Rotterdam CT score

Traumatic brain injury CT Classification.

The Rotterdam CT score refined features of the Marshall computed tomography classification and was designed to categorize traumatic brain injury type and severity in adults. The score was developed for prognostic purposes.

see Helsinki CT score

Scoring items

Basal cisterns

- 0: normal
- 1: compressed
- 2: absent

Midline shift

- 0: no shift or ← 5mm
- 1: shift > 5mm

Epidural mass lesion

- 0: present
- 1: absent

Intraventricular blood or traumatic SAH

- 0: absent
- 1: present

Instructions for use

The final score is the sum of the scoring items + 1.

Mortality at 6 months post-injury

Score 1: 0%

Score 2: 7%

Score 3: 16%

Score 4: 26%

Score 5: 53%

Score 6: 61% ¹⁾.

Charry et al. analyzed 127 patients with severe TBI treated in the Neiva University Hospital, over a 2year period. Bivariate analysis and multivariate analysis were used. The discriminatory power of the score, its accuracy, and precision were assessed by logistic regression and as the area under the receiver operating characteristic curve. Shapiro-Wilk test, Chi-square, and Wilcoxon signed rank test were used to compare the real outcomes in the cohort against the predicted outcomes.

The median age of the patient cohort was 33 years, and 84.25% were male. The median injury severity score was 25, the median Glasgow Coma Scale motor score was 3, the basal cisterns were closed in 46.46% of the patients, and a midline shift of >5 mm was seen in 50.39%. The 6-month mortality was 29.13%, and the Rotterdam CT score predicted a mortality of 26% (P < 0.0001) (area under the curve: 0.825; 95% confidence interval: 0.745-0.903).

The Rotterdam CT score predicted mortality at 6 months in patients with severe head trauma in a university hospital in Colombia. The Rotterdam CT score is useful for predicting early death and the prognosis of patients with TBI².

The Rotterdam CT score provides great prognostic discrimination and is an independent predictor of unfavorable outcomes. Huang et al. suggest that the Rotterdam CT score be included as a prognosticator in the overall assessment of clinical condition of TBI patients before decompressive craniectomy (DC) ³⁾.

Children with traumatic brain injury have better survival than adults in Rotterdam CT score categories representing less severe injuries but worse survival than adults in higher score categories. A novel, validated pediatric mortality model based on the Rotterdam score is accurate in children with moderate or severe traumatic brain injury and can be used for risk stratification ⁴⁾.

Since its introduction in 2005, few studies have compared the performance of the Marshall computed tomography classification and the Rotterdam CT score for predicting long-term outcome (neurological and mortality) of patients with TBI ⁵⁾.

1)

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