

Introduction

Many tests havebeen used to predict outcome of patients with severe brain injury. In this study, we compared predictive powers of clinical examination (Glasgow Coma Scale, GCS), and computed tomography (CT) to that of somatosensory evoked potentials (SEPs) by one year follow-up.

Methods

We conducted a prospective cohort study. Median nerve somatosensory evoked potentials were

obtained from 67 comatose patients with traumatic brain injury (Initial GCS<=8). Somatosensory evoked potential grades were calculated from results obtained on days 3, and 7 after traumatic brain injury. Glasgow Outcome Scale, Barthel Index, Follow-up Questionnaire, General Health Questionnaire, were obtained 1 yr after injury.

Results

Somatosensory evoked potential grade on days 3, and 7 related significantly with Glasgow Outcome Scale and Barthel scores, but did not relate with General Health Questionnaire scores.

Approximately ninety percent (89.1% to date) of patients with bilaterally absent somatosensory evoked potentials duing initial test (Day 3) showed poor outcome. Over seventy persent (approximately 76%) patients with bilaterally normal somatosensory evoked potentials had favourable outcome. patients with bilaterally present but abnormal somatosensory evoked potentials, whose somatosensory evoked potential grade improved between days 3 and 7, had marginally better functional outcome than those without somatosensory evoked potential grade improvement.

Conclusions

Early somatosensory evoked potential grade related to functionally outcome after traumatic brain injury, and Day 3 somatosensory evoked potential grade had the strongest relationship with functional outcome.

Learning Objectives

Results of our systematic review have the following implications: 1) SEP is a valuable outcome predictor in acute phase for patients with severe TBI; 2) Caution is recommended in predicting unfavourable outcomes in severe TBI patients with an absence of bilateral SEPs. Absence of SEPs cannot be considered as the only indicator of withdrawing treatment.

References

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