**Supplementary Table 1:** The comparison of baseline characteristics between all patients and patients with SWI.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **All patients**  **n=101** | **patients with SWI imaging**  **n=61** | **P** |
| Age, mean (SD), y | 63 (10.08) | 64 (10.30) | 0.376 |
| Female, n (%) | 29 (28.71) | 14 (23.00) | 0.467 |
| Baseline NIHSS, median (IQR) | 4 (2-6) | 3 (2-5) | 0.337 |
| Blood glucose, median (IQR), mmol/L | 6.70 (5.80-8.15) | 6.70 (5.88-8.45) | 0.802 |
| Baseline SBP, mean (SD), mmHg | 156 (28.87) | 159 (30.74) | 0.496 |
| Baseline DBP, mean (SD), mmHg | 90 (15.93) | 91 (16.11) | 0.580 |
| Baseline MAP, mean (SD), mmHg | 112 (18.47) | 114 (19.11) | 0.488 |
| Hypertension, n (%) | 69 (68.31) | 43 (70.50) | 0.861 |
| Hypercholesterolemia, n (%) | 26 (25.74) | 12 (19.67) | 0.446 |
| Diabetes, n (%) | 25 (24.75) | 16 (26.23) | 0.854 |
| Smoking, n (%) | 47 (46.53) | 31 (50.80) | 0.426 |
| History of prior stroke, n (%) | 14 (13.86) | 10 (16.39) | 0.820 |
| Antiplatelet drug history, n (%) | 11 (10.89) | 7 (11.48) | 0.909 |
| Anticoagulant drug history, n (%) | 1 (0.99) | 1 (1.63) | 1.000 |
| IVT, n (%) | 56 (55.45) | 31 (50.82) | 0.627 |
| 3-month mRS 0-1(n=88), n (%) | 60 (68.18) | 31 (60.78) | 0.460 |
| **Lesion hemisphere** |  |  |  |
| CBV, median (IQR), ml/1000g | 24.77 (20.54-28.90) | 23.93 (19.96-28.15) | 0.367 |
| CBF, median (IQR), ml/min/100g | 24.51 (18.35-29.63) | 22.20 (18.09-28.30) | 0.250 |
| MTT, median (IQR), sec/100 | 557.75 (507.34-634.95) | 574.27 (520.32-646.90) | 0.511 |
| DT, median (IQR), sec/100 | 45.35 (23.40-72.36) | 38.3 (17.45-57.83) | 0.178 |
| **Contralateral hemisphere** |  |  |  |
| CBV, median (IQR), ml/1000g | 24.87 (22.41-28.09) | 24.01 (21.25-27.37) | 0.213 |
| CBF, median (IQR), ml/min/100g | 25.22 (19.94-29.04) | 22.70 (19.41-28.16) | 0.122 |
| MTT, median (IQR), sec/100 | 558.24 (494.71-642.61) | 586.91 (515.99-652.03) | 0.425 |
| DT, median (IQR), sec/100 | 45.57 (23.23-68.33) | 32.59 (15.92-60.94) | 0.157 |

Abbreviations: SD: standard deviation; IQR: interquartile range; NIHSS: National Institutes of Health Stroke Scale; SBP: systolic blood pressure; DBP: diastolic blood pressure; MAP: mean arterial pressure; IVT: intravenous thrombolysis; mRS: modified Rankin Scale; CBV: cerebral blood volume; CBF: cerebral blood flow; MTT: mean transit time; DT: delay time.

**Supplementary Table 2:** The comparison of baseline characteristics between all patients and patients with 3-month follow-up records.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **All patients**  **n=101** | **Patients with follow-up records**  **n=88** | **P** |
| Age, mean (SD), y | 63 (10.08) | 63 (9.65) | 0.966 |
| Female, n (%) | 29 (28.71) | 25 (31.82) | 1.000 |
| Baseline NIHSS, median (IQR) | 4 (2-6) | 4 (2-6) | 0.910 |
| Blood glucose, median (IQR), mmol/L | 6.70 (5.80-8.15) | 6.65 (5.78-8.03) |  |
| Baseline SBP, mean (SD), mmHg | 156 (28.87) | 156 (28.43) | 0.989 |
| Baseline DBP, mean (SD), mmHg | 90 (15.93) | 90 (15.37) | 0.841 |
| Baseline MAP, mean (SD), mmHg | 112 (18.47) | 112 (17.95) | 0.887 |
| Hypertension, n (%) | 69 (68.31) | 57 (64.77) | 0.644 |
| Hypercholesterolemia, n (%) | 26 (25.74) | 23 (26.14) | 1.000 |
| Diabetes, n (%) | 25 (24.75) | 21 (23.86) | 1.000 |
| Smoking, n (%) | 47 (46.53) | 41 (46.59) | 0.708 |
| History of prior stroke, n (%) | 14 (13.86) | 14 (15.91) | 0.838 |
| Antiplatelet drug history, n (%) | 11 (10.89) | 10 (11.36) | 1.000 |
| Anticoagulant drug history, n (%) | 1 (0.99) | 1 (1.13) | 1.000 |
| IVT, n (%) | 56 (55.45) | 48 (54.55) | 1.000 |
| **Lesion hemisphere** |  |  |  |
| CBV, median (IQR), ml/1000g | 24.77 (20.54-28.90) | 25.20 (20.54-29.17) | 0.884 |
| CBF, median (IQR), ml/min/100g | 24.51 (18.35-29.63) | 24.84 (18.35-29.84) | 0.794 |
| MTT, median (IQR), sec/100 | 557.75 (507.34-634.95) | 549.41 (504.57-617.68) | 0.836 |
| DT, median (IQR), sec/100 | 45.35 (23.40-72.36) | 45.35 (24.82-72.36) | 0.848 |
| **Contralateral hemisphere** |  |  |  |
| CBV, median (IQR), ml/1000g | 24.87 (22.41-28.09) | 24.87 (23.08-28.09) | 0.964 |
| CBF, median (IQR), ml/min/100g | 25.22 (19.94-29.04) | 25.56 (20.00-29.28) | 0.737 |
| MTT, median (IQR), sec/100 | 558.24 (494.71-642.61) | 556.40 (489.70-631.14) | 0.667 |
| DT, median (IQR), sec/100 | 45.57 (23.23-68.33) | 46.53 (25.23-68.33) | 0.856 |

Abbreviations: SD: standard deviation; IQR: interquartile range; NIHSS: National Institutes of Health Stroke Scale; SBP: systolic blood pressure; DBP: diastolic blood pressure; MAP: mean arterial pressure; IVT: intravenous thrombolysis; CBV: cerebral blood volume; CBF: cerebral blood flow; MTT: mean transit time; DT: delay time.

**Supplementary Table 3:** Correlation analysis between baseline BP and hemispheric perfusion parameters.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SBP** |  | **DBP** |  | **MAP** |  |
| **Contralateral hemisphere** | **r** | **P** | **r** | **P** | **r** | **P** |
| CBV | -0.152\* | 0.129 | -0.135\* | 0.180 | -0.181\* | 0.070 |
| CBF | -0.198\* | 0.047 | -0.229\* | 0.021 | -0.254\* | 0.010 |
| MTT | 0.102\* | 0.311 | 0.079\* | 0.430 | 0.131\* | 0.190 |
| DT | -0.030\* | 0.764 | 0.021\* | 0.834 | -0.081\* | 0.420 |

Abbreviations: SBP: systolic blood pressure; DBP: diastolic blood pressure; MAP: mean arterial pressure; CBV: cerebral blood volume; CBF: cerebral blood flow; MTT: mean transit time; DT: delay time.

\* P-value was calculated using Spearman correlation analysis

**Supplementary Table 4:** Effect of premorbid hypertension in relationship between baseline BP and CBF

|  |  |  |  |
| --- | --- | --- | --- |
| **Patients with the history of hypertension (n=69)** | | | |
| Contralateral hemisphere CBF# | coefficient | 95%CI | P |
| SBP | -0.001 | -0.002 to 0.000 | 0.017 |
| DBP | -0.002 | -0.003 to -0.000 | 0.022 |
| **Patients without the history of hypertension (n=32)** | | | |
| Contralateral hemisphere CBF# | coefficient | 95%CI | P |
| SBP | 0.000 | -0.002 to 0.001 | 0.731 |
| DBP | -0.001 | -0.004 to 0.002 | 0.424 |

Abbreviations: CBF: cerebral blood flow; SBP: systolic blood pressure; DBP: diastolic blood pressure; CI: confidence interval.

# transformed to log (contralateral hemisphere CBF)

**Supplementary Table 5:** Effect of severity of CSVD burden in relationship between baseline BP and CBF.

|  |  |  |  |
| --- | --- | --- | --- |
| **Patients with none to mild CSVD burden (n=22)** | | | |
| Contralateral hemisphere CBF# | coefficient | 95%CI | P |
| SBP | 0.000 | -0.001 to 0.001 | 0.981 |
| DBP | 0.000 | -0.002 to 0.003 | 0.802 |
| **Patients with moderate to severe CSVD burden (n=39)** | | | |
| Contralateral hemisphere CBF# | coefficient | 95%CI | P |
| SBP | -0.001 | -0.003 to 0.000 | 0.039 |
| DBP | -0.002 | -0.004 to 0.001 | 0.121 |

Abbreviations: CBF: cerebral blood flow; SBP: systolic blood pressure; DBP: diastolic blood pressure; CI: confidence interval.

# transformed to log (contralateral hemisphere CBF)

**Supplementary Table 6:** Relationship between BP and clinical functional outcomes.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Unadjusted** | | | **Multivariate adjusted\*** | | |
|  | OR | 95% CI | P | OR | 95% CI | P |
| **BP and mRS 0-1** |  |  |  |  |  |  |
| SBP | 0.994 | 0.979-1.010 | 0.490 | 0.992 | 0.974-1.009 | 0.348 |
| DBP | 0.993 | 0.965-1.023 | 0.656 | 0.993 | 0.960-1.026 | 0.660 |
| MAP | 0.992 | 0.967-1.017 | 0.536 | 0.989 | 0.962-1.017 | 0.536 |

Abbreviations: BP: blood pressure; SBP: systolic blood pressure; DBP: diastolic blood pressure; MAP: mean arterial pressure; mRS: modified Rankin Scale; OR: odd ratio; CI: [confidence interval](javascript:;).

\* adjusted for baseline NIHSS and CBF of the ipsilateral hemisphere.