Traumatic brainstem injury

Chew et al. performed a retrospective analysis of cases involving patients admitted to a Level I trauma center who were identified in a prospective database as having suffered traumatic brainstem injury identified on MRI. Patient outcomes were dichotomized to dead/vegetative versus functional groups. Standard demographic data, admission Glasgow Coma Scale (GCS) scores, results of the motor component of the GCS examination at admission and 24 hours later, CT scan findings, and peak intracranial pressure were collected from medical records. Volumetric analysis of each patient's injuries was performed with T2-weighted and gradient echo sequences. The T2-weighted MRI sequence for each patient was reviewed to determine the anatomical location of injury within the brainstem and whether the injury crossed the midline.

Thirty-six patients who met the study inclusion criteria were identified. At 6-month follow-up, 53% of these patients had poor outcomes and 47% had recovered. Patients with injuries to the medulla or deep bilateral injuries to the pons did not recover. The T2 volumes were found superior to gradient echo sequences in regard to predicting survival (ROC/AUC 0.67, p = 0.07 vs 0.60, p = 0.29, respectively), but neither reached statistical significance. The timing of MR image acquisition did not influence the findings. The time from admission to MRI did not differ significantly between the recovered group and the poor-outcome group (p = 0.52, Mann-Whitney test), and lesion size as measured by T2 volume did not vary with time to scan (R(2) = 0.03, p = 0.3, linear regression). Performing a stepwise logistic regression with all the variables yielded the following factors related to recovery: crossing midline, p = 0.0156, OR 0.075; and 24-hour GCS motor score, p = 0.0045, OR = 2.25, c-statistic 0.913. Further examination of these 2 factors disclosed the following: none of 15 patients with midline-crossing lesions and a 24-hour GCS motor score of 4 or less recovered; conversely, 12 of 13 patients with lesions that did not cross midline recovered, regardless of GCS motor score.

Bilateral injury to the pons and medulla as detected on T2-weighted MRI sequences was associated with poor outcome in patients with brainstem injuries; T2 volumes were found superior to gradient echo sequences in regard to predicting survival, but neither reached statistical significance. When MRI findings were coupled with clinical examination findings, a strong correlation existed between poor outcome and the combination of bilateral brainstem injury and a motor GCS score of 4 or less 24 hours after admission.

From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=traumatic_brainstem_injury

Last update: 2024/06/07 02:58

Neurosurgery Wiki - https://neurosurgerywiki.com/wiki/

