



DVT Prophylaxis After Mild Traumatic Brain Injury

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Background

- Patients with TBI are at increased risk of developing a DVT/PE due to prolonged immobilization and secondary effects of the primary injury
 - Studies show that the time to initiation of DVT prophylaxis is often delayed in TBI patients, leading to higher rates of DVT/PE
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Reasons for Delayed DVT Prophylaxis

- Concern around starting DVT prophylaxis in patients with minor intracranial bleeds leads to delays.
 - Perceived risk of expansion of intracranial bleed.
 - Lack of knowledge around when it is safe to start DVT prophylaxis.
 - Poor communication between trauma and neurosurgery services.

 - In some patients delays in DVT prophylaxis are necessitated by the underlying disease.
 - Severe intracranial bleeds.
 - Need for neurosurgical intervention.
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Literature Review

- Results of literature review:
 - Brain Trauma Foundation guidelines support a role for DVT prophylaxis after mild TBI.
 - Level 3 evidence supports starting DVT prophylaxis in patients with mild TBI and evidence of stability of the intracranial bleed at 48-72 hours after the initial injury.
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- Problem:
 - Patients with mild TBI and stable intracranial bleeds were not being started on DVT prophylaxis at the earliest possible opportunity.
 - Neurosurgery residents were not providing suggestions regarding starting DVT prophylaxis on the initial consult.
 - Hypothesis:
 - We hypothesized that an educational initiative among neurosurgery and trauma residents would increase the rate of providing DVT prophylaxis suggestions on the initial consult.
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- Intervention:
 - A 3 page educational document that summarized the literature regarding the timing of starting DVT prophylaxis in patients with mild TBI.
 - The document was circulated to all trauma and neurosurgery residents at St. Michael's Hospital.

 - Methodology:
 - All patients with traumatic brain injury admitted to the trauma service in a 2 week period were audited. The following data was collected:
 - Demographic data
 - Day on which DVT prophylaxis was started
 - Whether a suggestion regarding DVT prophylaxis was provided on the initial consult.
 - The intervention was delivered.
 - Data was again collected on trauma patients that were admitted after the intervention.
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➤ Results

| Factor | Pre-Intervention (n=8) | Post-Intervention (n=5) |
|---|------------------------|-------------------------|
| Age | 46.9 years | 58 years |
| Gender | 75% Male | 80% Male |
| Intracranial Bleed Present | 100% | 100% |
| Spine Injury Present | 50% | 40% |
| Initial GCS | 13.8 | 14 |
| DVT Prophylaxis Suggestion on Initial Consult | 0% | 20% |
| Post-admission day when DVT Prophylaxis Started | 3.4 | 3.6 |

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- Conclusions:
 - DVT prophylaxis suggestions are only provided in the minority of initial consultations.
 - The timing of starting DVT prophylaxis is 3.5 days after admission on average. This is in-line with results seen in major published cohorts.
 - From our analysis it is unclear if DVT prophylaxis is being unnecessarily delayed in any patients with mild TBI.
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- Limitations:
 - Small sample size.
 - Unclear if the educational intervention was read by most of the residents.
 - Large turnover of trauma and neurosurgery residents.

 - Future Directions:
 - Larger in-person educational sessions.
 - Standardized form for new trauma admissions with an area for estimated date of DVT prophylaxis.
 - Educating allied health professionals (Pharmacists, Nurse Practitioners).
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