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**Title: Soluble ST2 and risk of cognitive impairment after acute ischemic stroke:** **a prospective observational study**

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**Cover title:** Soluble ST2 and Post-stroke cognitive impairment

**Additional file：**Supplementary Figures: 2; Supplementary Tables: 2.

**Supplementary material**

**Supplementary Figure 1** Study participant flow chart.

CATIS: China Antihypertensive Trial in Acute Ischemic Stroke

**Supplementary Figure 2** Comparison of ROC curves for sST2 vs NT-proBNP in predicting PSCI.



Panel A: MoCA score; Panel B: MMSE score.

ROC: Receiver operating characteristic; PSCI: Post-stroke cognitive impairment;

MoCA: Montreal Cognitive Assessment; MMSE: Mini-Mental State Examination; sST2: soluble suppression of tumorigenicity 2; NT-proBNP: N-terminal pro-B-type natriuretic peptide; CI: Confidence interval; AUC: Area under the ROC curve.

**Supplementary Table 1** Missing variable in the study.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Total | Missing(%) | Variable | Total | Missing(%) |
| Age | 619 | 0 (0.00) | Education level | 619 | 0 (0.00) |
| Baseline diastolic BP | 619 | 0 (0.00) | Family history of stroke | 619 | 0 (0.00) |
| Baseline hsCRP | 579 | 40 (6.46) | Hyperlipidemia | 619 | 0 (0.00) |
| Baseline mRS | 619 | 0 (0.00) | Hypertension | 619 | 0 (0.00) |
| Baseline NIHSS | 619 | 0 (0.00) | Receiving immediate BP reduction | 619 | 0 (0.00) |
| Baseline systolic BP | 619 | 0 (0.00) | Sex | 619 | 0 (0.00) |
| Baseline sST2 | 619 | 0 (0.00) | Smoking | 619 | 0 (0.00) |
| Coronary heart disease | 619 | 0 (0.00) | Stroke subtype | 619 | 0 (0.00) |
| Diabetes mellitus | 619 | 0 (0.00) | Time from onset to randomization | 616 | 3 (0.48) |
| Drinking | 619 | 0 (0.00) | Use of antihypertensive drugs | 619 | 0 (0.00) |

BP: blood pressure; hsCRP: high-sensitive C-reactive protein; mRS: modified Rankin Scale score; NIHSS: National Institutes of Health Stroke Scale score; sST2: soluble suppression of tumorigenicity 2.

**Supplementary Table 2** Baseline characteristics of acute ischemic stroke patients

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristics | Excluded | Enrolled | p value |
| Number of patients | 3452 | 619 |  |
| **Demographics** |  |  |  |
| Age, y | 62.3 ± 10.9 | 60.0 ± 10.5 | <0.001 |
| Male sex  | 2170 (62.9) | 434 (70.1) | <0.001 |
| Education level  |  |  | <0.001 |
| Illiteracy | 491 (14.2) | 51 (8.2) |  |
| Primary | 1306 (37.8) | 234 (37.8) |  |
| High school | 1482 (42.9) | 295 (47.7) |  |
| College or higher | 173 (5.0) | 39 (6.3) |  |
| Current alcohol drinking | 1040 (30.1) | 213 (34.4) | 0.034 |
| Current cigarette smoking  | 1252 (36.3) | 233 (37.6) | 0.51 |
| **Clinical features** |  |  |  |
| Time from onset to randomization, h  | 10.0 (4.5-24.0) | 10.0 (5.0-24.0) | 0.85 |
| Baseline systolic BP, mm Hg | 165.9 ± 16.9 | 167.5 ± 16.7 | 0.032 |
| Baseline diastolic BP, mm Hg  | 96.4 ± 11.3 | 98.3 ± 10.0 | <0.001 |
| Body mass index, kg/m2 | 24.8 (22.9-26.8) | 24.7 (22.9-26.5) | 0.66 |
| Baseline NIHSS score  | 4.0 (2.0-8.0) | 4.0 (3.0-7.0) | 0.16 |
| Baseline modified Rankin Scale score | 3.0 (2.0-4.0) | 3.0 (2.0-4.0) | 0.16 |
| High-sensitive C-reactive protein, mg/L | 2.5 (0.8-8.3) | 2.1 (0.8-5.2) | 0.001 |
| **Medical history** |  |  |  |
| Hypertension | 2733 (79.2) | 476 (76.9) | 0.20 |
| Coronary heart disease  | 378 (11.0) | 66 (10.7) | 0.83 |
| Diabetes mellitus | 615 (17.8) | 104 (16.8) | 0.54 |
| Hyperlipidemia | 235 (6.8) | 42 (6.8) | 0.98 |
| Family history of stroke | 652 (18.9) | 101 (16.3) | 0.13 |
| Use of antihypertensive drugs  | 1727 (50.0) | 270 (43.6) | 0.003 |
| SUBTYPE |  |  | <0.001 |
| Thrombotic | 2742 (79.4) | 402 (64.9) |  |
| Embolic | 171 (5.0) | 23 (3.7) |  |
| Lacunar | 539 (15.6) | 194 (31.3) |  |
| Receiving immediate BP reduction | 1735 (50.3) | 303 (49.0) | 0.55 |
| Anticoagulant treatment | 1222(35.4) | 151(24.4) | <0.001 |
| Hypoglycemic treatment | 608(17.6) | 105(17.0) | 0.70 |

Abbreviations: BP, blood pressure; NIHSS, National Institute of Health Stroke Scale.

\*Continuous variables are expressed as mean ± standard deviation or median (interquartile range). Categorical variables are expressed as frequency (%).