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Elaboration of new model for predicting early clinical deterioration in patients with acute spontaneous supratentorial intracerebral hemorrhage and secondary intraventricular hemorrhage

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Background and aims: Predicting early clinical deterioration (ECD) in patients with acute spontaneous supratentorial intracerebral hemorrhage (ASSICH) and secondary intraventricular hemorrhage (IVH) is a very important and relevant in modern angioneurology, that can help the practicioners choose optimal treatment approaches to improve its efficacy. The aim was elaboration new statistical model for predicting early clinical deterioration (ECD) in patients with ASSICH and secondary IVH.

Methods: 69 patients (mean age 64.4±1.5 years) were studied during first 24 hours after clinical onset of the disease. Clinical examination included vital signs verification and evaluation by National Institute of Health Stroke Scale, Glasgow Coma Scale, Full Outline of UnResponsiveness (FOUR). Early clinical deterioration was verified in patients with decrease FOUR score ≥1 during 24 hours from the beginning of the disease. Severity of IVH was verified by IVH score (IVHS) using parameters of computer tomography. Secondary IVH volume (IVHV) was calculated by formula: IVHV (mL)=e^(IVHS score/5). Elaboration of prognostic model was made by logistic regression and ROC-analysis.

Results: Out of 69 patients, 19 (27.5%) had ECD. The model with the largest AUC (0.98) was: β=0.04*(systolic blood pressure after 1 hour from admission (mmHg))+0.17*(IVHV(mL))+0.87*(dislocation of transparent partition of the brain (mm))-15.94 (fig.1). Percent Concordant=94.8. The cut-off value of β>-1.06 predicts ECD with sensitivity=87.5% and specificity=95.2%.
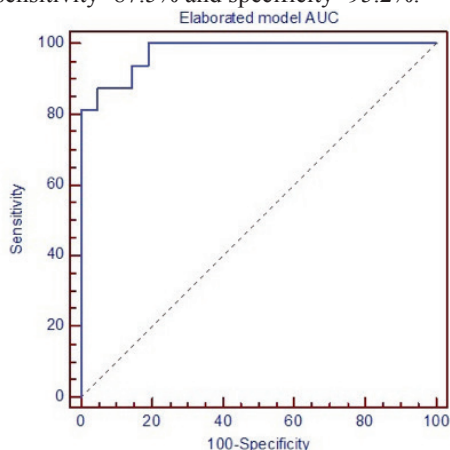

Fig. 1. Elaborated model AUC.

Conclusion: Elaborated prognostic model might be a powerful tool for predicting ECD in acute period of ASSICH and secondary IVH and improving efficacy of treatment.
Disclosure: Nothing to disclose

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New multivariate prognostic model for predicting early lethal outcome after acute period of spontaneous supratentorial intracerebral hemorrhage with secondary intraventricular hemorrhage

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Background and aims: Identification of vital prognosis in patients with acute spontaneous supratentorial intracerebral hemorrhage (ASSICH) with secondary intraventricular hemorrhage (SIVH) is a very important and relevant in modern angioneurology that can help the practicioners to improve treatment approaches. Therefore the aim was elaboration of new multivariate statistical for predicting ELO after ASSICH with SIVH using clinical and paraclinical parameters.

Methods: 69 patients (mean age 64.4±1.5 years) were studied during the acute period of disease. Clinical examination included evaluation by National Institute of Health Stroke Scale (NIHSS), Glasgow Coma Scale (GCS), Full Outline of UnResponsiveness score (FOUR). Severity of SIVH was verified by the different scores: IVH, Hemphill-ICH, mICH-A, mICH-B, ICH-GS using clinical parameters and parameters of computer tomography. Intracerebral hemorrhage volume (ICHV) and secondary IVH volume (IVHV) were calculated by formulas: ICHV=(a*b*c)/2 and IVHV (mL)=e^(IVHS score/5). Elaboration of prognostic model was made by logistic regression and ROC-analysis.

Results: Out of 69 stroke patients, 13 (18.8%) had died. The model with the largest AUC was: β=-0.09*age (years)+0.17*(NIHSS score at admission)+0.13*(IVHV (mL))-1.37. Percent Concordant=95.6. Elaborated model characterized by higher AUC (0.99) (fig. 1), than used in routine clinical practice standard scores: Hemphill-ICH (0.74), mICH-A (0.81), mICH-B (0.74) and ICH-GS (0.60). The cut-off value of β>-2.18 predicts ELO with sensitivity=91.7% and specificity=92.9%.