



Prognostic Factors in Traumatic Atlanto-Occipital Dislocation

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Introduction

Traumatic atlanto-occipital dislocation (AOD) is an ominous injury with high mortality and morbidity in trauma patients. Improved survival has been observed with advancements in pre-hospital and hospital care. Furthermore, high quality computed tomography (CT) and magnetic resonance imaging (MRI) are accessible at most trauma centers; these are crucial for prompt diagnosis of AOD. The objective of this study was to perform a comprehensive literature review of traumatic AOD, with specific emphasis on identifying prognostic factors for survival.

Methods

A review of the literature was performed using the Medline database for all traumatic atlanto-occipital articles published between 1977 and 2014; 141 cases met eligibility criteria for study inclusion. A binary logistic regression model was utilized to identify prognostic factors. The analysis assessed age, gender, spinal cord injury, traumatic brain injury (TBI), polytrauma status, and Traynelis AOD Classification.

Results

Our results showed that only TBI is significantly associated with death ($p < 0.05$). Patients with TBI are 8.05 times more likely to die than patients without TBI. None of the other variables were predictors of mortality in AOD.

Conclusions

TBI is associated with increased risk of mortality in patients with AOD. High degree of suspicion during pre-hospital care, as well as prompt diagnosis and management in the trauma center play a key role in the treatment of this devastating injury.

Learning Objectives

AOD is an injury usually associated with Traumatic Brain Injury (TBI), Spinal Cord Injury (SCI), Polytrauma Injuries (PI), and Brainstem Injury. We hypothesized these would affect the outcome of patients with AOD. The learning objectives of this study were to: 1) review the literature on traumatic AOD, 2) determine the effect of such factors on mortality and survival of patients with AOD as ascertained from analyzing data collected across numerous studies 3) help clinicians with prognostication, management strategies, and with counseling of patients' family.