



Abstract Title:	Fibrinolysis Spectrum in the Burn Population
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Objective:	Upon completion of the lecture, attendees should be better prepared to: <ul style="list-style-type: none">• Identify different phenotypes of the fibrinolysis spectrum: hypofibrinolysis, physiologic fibrinolysis and hyperfibrinolysis• Recognize a mortality difference is found between these conditions
Abstract:	<p>Introduction: Viscoelastic testing has been found to be superior than conventional clotting assays in detecting coagulation dysfunction after burn injury. A hypercoagulable state has been observed by thromboelastography in these patients. Moreover, close to a third of patients with severe burns develop disseminated intravascular coagulation. A mortality difference has been found within the fibrinolysis spectrum for trauma patients. The distribution, and associated mortality, of burn patients within this range is unknown. Our aim is to describe the distribution of fibrinolysis, as measured by thromboelastometry (ROTEM); and identify associated mortality rates.</p> <p>Methods: Clinical and ROTEM data were analyzed on burn patients evaluated at an urban, Level 1 burn center from July 2014 to December 2017. The data from the initial ROTEM performed during admission was included for evaluation. Hyperfibrinolysis (HF) was defined as maximum lysis on EXTEM >15%. Hypofibrinolysis was defined as maximum lysis on EXTEM <3%. Descriptive statistics were compared using Fischer’s exact test and the Kruskal-Wallis test for categorical and continuous variables, respectively.</p> <p>Results: ROTEM results from 1162 patients were reviewed and 116 corresponded to burn patients. Five patients were excluded due to incomplete ROTEM data. A total of 111 patients were included in our study. Median age was 45 years (IQR 33.5 - 58), 79% were male and median TBSA% was 16 (IQR 32.5 – 44). No differences were found in gender, age, ethnicity, race, admission weight, burn type, presence of inhalation injury or presence of concomitant trauma between the groups. Distribution of fibrinolysis was: hypofibrinolysis, 26 (23.4%); physiologic, 83 (74.8%); and hyperfibrinolysis, 2 (1.8%). Mortality was significantly different between the groups: 42.3%, 10.8% and 0.0%; respectively, during that admission (p = 0.005).</p>

Conclusion: Hypofibrinolysis, physiologic fibrinolysis and hyperfibrinolysis can be differentiated as separate entities using ROTEM. Different rates of mortality are found across the fibrinolysis spectrum in the burn population. Hyperfibrinolysis is not a common expression of coagulation dysfunction in traumatic burn injury. Different distributions in the trauma and the burn population imply different mechanisms of dysfunction and limit generalizability of treatment standards across populations.

References and Resources:

Kutcher ME, Cripps MW, McCreery RC, Crane IM, Greenberg MD, Cachola LM, Redick BJ, Nelson MF, Cohen MJ. Criteria for empiric treatment of hyperfibrinolysis after trauma. *J Trauma Acute Care Surg.* 2012 Jul;73(1):87-93. doi: 10.1097/TA.0b013e3182598c70. PubMed PMID: 22743377; PubMed Central PMCID: PMC3781292.

Moore EE, Moore HB, Gonzalez E, Sauaia A, Banerjee A, Silliman CC. Rationale for the selective administration of tranexamic acid to inhibit fibrinolysis in the severely injured patient. *Transfusion.* 2016 Apr;56 Suppl 2:S110-4. doi: 10.1111/trf.13486. PubMed PMID: 27100746; PubMed Central PMCID: PMC5688850.

Disclosure:

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