

Outcome Prediction Score of Combes et al For Adults with Severe Head Injury

Overview: Combes et al developed a prognostic score for identifying patients with severe head injuries who are likely to have an unfavorable outcome. This can identify patients who may require more aggressive therapy. The authors are from CHU de Grenoble in France.

Populations 198 consecutive adult patients with severe head injury

Unfavorable outcomes:

(1) severe disability

(2) vegetative state

(3) death

Analysis: Cox regression

Parameters on admission:

(1) best Glasgow motor response in the Emergency Department from 1 to 5

(2) age in years

(3) hypoxia

Parameter	Finding	Points
Glasgow motor response	localizes	5
	normal flexor	4
	abnormal flexor	3
	extensor	2
	none	1
hypoxia	PaO ₂ ≥ 8 kPa	0
	PaO ₂ < 8 kPa	1

where: • I assume that the patient is breathing room air (FIO₂ = 0.21).

• The Glasgow motor score also includes a 6th category for obeys commands but this was not reported in the paper as an option. This relates to the definition of severe head injury.

$X = 0.0327 - (0.7382 * (\text{points for Glasgow motor response})) + (0.0402 * (\text{age})) + (1.5319 * (\text{points for hypoxia}))$

probability of an unfavorable outcome = $\text{logit}(X) = 1 / (1 + \text{EXP}((-1) * X))$

References: Combes P Fauvage B et al. Severe head injuries: An outcome prediction and survival analysis. Intensive Care Medicine. 1996; 22: 1391-1395.