**Supplementary Material**

Supplementary Table 1: Comparison between ICH patients excluded and included in the study

|  |  |  |  |
| --- | --- | --- | --- |
|  | **NCCT >24h or unavailable DICOM files (n=120)** | **Final study population (n=328)** | **P** |
| Male sex | 64 (53.3) | 179 (54.6) | 0.816 |
| Age (years) | 69 (54-78) | 70 (61-80) | 0.045 |
| Previous functional dependence | 14 (11.7) | 67 (20.4) | 0.033 |
| Hypertension | 81 (67.5) | 278 (84.8) | <0.001 |
| Dyslipidemia | 54 (45.0) | 160 (48.8) | 0.478 |
| Diabetes | 27 (22.5) | 80 (24.4) | 0.678 |
| Atrial fibrillation | 28 (23.3) | 51 (15.5) | 0.056 |
| Anticoagulation | 26 (21.7) | 53 (16.2) | 0.176 |
| Antiplatelet therapy | 26 (21.7) | 88 (26.8) | 0.267 |
| Admission systolic blood pressure (mmHg) | 156 (135-183) | 160 (141-182) | 0.509 |
| Admission diastolic blood pressure (mmHg) | 85.5 (74-102) | 85 (72-99) | 0.555 |
| Admission glucose (mg/dL) | 141 (110-179.5) | 130 (109-169) | 0.322 |
| Admission Glasgow Coma Scale score | 14 (12-15) | 14 (10-15) | 0.021 |
| Deep hemorrhage | 33 (27.5) | 179 (54.6) | <0.001 |
| Lobar hemorrhage | 58(48.3) | 105 (32.0) | 0.001 |
| Infratentorial hemorrhage | 29 (24.2) | 45 (13.7) | 0.008 |
| Intraventricular rupture | 55 (45.8) | 138 (42.1) | 0.477 |
| Death at 30 days | 22 (18.3) | 92 (28.1) | 0.035 |

Supplementary Table 2: Comparison between ICH patients with and without follow-up noncontrast computed tomography.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **No follow-up NCCT (n=97)** | **Follow-up NCCT (n=231)** | **P** |
| Male sex | 50 (51.5) | 129 (55.8) | 0.476 |
| Age (years) | 72 (61.5-84.5) | 70 (60-78) | 0.046 |
| Previous functional dependence | 25 (25.8) | 42 (18.2) | 0.120 |
| Hypertension | 84 (86.6) | 194 (84.0) | 0.548 |
| Dyslipidemia | 47 (48.5) | 113 (48.9) | 0.939 |
| Diabetes | 22 (22.7) | 58 (25.1) | 0.640 |
| Atrial fibrillation | 14 (14.4) | 37 (16.0) | 0.718 |
| Anticoagulation | 16 (16.5) | 37 (16.0) | 0.915 |
| Antiplatelet therapy | 31 (32.0) | 57 (24.7) | 0.174 |
| Admission systolic blood pressure (mmHg) | 161 (141-184) | 160 (141-180) | 0.743 |
| Admission diastolic blood pressure (mmHg) | 87 (72-105) | 83 (72-97) | 0.238 |
| Admission glucose (mg/dL) | 138 (106-180.5) | 127 (109-161) | 0.179 |
| Glasgow Coma Scale score | 10 (6-14) | 14 (11-15) | <0.001 |
| Depp hemorrhage | 50 (51.5) | 129 (55.8) | 0.476 |
| Lobar hemorrhage | 35 (36.1) | 70 (30.3) | 0.306 |
| Infratentorial hemorrhage | 13 (13.4) | 32 (13.9) | 0.914 |
| Intraventricular rupture | 58 (59.8) | 80 (34.6) | <0.001 |
| Death during the first 48 hours | 32 (33.0) | 4 (1.7) | <0.001 |
| Death during the first 30 days | 55 (56.7) | 37 (16.1) | <0.001 |

Supplementary Table 3: Noncontrast computed tomography markers as predictors of hematoma growth (>6mL or >33%) in follow-up noncontrast computed tomography (logistic regression analysis including only patients who performed CT <6h after symptom onset, n=208)

|  |  |  |
| --- | --- | --- |
|  | **Univariate analysis** | **Multivariate analysis\*** |
|  | **OR (95%CI)** | **P** | **OR (95%CI)** | **P** |
| Any hypodensity | 3.64 (1.32-10.07) | 0.013 | 3.33 (1.11-9.96) | 0.032 |
| Black hole sign | 1.53 (0.73-3.19) | 0.260 | 1.23 (0.54-2.83) | 0.627 |
| Swirl sign | 4.26 (1.54-11.76) | 0.005 | 4.12 (1.37-12.57) | 0.012 |
| Sattelite sign | 1.96 (0.87-4.43) | 0.104 | 1.75 (0.69-4.42) | 0.238 |
| Island sign | 1.88 (0.85-4.16) | 0.118 | 1.41 (0.53-3.70) | 0.491 |
| Blend sign | 1.34 (0.47-3.82) | 0.581 | 0.88 (0.27-2.89) | 0.833 |
| Irregular margins | 1.30 (0.61-2.78) | 0.492 | 1.06 (0.42-2.68) | 0.902 |
| Heterogeneous density | 2.15 (1.02-4.51) | 0.044 | 1.84 (0.75-4.51) | 0.181 |

\* Adjusted for antiplatelet therapy, anticoagulation, time since symptom onset to initial noncontrast computed tomography, hematoma volume, admission platelet count.

Supplementary Table 4: Noncontrast computed tomography markers as predictors of 30-day mortality (logistic regression analysis including only patients who performed CT <6h after symptom onset, n=208)

|  |  |  |
| --- | --- | --- |
|  | **Univariate analysis** | **Multivariate analysis\*** |
|  | **OR (95%CI)** | **P** | **OR (95%CI)** | **P** |
| Any hypodensity | 6.94 (2.38-20.26) | <0.001 | 3.70 (0.70-19.59) | 0.124 |
| Black hole sign | 3.37 (1.76-6.46) | <0.001 | 1.60 (0.61-4.17) | 0.339 |
| Swirl sign | 8.05 (2.77-23.41) | <0.001 | 4.06 (0.78-21.13) | 0.096 |
| Sattelite sign | 5.15 (2.19-12.10) | <0.001 | 1.99 (0.61-6.49) | 0.256 |
| Island sign | 3.06 (1.61-5.78) | 0.001 | 0.43 (0.14-1.34) | 0.144 |
| Blend sign | 2.53 (1.12-5.70) | 0.026 | 0.62 (1.65-2.34) | 0.482 |
| Irregular margins | 12.52 (4.32-36.30) | <0.001 | 4.55 (1.02-20.34) | 0.047 |
| Heterogeneous density | 5.04 (2.54-10.00) | <0.001 | 0.98 (0.34-2.77) | 0.965 |

\* Adjusted for age, admission International Normalized Ratio, admission glucose, hematoma volume, intraventricular rupture.

Supplementary Table 5: Frequency, interobserver agreement, diagnostic performance statistics and area under the curve for each noncontrast computed tomography marker (including only patients who performed CT <6h after symptom onset, n=208)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Any hypodensity** | **Black hole sign** | **Swirl** **Sign** | **Satellite sign** | **Island****sign** | **Blend****sign** | **Irregular margin** | **Heterogeneous density** |
| Frequency (%) | 154 (74.0) | 105 (50.5) | 149 (71.6) | 140 (67.3) | 62 (29.8) | 28 (13.5) | 133 (63.9) | 103 (49.5) |
| Cohen’s K | 0.519 | 0.663 | 0.695 | 0.718 | 0.652 | 0.757 | 0.699 | 0.684 |
| **Hematoma growth** |  |  |  |  |  |  |  |  |
|  Sensitivity | 87.2 | 56.4 | 87.2 | 74.4 | 35.9 | 15.4 | 64.1 | 56.4 |
|  Specificity | 34.9 | 54.1 | 38.5 | 40.4 | 77.1 | 88.1 | 42.2 | 62.4 |
|  PPV | 32.4 | 30.6 | 33.7 | 30.9 | 35.9 | 31.6 | 28.4 | 34.9 |
|  NPV | 88.4 | 77.6 | 89.4 | 81.5 | 77.1 | 74.4 | 76.7 | 80.0 |
|  AUC | 0.610 | 0.553 | 0.629 | 0.574 | 0.565 | 0.517 | 0.532 | 0.594 |
| **Mortality at 30 days** |  |  |  |  |  |  |  |  |
|  Sensitivity | 93.2 | 71.2 | 93.2 | 88.1 | 47.5 | 22.0 | 93.2 | 76.3 |
|  Specificity | 33.6 | 57.7 | 36.9 | 40.9 | 77.2 | 89.9 | 47.7 | 61.1 |
|  PPV | 35.7 | 40.0 | 36.9 | 37.1 | 45.2 | 46.4 | 41.4 | 43.7 |
|  NPV | 92.6 | 83.5 | 93.2 | 89.7 | 78.8 | 74.4 | 94.7 | 86.7 |
|  AUC | 0.634 | 0.645 | 0.651 | 0.645 | 0.623 | 0.560 | 0.704 | 0.687 |