NAG scale

Early hematoma expansion (HE) is not rare in intracerebral hemorrhage (ICH) patients, but detecting those patients with high risk of HE is challenging. The aim of this retrospective study was to investigate the factors associated with HE in acute ICH patients, and to develop a simple predictive scale for HE.

Sakuta et al. retrospectively reviewed consecutive patients with primary ICH, who received an initial non-contrast computed tomography (CT) scan within 24 hours from symptom onset. Patients underwent follow-up CT scans at 6 hours, 24 hours, and 7 days after admission. They compared the clinical characteristics of patients with and without HE (defined as an increase in intracerebral hemorrhage volume >33% or an absolute increase >6 mL on follow-up CT scans), and performed a logistic regression analysis to determine the predictors of HE.

A total of 118 patients (78 men; median age 63 years; interquartile range 54-73) were included in the study. HE was observed in 30 patients (25%). HE patients showed higher rates of anticoagulant use (20% vs. 2%, respectively; P=0.003), high National Institutes of Health Stroke Scale on admission (13 vs. 7, respectively; P=0.001), and high plasma glucose (141 mg/dl vs. 113 mg/dl, respectively; P=0.001) compared with patients without HE. After multivariate logistic regression analysis, we selected three factors for defining the NAG scale (1 point as baseline National Institutes of Health Stroke Scale ≥10, 1 point as anticoagulant use, and 1 point as plasma glucose ≥133 mg/dL). The frequencies of HE associated with the NAG scale scores were as follows: score 0, 4%; score 1, 25%; score 2, 60%; score 3, 100%.

Stroke severity, hyperglycemia, and anticoagulation use were factors independently associated with HE. The NAG scale consists of readily available factors and can predict HE [1].

[1]

Sakuta K, Sato T, Komatsu T, Sakai K, Terasawa Y, Mitsumura H, Iguchi Y. The NAG scale: Noble Predictive Scale for Hematoma Expansion in Intracerebral Hemorrhage. J Stroke Cerebrovasc Dis. 2018 Oct;27(10):2606-2612. doi: 10.1016/j.jstrokecerebrovasdis.2018.05.020. Epub 2018 Jun 27. PubMed PMID: 29958849.

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