

Dural Venous Sinus Thrombosis following traumatic brain injury

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Patients with dural venous sinus thrombosis (DVST) in select populations following traumatic brain injury (TBI), including those with blunt mechanism or depressed skull fractures, have been shown to have an increased risk of mortality. The purpose of this study was to assess these findings in a mixed population of head trauma patients.

Methods: The authors performed a case-control study using propensity score matching by reviewing 17 years (2004-2021) of data from their institutional trauma registry. Patients with imaging-confirmed DVST were matched to a control group of TBI patients without identified DVST based on age, sex, postresuscitation Glasgow Coma Scale (GCS) score, and Injury Severity Score. All age groups and injury mechanisms were included with a head Abbreviated Injury Scale score ≥ 3 . Data on demographics, injury and radiographic characteristics, and patient outcomes were collected. Multivariable logistic regression was performed to identify predictors of inpatient mortality. An additional subgroup analysis of patients with concurrent DVST and blunt cerebrovascular injury (BCVI) was planned a priori.

Results: The authors identified 9875 patients who presented to their institution over the study period with TBIs, with a 1.64% incidence of DVST. Concurrent BCVI was diagnosed in 23.5% of patients with a DVST. Following matching, the presence of DVST itself was not significantly associated with inpatient mortality (OR 0.68, 95% CI 0.24-1.88). On regression analysis, penetrating injuries (8.19, 95% CI 1.21-80.0) and lower postresuscitation GCS scores (0.69, 95% CI 0.53-0.84) were independently associated with inpatient mortality for patients with traumatic DVST. Significantly worse functional outcomes were observed in those with DVST at 3 months, with no significant difference at 6 months.

The authors observed a prevalence of traumatic DVST of 1.64% in a mixed population of head-injured patients, with 23.5% of patients with DVST having concurrent BCVI. Traumatic DVST alone was not

associated with a significantly increased risk of inpatient mortality ¹⁾

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Johnson MD, Ventre GJ, Kaye J, Patel HB, Naveed A, Prestigiacomo CJ, Ngwenya LB. Evaluating mortality and 6-month functional outcomes of patients with dural venous sinus thrombosis in traumatic brain injury. J Neurosurg. 2023 Dec 29;1-10. doi: 10.3171/2023.10.JNS231158. Epub ahead of print. PMID: 38157533.

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