

Chemical DVT prophylaxis in Patients with Traumatic Brain Injury

Background:

Timing of initiation of chemical DVT prophylaxis following traumatic brain injury has previously not been standardized at UAB. This has resulted in a wide range in the timing of initiation of DVT prophylaxis, additional work load for both Trauma and Neurosurgery teams to determine clearance status and ultimately resulted in delays in initiation of appropriate DVT prophylaxis. This protocol aims to standardize the initiation of DVT prophylaxis for the majority of trauma patients suffering a TBI.

Multiple organizations and studies have evaluated the timing of initiation of DVT prophylaxis in TBI. This protocol attempts to follow the overarching recommendation of the ACS TQIP Best Practices in the Management of Traumatic Brain Injury Recommendations and peer reviewed articles from Journal of Trauma and Journal of Neurosurgery.

Trauma Service Protocol for chemical DVT prophylaxis in pt's with TBI:

1. Chemical DVT prophylaxis (lovenox) will be started by the Trauma service 24 hours following stable head CT in patients with intracranial hemorrhage.
2. If the Neurosurgery Consultant does not want chemical DVT prophylaxis to be started 24 hrs following stable head CT, the Neurosurgery service will communicate to trauma that lovenox is not to be initiated and will provide a plan for timing of prophylaxis clearance.

Exceptions to starting DVT prophylaxis 24 hours after stable Head CT are the following:

1. Patient's s/p craniotomy
2. Patient's with an EVD in place

These patients require active discussion between the Trauma team and Neurosurgery team to determine optimal timing of initiation of chemical DVT prophylaxis

Discussion:

Patients with TBI are at high risk for VTE with rates as high as 20-30%. Evidence suggests that delays in initiation of DVT prophylaxis >4 days substantially increases the risk of VTE. The ACS TQIP Best Practices in the Management of Traumatic Brain Injury utilizes the Modified Berne-Norwood Criteria for formal recommendations on when to initiate chemical prophylaxis. Pt's deemed low risk (the majority of TBI patients) can initiate prophylaxis 24 hours after stable head CT. Moderate risk patients are recommended to start prophylaxis if head CT stable at 72 hours. High risk patients should be considered for IVC filter.

Modified Berne-Norwood Criteria

Low Risk

No moderate/ high risk criteria

Moderate Risk

Subdural or epidural >8mm
Contusion or IVH >2cm
Multiple contusions/lobe
SAH with abnormal CTA
Progression at 24hrs

High Risk

ICP monitor
Craniotomy
Progression at 72hrs

References:

1. ACS TQIP Best Practices in the Management of Traumatic Brain Injury
2. Abdel-Aziz H, Dunham CM, Malik RJ, Hilemen BM. Timing for deep vein thrombosis chemoprophylaxis in traumatic brain injury: an evidence based review. Crit Care. 2015; 19:96
3. Farooqui, A, Hiser B, Barnes SL, Litofsky NS. Safety and efficacy of early thromboembolism chemoprophylaxis after intracranial hemorrhage from traumatic brain injury. J Neurosurg. 2013; 119(6): 1576-82
4. Scudday T, Brasel K, Webb T, et al. Safety and efficacy of prophylactic anticoagulation in patients with traumatic brain injury. J Am Coll Surg. 2011; 213(1):145-53
5. Koehler DM, Shipman J, Davidson MA, Guillamondegui O. Is early venous thromboembolism safe in trauma patients with intracranial hemorrhage. J Trauma. 2011;70(2): 324-9