

The need for speed: time to first venous thromboembolism prophylaxis in trauma patients matters

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Despite increasingly detailed efforts to optimize prophylaxis, venous thromboembolism (VTE) remains a leading cause of morbidity and mortality after traumatic injury. Over the last two decades, landmark studies have improved the efficacy of prophylaxis by identifying the utility of anti-Xa guidance for enoxaparin dose adjustment¹ and individualized enoxaparin dosing²; sped the initiation of safe prophylaxis in patients with traumatic brain injury³ or blunt solid organ injury⁴; demonstrated the increased VTE risk that occurs when medication doses are missed⁵; and enlisted patients and nurses in multidisciplinary educational efforts to improve medication adherence.⁶ Despite these efforts, morbidity and mortality from VTE remain unacceptably high, and additional improvements are needed.

Van Gent *et al*⁷ use ‘door-to-prophylaxis’ time as a novel quality improvement metric in prevention of VTE following trauma. In their manuscript, they have identified and described a new tool to use toward our lofty goal of complete VTE prevention. They evaluated a high-risk subset of adult major trauma patients who required emergency-release blood products either prehospital or in the emergency department, and analyzed the time from hospital arrival to the first dose of prophylaxis as a unique risk factor for VTE development, alongside more classic contributors. After reviewing more than >2000 patients, they confirmed that any delay in prophylaxis administration increases the incidence of VTE, even when controlled for traditional risk factors; on average each hour delay increased the likelihood of VTE by 1.5%.

While many of the classic VTE risk factors, such as injury patterns, age, comorbidities, and ventilator requirements, are difficult or impossible to modify, ‘door-to-prophylaxis’ is an accessible, measurable, and effective target for improving VTE outcomes. This manuscript is a call-to-action for all trauma centers to establish protocols ensuring initiation of enoxaparin at the time of admission in appropriate patients. Future studies are needed to establish benchmarks for optimal door-to-prophylaxis times for various injury patterns, which will allow for the creation of best practices to further limit VTE risk in severely injured trauma patients.

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