EARLY RECURRENT STROKE IN PATIENTS RECEIVING MECHANICAL THROMBECTOMY

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Background: Mechanical thrombectomy for acute ischemic stroke is a proven technique effective in selective patients. This study described the incidence and clinical characteristics of early recurrent stroke (ERS) in patients receiving mechanical thrombectomy from a single center in Taiwan.

Methods: We retrospectively reviewed patients who had acute ischemic stroke and received mechanical thrombectomy from January 2015 to September 2018 at National Taiwan University Hospital. ERS was defined as newly developed neurological deficit in another vascular territory that is not initially involved and not caused by hemorrhage within 30 days after the onset of index stroke. Good functional outcome was defined as modified Rankin Scale ≤ 2 at 3 months after stroke.

Results: During the period, 200 patients (mean age 71.62 ± 12.34 years, male 49.0%) received mechanical thrombectomy. 17 patients (mean age 65.0 ± 15.54 years, male 35.3%) developed ERS (8.50 %, 95% confidence interval 5.39- 13.39 %.) The stroke etiologies of those with ERS were cardioembolism in 10 (58.8 %) patients, active cancer with positive disseminated intravascular coagulation profiles in 4 patients (23.5%), catastrophic antiphospholipid syndrome in 1 (5.9%) patient, and large artery atherosclerosis in 2 (11.8%) patients. 10 (58.8 %) of them received repeated mechanical thrombectomy, all achieving successful revascularization and none developed symptomatic hemorrhage. The patients with and without ERS had comparable good functional outcome (29.4% versus 41.0%, $p= 0.31$.)

Conclusion: ERS in stroke patients with mechanical thrombectomy was not rare, and repeated mechanical thrombectomy could be effective and feasible in subjects with ERS.

	Age	Gender	Initial Event/Management	Time interval (Days)	2 nd Event/Management	Etiology (TOAST)	Outcome (mRS)
1	83	F	Left MCA M1/Thrombectomy	9	Right MCA/supportive care	CE	6
2	80	F	Left MCA M1/Thrombectomy	1	Right MCA M1/Thrombectomy	SOE	6
3	44	F	Left MCA M1/Thrombolysis + Thrombectomy	3	Left ICA/Supportive care	CE	6
4	79	F	Left MCA M1/Thrombectomy	7	Left MCA M3/Supportive care	CE	2
5	52	M	Right MCA M1/Thrombolysis + Thrombectomy	1	Right MCA M1/Thrombectomy	LAA	1
6	64	F	Left MCA M1/Thrombectomy	3	Right MCA/supportive care	SOE	6
7	54	M	Left ICA/Thrombolysis + Thrombectomy	6	Left MCA M2/supportive care	CE	1
8	41	F	Left MCA M2/Thrombolysis + Thrombectomy	1	Basilar artery/Thrombectomy	SOE	6
9	58	M	Left MCA M1/Thrombectomy	6	Left ICA/Thrombectomy	CE	1
10	46	F	Left MCA M2/Thrombectomy	5	Left MCA M2/Thrombectomy	SOE	6
11	71	M	Left MCA M2/Thrombolysis + Thrombectomy	3	Posterior circulation/Supportive care	CE	3
12	51	F	Basilar artery/Thrombectomy	30	Right ICA/Thrombectomy	SOE	6
13	54	M	Left ICA/Thrombectomy	9	Left ICA/Thrombectomy	CE	3
14	73	F	Right MCA M1/Thrombectomy	13	Left PCA/Supportive care	CE	4
15	87	F	Basilar artery/Thrombectomy	1	Basilar artery/Thrombectomy	LAA	4
16	87	F	Right MCA M1/Thrombectomy	5	Basilar artery/Thrombectomy	CE	4
17	81	M	Right MCA M1/Thrombectomy	8	Right MCA M1/Thrombectomy	CE	1

Table 1. Patient profile, involved vascular territory, event interval, stroke etiology and outcome of patients who developed recurrent ischemic stroke after initial mechanical thrombectomy in our study. Abbreviations: F, female; M, male; mRS, modified Rankin Score; TOAST, Trial of ORG 10172 in Acute Stroke Treatment; CE, Cardioembolism; LAA, Large-artery atherosclerosis; SOE, Stroke of other determined etiology.

Figure 1. An example of recurrent ischemic stroke after initial mechanical thrombectomy (patient No. 16.) Initially the patient presented and was proven to have right MCA M1 occlusion by CT angiography (Fig. 1-A.) Reperfusion was achieved through mechanical thrombectomy (Fig. 1-B) with minor residual infarct core (Fig. 1-C.) 5 days later, the patient had recurrent ischemic stroke involving the top of basilar artery (Fig. 1-D.) She again received mechanical thrombectomy (Fig. 1-E) with residual infarction in the posterior circulation (Fig. 1-F.)