

Factors associated with higher emergency department ICH scores

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Background/Objective: The intracerebral hemorrhage (ICH) score, comprised of Glasgow Coma Score, age, ICH volume, presence of intraventricular hemorrhage and infratentorial origin of hemorrhage is a severity score that can be useful for prognostication. Our study sought to determine which factors such as initial pulse, blood pressure (BP), blood glucose and basal metabolic index (BMI) are associated with an elevated ICH score.

Methods: This was a prospective observational cohort study. Data were extracted using elements obtained from the GWTG quality registry. The study was approved by our local institutional board. JMP 14.0 for the Mac was used for statistical analysis.

Results: The cohort consisted of 380 patients, of which 44% were female. The median age was 68.5 years, IQR of 57 to 80. 15% were of Black race. The median heart rate was 81, with an IQR of 69-83. The median systolic BP was 167, IQR 142-196 mmHg. The median diastolic BP was 89, IQR 75-106 mmHg. The median fasting blood sugar 142, IQR 111-181 mg/dL. 16% were on an anticoagulant, 11% were on a direct oral anticoagulant, and 26% were on an antiplatelet agent. Patients with a higher ICH were significantly more likely to die ($P < 0.0001$).

Univariate associations with higher ICH score included: sex ($P = 0.0481$), fasting blood glucose ($P = 0.0497$), and systolic BP ($P = 0.0485$).

In a multivariate model that included sex, systolic and diastolic blood pressure, heart rate, BMI, and being on anticoagulant or antiplatelet, factors associated with a worse (higher) ICH score were the same: included elevated blood glucose ($P = 0.0246$), female sex ($P = 0.0199$), and elevated systolic blood pressure ($P = 0.0199$). Overall, this model had an R^2 of 6.7%

Conclusion: In this emergency department cohort of ICH patients, an elevated blood glucose, elevated systolic blood pressure and being female were significantly correlated with a worse ICH score.