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Letter to the Editor

Coagulation Disorders in Traumatic Brain Injury

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Dear Editor,

We read with great interest the recent article by Dudley and associates on early venous thromboembolic event (VTE) prophylaxis in traumatic brain injury (TBI) with low-molecular-weight heparin (LMWH; Dudley, 2010). In that study the authors investigated the occurrence and timing of VTE, the symptomatic expansion of intracranial hemorrhages while on VTE prophylaxis, and the efficacy of two prophylactic agents. VTE occurred in 7.3% of patients. No significant difference in VTE occurrence between the two prophylactic agents was noted. Expansion of intracranial hemorrhage was noted in one patient. The authors concluded that VTE prophylaxis provides adequate protection, and that the risk of intracranial hemorrhage expansion is extremely low (Dudley, 2010).

Coagulopathy is frequently encountered in patients following TBI. Regional and systemic hypercoagulability and increased D-dimer concentrations are common (Scherer and Spangenberg, 1998). This can result in the creation of microthrombi in all parts of the vascular compartment that may produce secondary injury (Hess and Lawson, 2006). The occurrence of coagulopathy in TBI has been considered a manifestation of disseminated intravascular coagulation (DIC). The use of LMWH is recommended for the treatment of even asymptomatic DIC (Wada et al., 2010), and thus LMWH may have a role in the outcome of patients with TBI. Recently, we have prospectively evaluated the safety of early administration of LMWH at a prophylactic dose in 61 patients with moderate TBI. We found that 69% of these patients had on admission subclinical compensated activation of hemostatic factors. The presence of coagulopathy was defined based on prothrombin time and plasma fibrinogen and D-dimer levels. The Glasgow Coma Scale (GCS) score at admission was significantly correlated with coagulopathy occurrence. Following LMWH administration, no clinical manifestations of DIC or LMWH-related side effects was found. The hemorrhagic lesions that were initially detected on computed tomography did not increase in size (Pahatouridis et al., 2010). We believe that aside from VTE prophylaxis, LMWH may play an additional role in patients with TBI. There is a clear need for further prospective studies to clarify the role of LMWH in coagulopathy and patient outcomes after TBI.

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