:** The y-axis ranges from 0 to 80. The 'No delirium' group starts at approximately 58 at admission and increases to about 70 at discharge. The 'Delirium' group starts at approximately 35 at admission and increases to about 48 at discharge.
- Modified barthel index:** The y-axis ranges from 0 to 60. The 'No delirium' group starts at approximately 22 at admission and increases to about 55 at discharge. The 'Delirium' group starts at 0 at admission and increases to about 28 at discharge.
- Mini-mental status examination:** The y-axis ranges from 0 to 30. The 'No delirium' group starts at approximately 21 at admission and increases to about 24 at discharge. The 'Delirium' group starts at approximately 5 at admission and increases to about 11 at discharge.

	Delirium (+) (N=24)	Delirium (-) (N=26)	<i>p</i> Value
Age (years)	66 (13.8)	62 (15.5)	0.426
Sex			
Male	14 (53.8%)	16 (66.7%)	0.652
Female	12 (46.2%)	8 (33.3%)	
Stroke type			
Supratentorial	21 (88.5%)	16 (61.5%)	0.582
infratentorial	3 (12.5%)	10 (39.5%)	
BMI (kg/m2)	23 (4.0)	24 (3.1)	0.214
Length of stay	45 (19.4)	31 (9.5)	<0.001*
ICU admission			
Yes	17 (65.4%)	3 (12.5%)	<0.001*
No	9 (34.6%)	21 (88.5%)	
Current infection *			
Yes	23 (88.5%)	8 (33.3%)	<0.001*
No	3 (11.5%)	16 (66.7%)	

	Delirium (+) (N=24)	Delirium (-) (N=26)	<i>p</i> Value
FMA			
Admission	34.7 (32.6)	57.3 (32.1)	<0.001*
Discharge	47.3 (37.6)	69.9 (27.6)	
MBI			
Admission	1.4 (3.42)	21.4 (15.3)	<0.001*
Discharge	26.7 (23.8)	55.6 (19.5)	
MMSE			
Admission	5.2 (6.6)	20.5 (7.3)	<0.001*
Discharge	11.3 (8.8)	24.2 (5.4)	

Data are expressed as mean (standard deviation)
p -value<0.05*
FMA: Fugl-Myer Assessment, MBI: Modified Barthel Index, MMSE: Mini-Mental Status Examination

In both admission and discharge assessments, delirium group had lower scores on FMA, MBI, and MMSE. However, when examining the patterns of change over time, significant differences between the two groups were not evident. While the presence of delirium adversely affected functional aspects, its influence on the rate of recovery was not significant. Therefore, adequate and intensive rehabilitation should be performed regardless of the presence or absence of delirium.