



# AAST DAILY MEETING NEWS



## Master Surgeon Lecture The Building of a Nation's Trauma System

By - Jordan Weinberg, MD

The Master Surgeon Lecture was presented by Ian Civil, MD, Professor of Surgery at the University of Auckland, New Zealand and Director of Trauma at Auckland City Hospital. In the introduction by AAST President Michael Rotondo, we learned that Dr. Rotondo had first met our esteemed speaker when Dr. Civil was a visiting fellow under the mentorship of Past President Dr. William Schwab at Cooper Hospital in the 1980s. The trauma surgeon community is indeed a "small world."

Titled, "A Long Run for a Short Slide: A Story of Trauma Care in New Zealand," Dr. Civil's lecture recounted the development of what has become a robust trauma system. In the 1980s, trauma care in New Zealand was characterized by the lack of a systematic approach and relatively high mortality. At that time, Dr. Civil and his colleagues became advocates for trauma care, starting with injury prevention, ultimately leading to the development of the

graduated driver's license (New Zealand was the first country to introduce this concept) and other road safety regulations. In addition, the 1980s in New Zealand saw the introduction of ATLS, with Dr. Civil the first ATLS course instructor in his home country.

In this current decade, however, Dr. Civil's unrelenting advocacy for improved trauma care has come to fruition with the development of a national trauma network that includes a national registry, national guidelines, and a national destination policy to ensure that injured patients are transferred to the appropriate center in the appropriate amount of time. The return on Dr. Civil's commitment to the trauma system can be seen in the marked decrease in mortality observed at Auckland Hospital, from 23% in the 1980s to 11% in 2017. Without a doubt, the efforts of Dr. Civil and colleagues have exponentially improved outcomes for the injured in New Zealand.



# Pro/Con Debates on Abdominal Trauma

By - A. Peter Ekeh, MD, MPH, FACS

The 3<sup>rd</sup> WTC Panel discussion took place on Thursday morning in the form of a pro/con debate focusing on abdominal injuries. Moderated by Ari Leppaniemi (Helsinki, Finland) and Zsolt Balogh (Newcastle, Australia), the session involved a brief presentation of two cases, each followed by a “for” and “against” discussion.

The first case presented highlighted the dilemma of managing a patient after a motor vehicle crash with a “seatbelt sign” and free fluid without solid organ injury on CT imaging. The question of optimal management was posed - Laparoscopy vs. Laparotomy.

Dr. Selman Uranies (Graz, Austria) took the “pro-laparoscopy” stance, discussing laparoscopy as a viable option in a hemodynamically stable patient that affords the surgeon the ability to run the small bowel and inspect for diaphragmatic injuries – demonstrating this with brief video footage. He concluded with pointing out the importance of having laparoscopy as a option in the armamentarium of management, the advantages that this technique provides with regard to reduced morbidity and inflammatory reaction.

Dr. David Feliciano (Baltimore, Maryland) took the “pro-laparotomy” position but spent most of the time discussing pragmatic alternatives to approaching this dilemma. He mentioned the practical drawbacks of laparoscopy in most US Trauma Centers – time and expense. He proposed the option of utilizing ultrasonography to localize the fluid collection and aspirating it to ascertain its nature – blood or intestinal contents, and then proceeding from there. Alternatively, the option of performing a Diagnostic peritoneal lavage (DPL), a technique that has been largely abandoned, he

explained could have great utility in this case. The second case presented involved blunt trauma in a young patient who was initially hemodynamically stable and noted to have a Grade 4 splenic injury with a contrast blush on CT scan. The question in this case was “Embolization vs. Splenectomy.”

Dr. Andrew Peitzman (Pittsburgh, Pennsylvania) took the “pro-splenectomy” position. He emphasized that first and foremost, no patient should every die in a case like this from hemorrhage or a missed injury. In this instance, the patient was deemed to be borderline stable and the higher failure rate (up to 33%) in Grade 4 injuries was noted. He reference multiple studies and pointed out predictors for the need laparotomy being ISS > 15, hemoperitoneum, higher grade of splenic injury and instability. Lastly, he pointed out the potential for complications after angioembolization.

Dr. Federico Coccolini (Cesena, Italy) had the “pro-embolization” stance. Quoting multiple recent studies, he explained that while embolization is not the panacea for all splenic injuries, it role if often superior to surgical intervention in the appropriate setting. He noted papers highlighting trauma centers that had a higher rate of splenic angioembolization had higher success rates with non-operative management. Lastly he pointed out the similar readmission rates for both surgery and embolization with less morbidity in the latter.

The session, which concluded with discussion led by the moderators, overall had very active participation from the large audience, who were actively engaged by means of text polling for their opinions.

**Annual meeting banquet table sign-up is mandatory!**  
**Deadline is 10:00 AM Today!**  
**Visit the banquet table sign-up desk in Seaport Foyer.**

## Session IX:

# Papers 17-20 Acute Care Surgery Economics

By – Murray Cohen, MD, FACS

Dr. Staudenmayer of the Healthcare Economics committee of AAST presented a fascinating study of the economic impact of acute care surgery patients on the healthcare system of the United States. 14% of all health care admissions had an ACS diagnosis with 20% of the costs (\$86 billion). Emergency general surgery comprised 72% of these and trauma comprised 28%. ACS operations cost >\$12,000 more than non-ACS operations.

ACS patients have a huge economic impact on the U.S. healthcare system, much more than stroke (\$37 billion) and equal to cancer (\$88 billion). It is likely larger than this paper estimates. Because of this large impact, attention should be paid to look for improvements in the delivery of these services. A great paper!

Dr. Ashley presented a Georgia State trauma commission evaluation of the cost of readiness for his state's level 1 and 2 trauma centers. Through a trauma state agreed upon structure for defining costs, he presented what these centers spend to maintain their readiness for trauma patients. In average Level 1 preparedness readiness cost was \$10 million; Level 2 was \$4.9 million. Most of these costs, as expected were for clinical medical staff. These costs are thought to be on the conservative side, he commented, but Dr. Ashley thought that these numbers would help in calling for additional trauma center funding. This was a great contribution to our understanding of the costs of maintaining a trauma center.

The study by Scott and colleagues was done to analyze the impact of increased insurance coverage of trauma patients by the expansion of Medicaid coverage in the Affordable Care Act. As each State had different increases in Medicaid coverage, the authors separated these states into those with higher and lower insured patients. There has been a large reduction in the uninsured rates of U.S trauma patients. This is a result of the ACA's expansion of Medicaid.

The authors found that there were no mortality changes due to the increased insurance coverage with Medicaid. They noted, though, that there was a significant increase to post-discharge care, both inpatient and home care. There was a decrease in discharges to home. Interesting discussion raised the question of whether better post-acute care improves disability or whether there was any follow-up in one-year mortality differences post-discharge. This discussion was a nice contribution to our knowledge of post acute care with and without insurance coverage.

The Knowlton paper studied the relationship between the length of stay of trauma patients based on type of insurance and availability of post-acute care resources. Medicaid patient's length of stay was increased over other insurance types. This was most evident in the quartile of hospitals with the highest overall length of stays. Medicaid patients overall spent 2.8 inpatient days compared to other insurance types. This was thought to be due to availability of post-discharge care facility availability. Medicaid patients at hospitals without easier access to post-acute care add an additional cost of \$16,800 per patient. The discussion questioned when Medicaid was obtained (pre or post admission).

A nice paper. A great session on ACS health care economics!



## TODAY'S EVENTS

**SESSION XVII:  
WTC III SESSIONS**  
6:15-7:15 AM

**SESSION XVIII:  
PAPERS 39-44**  
7:30-9:30 AM

**SESSION XIX:  
PAPERS 45-47**  
9:45-10:45 AM

**SESSION XX:  
FITTS LECTURE**  
C. WILLIAM SCHWAB, MD

10:55-11:55 AM

**SESSION XXII:  
MASTER SURGEON  
LECTURE II -**  
CHRISTINE GAARDER, MD, PHD  
1:30-2:00 PM

**SESSION XXIII A:  
PAPERS 48 - 56**  
2:00-5:00 PM

**SESSION XXIII B:  
PAPERS 58 - 65**  
2:00-5:00 PM

**SESSION XXIV:  
WTC IV SESSION**  
5:00-6:30 PM

**RECEPTION AND  
BANQUET**  
7:30 PM-10:00 PM

## Session XV B

# Papers 30-38: Basic Science Abstracts

By - Eric A. Toschlog, MD, FACS, FCCM

The parallel basic science component of session XV B offered an array of excellent bench research. The session began with an elegant study presented by Dr. Jacovides and colleagues from the University of Pennsylvania, demonstrating the negative effects of pulmonary infection after traumatic brain injury in a murine model. The study re-emphasizes the potential critical importance of VAP prevention in TBI patients.

In abstract 32, Dr. Diebel and colleagues at Wayne State, using a microfluidic plate model of vascular endothelium, concluded that prolonged red blood cell storage degrades the RBC glycocalyx. Also negatively impacting the RBC-endothelial cell (EC) interaction, shock conditions also degrade the EC glycocalyx. Dr. Diebel suggested that the two separate mechanisms might impart “a 1-2 punch on the microvasculature” in hemorrhagic shock.

The physiologic effects of TXA continue to be elucidated. Mitochondrial damage associated molecular patterns (DAMPs) such as mitochondrial DNA are theorized to be critical early signaling molecules in burn induced inflammation. Dr. Damien Carter and colleagues, in a fascinating study from Maine Medial Center, utilizing a murine burn model, demonstrated that TXA and a topical immune modulator p38 MAPK both attenuate burn induced DAMP release. The reduction in mitochondrial DNA was associated with decrease macrophage

infiltration in lung tissue, suggesting that both agents may reduce lung injury after major burns.

Abstract 35, presented by Dr. Hoops and colleagues from Oregon Health and Science University, utilized a complex swine model of cardiac arrest secondary to liver hemorrhage to evaluate the ability of selective aortic arch perfusion (SAAP) to achieve ROSC. SAAP was undertaken with two perfusates, fresh whole blood (FWB) and the hemoglobin-based oxygen carrier HBOC-201. Both agents were able to induce ROSC (100% FWB, 86% HBOC-201), demonstrating the potential of SAAP as a viable rescue therapy after hemorrhagic cardiac arrest.

Williams and colleagues, in abstract 37, presented further work from their group on the role of mesenteric lymph (ML) exosomes after traumatic shock. Proteins within the exosomes are biologically active mediators of post injury inflammation. Using male rats in a hemorrhage model, the authors identified 743 unique proteins in ML, 33 of which were significantly elevated in the post shock state. Interestingly, vagal nerve stimulation prevented the development of the proinflammatory exosome phenotype. In summary, stimulating the neuro-enteric axis may abrogate the change in ML exosomes after hemorrhagic shock.

## Session VII:

# AAST/WTC: Posters

By - Vishal Bansal MD, FACS

The 77th Annual AAST Poster Session was the first in history to utilize “e-posters”. It was a big change from a format that participants had become very familiar with and it will likely continue to be tweaked until the optimal digital format is reached.

I was surprised by at least three posters focusing on decreasing opioid use in trauma patients both in regards to pain control and decreasing re-admission. The authors all concluded that pain strategies must implement a combination of NSAIDs and local anesthetics to decrease overall narcotic prescriptions.

The posters focusing on geriatric trauma patients reported data on geriatric recidivism and fall prevention as well as data on the increasing use of both warfarin and NOACs. Clearly, these patients remain a challenge and institutional protocols targeting immediate reversal are ever more important.

Finally, there were many posters from our international colleagues. I remain impressed with the volume of data and outcomes presentations from a variety of topics including TBI, solid organ injury and orthopedic management.