

Elevated INR Is Associated with Epidural Hematoma in the Setting of Thoracolumbar Spinal Trauma

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Purpose: Very little literature exists examining thoracic and lumbar epidural hematomas caused by trauma. Scoring systems have been introduced to guide treatment recommendations in the setting of thoracic and lumbar spine trauma. The presence of an epidural hematoma was not included in these systems, although oftentimes it is a factor in treatment considerations. Some epidural hematomas are associated with spinal cord or dural sac compression and may necessitate surgical decompression. The objective of our study is to determine the incidence and associated risk factors for epidural hematoma in the setting of thoracic and lumbar spine trauma.

Methods: IRB approval was obtained prior to conducting this study. We performed a retrospective review of all traumas at our institution between 2010 and 2014. Patients with ICD-9 codes for T1 to L5 fractures were further investigated. Patients <18 or >90 years old, or without MRI were excluded. Patients who had thoracic and/or lumbar epidural hematoma (TLEH) were compared to those who had no epidural hematoma (NEH). A subgroup analysis of the TLEH arm was performed, based on the presence (CC) or absence (NCC) of cord or dural sac compression due to epidural hematoma. Age, gender, race, admitting international normalized ratio (INR), and ISS were compared between groups.

Results: Of 1810 trauma patients, 1185 patients were identified with thoracic or lumbar fractures, of which 511 subjects had MRI available for review. 59 patients (4.9%) were found to have a posttraumatic thoraco-lumbar epidural hematoma. Age, gender, and race were found to be similar in both analyses. More patients with INR ≥ 1.5 were found in the TLEH group (10.2% vs 2.9%, $P < 0.05$). In the subgroup analysis of the TLEH group, cord or dural sac compression (CC) was seen in 25 patients for an incidence of 4.9%. When comparing risk factors, the CC group had more patients with INR ≥ 1.5 (20% vs 2.9%, $P < 0.05$) than the NCC group.

Conclusion: The incidence of thoracic and lumbar spinal epidural hematoma following trauma was found to be 4.9% in our study, of which 4.9% presented with spinal cord or dural sac compression. We found that the greater the INR was in the setting of spine trauma, the higher the risk of spinal epidural hematoma. Additionally, patients with TLEH who had higher INR levels had increased chances of having dural sac compression. Age, gender, race, or admitting ISS had no effect on the incidence of epidural hematoma.