Diagnostic value of the Rotterdam criteria score in CT-scan and early outcome in Traumatic Brain Injury

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**Background:** Outcome determination of head trauma is important for medical decision-making. To determine the consequences by using CT findings, the Marshall and Rotterdam criteria were introduced. Few studies have been conducted to determine the diagnostic value of the Rotterdam criteria.

**Objective:** This study assesses the diagnostic value of the Rotterdam criteria score with early outcome for traumatic brain injury.

**Patients and Methods:** In this cohort study, 150 patients with head trauma who were referred to Kashan’s Shahid Beheshti Hospital have been studied. Demographic characteristics such as age, gender, trauma mechanism, primary GCS, and associated injuries were recorded. Brain CT-scans were obtained from all patients. According to the Rotterdam criteria, basal cistern condition, midline shift, mass lesions, and subarachnoid or intraventricular hemorrhage were scored. Patients were followed for 14 days. The relationship between patient outcomes and Rotterdam criteria scores were compared using logistic regression.

**Results:** At end of the study, 19 (12.7%) patients died and the others survived. The mean age of the patients who died was significantly lower than for survivors (p = 0.037). Logistic regression analysis showed that age, gender, primary GCS score, and Rotterdam score are associated with the patient outcomes (p < 0.05). Among these factors influence of Rotterdam score was greater (Adjusted OR = 125.2). Rotterdam scores with a cutoff of 4 have a specificity and sensitivity of 95.4% and 84.2%, respectively.

**Conclusion:** The Rotterdam score is an independent factor in predicting the outcome of patients with head trauma.

**Keywords:** Head trauma, outcomes, Rotterdam criteria, Marshall criteria, CT scan