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ICHO score: a new score to predict functional outcome in patients with intracerebral hemorrhage

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Background and Aims: Intracerebral hemorrhage is a leading cause of stroke-related morbidity and mortality. We propose a model based on clinical and imaging parameters to predict functional outcome: the ICHO score.

Methods:

Inclusion criteria

Primary ICH
< 12 hours
Informed consent

Exclusion criteria

Secondary ICH
mRs > 2
Infratentorial ICH
Terminal illness or coma

Clinical variables

Blood pressure and glucose
NIHSS at admission, 24 h, 72 h, 3 m
Functional outcome: mRs 3 months

Radiological variables

Location ICH
Volumes of hematoma admission, 24 h, 72 h
Volumes of perihematoma edema admission, 24 h and 72 hours
(Olea Sphere 3.0, La Ciotat, France)
Intraventricular extension

Independent predictors of poor outcome were identified by multiple regression analysis. The best model was selected by Bayesian information criterion.

Results: 280 patients

The best predictors were
Age
NIHSS 24 h
Hematoma volume 72 h

ICHO score = $-0,837 + (0,032 * \text{age}) + (0,152 * \text{NIHSS24h}) + 0,011 * \text{hematoma volume 72 h}$

	mRs>2 n=184	mRs≤ 2 n=96
Age	72 (61-78)	64 (54-74)
NIHSS ad	17 (12-19)	5 (3-9)
BP	148 (134-164)	143 (128-152)
Glucose	114 (101-139)	105 (95-116)
Vol ICH	24 (10-43)	7 (2,5-12)
Vol ICH 72 h	29 (12-56)	7 (3,4-13)
PHE Vol	11 (5-25)	4,6 (1,3-9)
PHE Vol 72	30 (14,5-53)	10 (5-17)

Conclusions: The ICHO score might be a valid clinical grading scale for 3-months functional outcome after ICH. Further validation in different populations is needed