**ONLINE SUPPLEMENT**

**Vascular wall components in thrombi obtained by acute stroke thrombectomy: Clinical significance and related factors**

**Supplemental Appendix**

Supplemental Figure I. Flow diagram of patients screened, enrolled, and analyzed

Supplemental Figure II. Photomicrograph of the vascular wall component retrieved with thrombus and organized thrombus

Supplemental Table I. Associations between VWCs and mechanical thrombectomy devices

Supplemental Table II. Factors related to successful reperfusion

Supplemental Figure I. Flow diagram of patients screened, enrolled, and analyzed



Supplemental Figure II. Photomicrograph of the vascular wall component retrieved with thrombus and organized thrombus



A. Organized thrombus with unclear boundary and complicated fibrosis seen in a part of the thrombus. Masson’s trichrome, original magnification ×40.

B. Vascular wall component as banded collagen fibers with distinct boundary existing mainly at the margin or outside of the thrombus. Masson’s trichrome, original magnification ×100.

C. The area of the vascular wall component was measured by plotting the margin manually in a slice stained with Masson’s trichrome. If the collagen fiber was one layer, the short diameter of the vascular wall component was measured as the thickness. Masson’s trichrome, original magnification ×200.

Supplemental Table I. Associations between VWCs and mechanical thrombectomy devices

|  |  |  |  |
| --- | --- | --- | --- |
|  | ADAPT  n=76 | Stent retriever  n=74 | p value |
| With VWCs | 10 (13) | 14 (19) | .34 |
| With IEL | 4/8 (50) | 8/11 (73) | .38 |
| Thickness, µm, | 18.0 (8.8-34.3) (n=10) | 59.0 (13.8-244.3) (n=14) | .17 |
| Area, µm2 | 5441 (2075-75360) (n=10) | 57659 (6202-318623) (n=14) | .11 |

n (%) or median (interquartile range)

ADAPT = a direct aspiration first pass technique using the Penumbra reperfusion catheter. VWCs = vascular wall components. IEL = internal elastic lamina.

P value calculated by Fisher’s exact test for categorical data and the Mann-Whitney U test for continuous data.

Supplemental Table II. Factors related to successful reperfusion

|  |  |  |  |
| --- | --- | --- | --- |
| Clinical aspects | mTICI≥2b (n=86) | mTICI≤2a (n=15) | P value |
| Age, years, mean±SD | 75.5±10.5 | 71.7±14.4 | .50 |
| Female sex | 38 (44) | 9 (60) | .26 |
| Diabetes | 18 (21) | 3 (20) | .99 |
| History of hypertension | 57 (67) | 9 (60) | .59 |
| Atrial fibrillation | 57 (67) | 10 (67) | .98 |
| Current smoking | 35 (50) | 5 (36) | .33 |
| Baseline NIHSS score | 19.0 (13.5-25.3) | 16.0 (9.0-25.0) | .60 |
| Intravenous rt-PA | 34 (40) | 7 (47) | .60 |
| Location of occlusion |  |  | .39 |
| ICA | 33 (38) | 5 (33) |  |
| MCA M1 | 28 (33) | 6 (40) |  |
| MCA M2 or more distal | 14 (16) | 4 (27) |  |
| VA/BA | 11 (13) | 0 (0) |  |
| Stroke subtype |  |  | .69 |
| Large artery atherosclerosis | 10 (12) | 1 (7) |  |
| Cardioembolic | 66 (77) | 13 (87) |  |
| Others/Unknown | 10 (12) | 1 (7) |  |
| VWC-positive thrombi | 16 (19) | 6 (40) | .06 |
| Ratio of erythrocyte components, % | 58.4±24.3 | 42.4±25.3 | .02 |
| Multiple devices | 27 (31) | 11 (73) | .003 |
| Number of device passages | 2 (1-3) | 3 (2-6) | .005 |
| The device reaching distally\* | 49 (57) | 12 (80) | .15 |

n (%) or median (interquartile range)

VWCs = vascular wall components. SD = standard deviation. NIHSS = National Institutes of Health Stroke Scale. rt-PA = recombinant tissue plasminogen activator. ICA = internal carotid artery. MCA = middle cerebral artery. BA = basilar artery. VA = vertebral artery. mTICI = modified Treatment in Cerebral Ischemia.

\*Distal sites where devices reached were defined as the M2 portion of the middle cerebral artery, the P2 portion of the posterior cerebral artery, or more distal.

P value calculated by Fisher’s exact test for categorical data and the Mann-Whitney U test for continuous data.