Issue Highlights

Journal of Trauma and Acute Care Surgery
Volume 79, Issue 6
December 2015

Jo Fields: Welcome to Trauma Loupes, the *Journal of Trauma and Acute Care Surgery*'s monthly podcast. This is Jo Fields. For our December 2015 issue, we hear from our editor-in-chief, Dr. Ernest Moore:

Dr. Gene Moore: Thank you Jo.

Welcome to the December issue of the Journal and Happy Holidays! This issue contains the proceedings of the Western Trauma Association. The lead article is the Presidential Address of Dr. Chris Cocanour from the UC Davis Medical Center in Sacramento. Dr. Cocanour reviews the very timely issue of end-of-life care in trauma as we confront an aging population prone to injury with frequent pre-existing disease. She reminds us that individuals greater than 85 years of age are projected to increase from 5.9 million in 2012 to 14.1 million in 2040. Accordingly, the Institute of Medicine has underscored the importance of Advanced Directives, but has estimated that less than 30% of injured patients have executed these directives. Thus, it is essential for us as trauma surgeons to meet with the families of critically injured elderly patients to determine what is best for the patient as well as society.

The Earl Young Awardee was Hunter Moore from the University of Colorado Denver who, with his colleagues, has shown in a rodent model of severe hemorrhagic shock that plasma versus crystalloid resuscitation attenuates systemic hyperfibrinolysis. Interestingly, plasma resuscitation did not alter tPA levels, thus the beneficial effect was presumably due to protein inhibitors of fibrinolysis contained in the plasma. To this end, the authors have performed proteomic analyses of rodent as well as human fresh frozen plasma, and have identified a number of potential candidates that warrant further investigation.

In the ensuing paper, Dr. Hasan Alam and his colleagues from the University of Michigan continue their innovative work with histone deacetylase inhibition by employing the selective inhibition of histone deacetylase 6 in rodent models of hemorrhagic shock. Histone deacetylase 6 is unique among the 18 histone deacetylase isoforms as it is a cytoplasmic enzyme that regulates a number of key cellular functions. In this series of experiments, the investigators have shown improved survival and have begun to identify protective mechanisms, including enhanced myocardial PDH activity and attenuated hepatic apotoses.

Dr. Alexis Moren and his colleagues from the PROMMT Study Group who employed their database of 1245 patients to identify massive transfusion based on rate of bleeding. Using recursive partitioning based on mortality as the endpoint, the authors found that greater than four units of packed red cells per hour during any period of the first six hours was the optimal definition of massive transfusion. One of the limitations of this study, like most attempting to define transfusion needs, is the lack of analysis for cause of death, specifically those attributable to coagulopathy. Nonetheless, the authors have proposed another surrogate for life-threatening bleeding that warrants further evaluation in prospective studies.

Dr. Joseph Lopez and associates from the Baptist Medical Center at Wake Forest enlighten us with the implication of subcapsular hematomas in the management of blunt splenic trauma. Among 253 patients undergoing nonoperative management, 85 patients underwent pre-emptive angiography for high grade injuries or evidence of CT pseudoaneurysm or extravasation. With this protocol, the failure rates for Grade I to Grade IV overall were 2%, 4%, 9%, and 19%. However, when a subscapsular hematoma was present, the failure rates for Grade I to IV increased dramatically to 20%, 25%, 31%, and 80%. The authors conclude that all Grade IV splenic injuries with a subcapsular hematoma should undergo prompt splenectomy, but acknowledge this is a single institution experience that should be validated in other institutions.

I will conclude with the randomized clinical study conducted by Dr. Erik Olsen and colleagues from Scripps Mercy Hospital in San Diego who compared 5000 units of unfractionated heparin every eight hours to their standard enoxaparin 30 mg every 12 hours. This study is important because the original landmark Gerts Report compared low molecular weight heparin to unfractionated heparin every 12 hours. In the San Diego study, 436 patients were randomized, and a subgroup of 208 also underwent ultrasound screening. In the overall group, unfractionated heparin was noninferior to low molecular weight heparin, with a venous thromboembolism risk difference of 3% (the 95% confidence interval was up to 10%). However, the results were inconclusive in the screened patients; the incidence of VTE was 17% in the unfractionated versus 11% in the low molecular weight heparin with a risk difference of 6.5% and 95% confidence interval of -3to 16%. There were no differences in adverse events. This is a tremendous achievement to complete such a study, but in the current confused state of optimal VTE prevention, it perhaps raises more questions than providing answers.

For example, in Denver, we use 40 mg of enoxaparin every 12 hours and add 325 mg of aspirin daily as our routine for VTE prophylaxis in the surgical intensive care unit; and only perform surveillance on high risk patients. Of course, there is from this Western Trauma meeting additional timely information. Happy reading and Happy Holidays!

Jo Fields: Thank you Dr. Moore. And thank y'all for listening. If you have any questions or requests, please send them to info@jtrauma.org. Happy New Year and Go Broncos!!!