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論文審査担当者	主査： 樋渡 昭雄 副査： 瀬尾 由広，祖父江 和哉

The Feasibility of Mechanical Thrombectomy on Single-Plane Angiosuite: An In-Depth Analysis of Procedure Time

Abstract

Mechanical thrombectomy (MT) is usually performed on biplane (BP) angiosuites. When the BP angiosuite is not available, the single-plane (SP) angiosuite may be a substitute. However, the feasibility of MT performed on the SP angiosuite is yet to be elucidated. Therefore, we investigated the alternative effect of the SP angiosuite on the detailed division of procedure time, recanalization rate, and outcome in patients with anterior circulation infarction.

The subjects included 80 consecutive patients with anterior circulation infarction who underwent MT at our hospital between May 2015 and December 2020. Demographics and characteristics of the BP and SP groups were assessed and compared. The time from puncture to guiding catheter placement (P-G), time from guiding catheter placement to recanalization (G-R), and time from puncture to recanalization (P-R) were also extracted. A good outcome was defined as a modified Rankin scale score ≤2 at 3 months.

Of the 80 patients, 67 and 13 were treated with BP and SP angiosuites, respectively. There were no differences in age, sex, complications, Alberta Stroke Program Early CT Score, National Institutes of Health Stroke Scale score at onset, occlusion site, rate of recombinant tissuetype plasminogen activator administration, stroke subtype, recanalization rate, and complications between the 2 groups. The rate of a good outcome was not different between the 2 groups. P-G was significantly longer in the SP group than in the BP group, whereas there was no significant difference in G-R and P-R between the 2 groups (P-G: BP 29.9 ± 21.8 vs. SP 48.5 ± 43.6 min, $p = 0.04$).

MT performed on the SP angiosuite tended to prolong the time for guiding catheter placement. However, there was no difference in the overall procedure time, recanalization rate, or outcome between BP and SP angiosuites. Therefore, if the BP angiosuite is not available, the use of the SP angiosuite should be encouraged.