



AAST DAILY MEETING NEWS



SATURDAY, SEPTEMBER 21, 2019

SESSION VIII: PRESIDENTIAL ADDRESS

By Jamie J. Coleman, MD

The 2018 AAST Presidential address by Martin Croce, MD, entitled “Traumacare”, was an inspiring call to action for everyone involved in the care of traumatically injured patients. The event started with an introduction by AAST President-Elect David Spain. Using his characteristic sharp wit, he admittedly did not include any cute

baby photos or awkward teenaged photos but instead relied on a few awkward adult pictures and a comparison of Dr. Croce to Winnie the Pooh to illustrate Dr. Croce’s commitment to his patients, friends, and colleagues with steadiness, strength and simplicity.

Dr. Croce began with a touching tribute to his friends, colleagues, and family... all people who got the turtle on the fencepost, so to speak.

Dr. Croce then reminded the audience about the epidemic nature of trauma and the lack of funding for trauma care. He showed us the sobering statistics that the number one cause of death in America, for every citizen aged 44 years and younger is due to traumatic injuries...

TODAY’S EVENTS

7:30 AM-9:00 AM
BREAKFAST

8:00 AM - 9:00 AM
SUNRISE SESSION-
PAPERS 64-66

9:10 AM - 10:28 AM
QUICKSHOT SESSION I-
PAPERS 1-13

10:38 AM - 11:56 AM
QUICKSHOT SESSION II-
PAPERS 14-26

12:00 PM
MEETING ADJOURNED

Thank you to all
for a successful
78th Annual Meeting
of the
American Association
for the Surgery of Trauma
& Clinical Congress
of Acute Care Surgery.

See you in Hawaii!



and that percentage is rising. In fact, during the hour of his presidential address, and in any given hour of the day in the United States, an average of 16 people are shot and 4 people killed.



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He then made the compelling argument of “Traumacare”, which is comprised of an organized, needs-based, national trauma system, research funding proportionate to the burden of the disease, and funding for uncompensated patient care. Never one without a plan, Dr. Croce then laid out the financial viability of “Traumacare” by illustrating the amount of money able to be raised by adding \$10 to each car registration, adding \$25 to each speeding ticket, 15% surcharge on alcohol and 25% surcharge on guns and ammunition. As he pointed out, the second amendment gives the right to bear arms, but those arms don’t have to be cheap. In total, this would raise over \$21 billion in revenue to fund trauma care.

Dr. Croce reminded all of us that entrepreneurs are “those who do more than anyone thinks possible with less than anyone thinks possible.” He left us with the message that in our advocacy for “Traumacare” and curbing the public health crisis of gun violence, our “primary goal is to reduce the number of bullet holes in people.”

An excellent and inspiring talk by a surgeon who has, and continues to inspire so many into and in the field of trauma... of which the author can personally attest.

HAWAII 2020

79th Annual Meeting of AAST &
Clinical Congress of Acute Care Surgery

SAVE THE DATE

September 9-12, 2020
Hilton Waikoloa Village
Waikoloa, HI



SESSION X: MASTER SURGEON (PANCREATIC TRAUMA)

By Ben Zarzaur, MD, MPH, FACS

Dr. Jurkovich started off his lecture with a tribute to AAST and the importance of the community that this organization has provided him over the years. He then transitioned to a case of a patient that suffered a helicopter crash that resulted in multiple injuries. One of the injuries was a pancreatic transection that manifested a few days after the initial injury. The patient ended up with 12 laparotomies and an open abdomen. Dr. Jurkovich emphasized that the pancreas is not a very forgiving organ with little room for error in management.

Dr. Jurkovich mentioned that the serum amylase has a 95% negative predictive value on the initial laboratory analysis. But, there are still a significant number of patients who will still have pancreatic injury despite an



normal amylase. Following the trend is a better way to determine if an injury is present. Computed tomography (CT) is likely the best test for making the diagnosis. The earlier the CT scan is obtained the subtler the appearance on the CT. It takes 8–12 hours for some injuries to manifest on a CT scan. One may need to consider repeating the CT scan, particularly in the setting of a rising amylase.

Dr. Jurkovich next turned to the importance of the operative approach

to management of pancreatic injuries. The steps he emphasized were: 1) open the lesser sac via the gastrocolic ligament; 2) perform a Kocher maneuver including taking down the hepatic flexure; 3) mobilize the spleen to adequately visualize the tail; 4) open any contusion of the pancreas including opening the pancreatic capsule; 5) follow all penetrating injuries; 6) give CCK IV to assist in finding an injury to the duct; 7) an intact pancreatic capsule does not rule out division of the duct.

When managing pancreas injuries, injury to the pancreatic duct is the key to decision making. If there is only a contusion and there is no injury to the duct then you can widely drain the injury. If there is an injury to the patient's left of the mesenteric vessels, then you should perform a distal pancreatic injury. Closure of the



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pancreas can be performed with either a stapler or with U stitches. But, if you use a linear stapler then you should try to find the pancreatic duct and ligate it. For more proximal injury then you should widely drain the head of the pancreas and manage with ERCP and draining if needed.

For disruption of pancreatic duct within the head of the pancreas one should consider pancreaticoduodenectomy if disruption of the pancreatic duct is associated with a bile duct injury. If not, then consider doing a pyloric exclusion with gastrojejunostomy, feeding jejunostomy tube and placement of the nasogastric tube through the stomach and into the duodenum and via the gastrojejunostomy. He ended with reminders of the potential complications associated with these injuries and that the surgeon should have a high index of suspicion in management of these injuries.

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FITTS LECTURE

A SEUSSIAN TALE OF A
TRAUMA TIME TRAVELER

By Michael S. Truitt, MD

Dr. Fabian took AAST attendees down the rabbit hole of trauma surgery over the last 50 years. Celebrating our successes, documenting our failures so that we can learn from them and entertaining throughout. Best of all was the evidence of a life well lived and a career committed to the service of others. Thank you Dr. Fabian for showing us the way!



SESSION XI: PAPERS 36-44

By Jennifer L. Hartwell MD

If you had the pleasure of hearing the presentation of papers 36-44, you probably noticed some common themes. Time and money. Dr. Hanna challenged us to think about the value of the EGS health care we provide, concluding that over time, value has been declining. He proposed that promoting regionalization and reducing fragmentation of care could help us regain some of that value, which set the stage nicely for Dr. Ross who discussed the burden of the EGS volume across 8 hospitals in their healthcare system. Their study helped them realize and appreciate the work of their colleagues in their sister hospitals and sparked conversation about regionalization, access to specialty care in non-trauma centers, and challenged the notion that access to resources is improved at Level 1 trauma centers, as it may not be when resources are directed to trauma patients instead of EGS patients. In his discussion of Dr. Magnotti's paper, Dr. Martin quoted Dr. Sise in saying, "This is news you can use." In standard practical Memphis style, Dr. Magnotti discussed the only modifiable risk factor to improve long term functional outcomes for patients with popliteal artery injury: reduced ischemic time. Time on this earth was a focus of Dr. Berndtson's paper in which she discussed the management of choledocholithiasis in the elderly. Ultimately, they concluded that cholecystectomy on the index admission saves readmissions, reduces mortality, and she pointed out that comorbid conditions should inform the decision for surgery more than age alone. Keeping with 'the number of runs around the sun' theme, Dr. Kojima presented his groups' data about transfusion ratios in the elderly, stating that low MTP ratios appear to reduce in-hospital mortality in younger patients, but not those > 65 years old, though both young and old enjoy fewer overall adverse events when lower ratios are followed. Dr. Carmichael discussed the timing of cholecystectomy in the case of mild gallstone pancreatitis. He summed up his findings nicely: post the case the day of admission, it's safe and saves time and money in the long run. It comes as no surprise that the longer it takes for EMS providers to reach a patient in a rural area, the worse their outcome will be. But Ms. Kai and her colleagues from University of Kentucky took a unique look at this issue by examining pre-hospital outcomes defined as a decline their Step 1 (hemodynamic parameters) by the time the patient reaches definitive care. Specifically, they concluded that the longer it takes to get to the patient, the worse the patients' hemodynamics are by the time of arrival at definitive care. Keeping with the theme of pre-hospital care, Dr. Gene Moore stepped up to the podium on behalf of Dr. Hunter Moore who was busy taking his oral board exam. They concluded that pre-hospital plasma administration is associated with hypocalcemia with subsequent derangements in TEG parameters revealing decreased effectiveness of the plasma. They called for the development of calcium replacement guidelines to mitigate this effect in a more timely manner and keep that pre-hospital plasma working! Finally, Dr. Zogg brought us back to HCV in her discussion of variations of median hospital costs for common operations, nearly \$23,000 from the lowest to highest percentile hospitals. She concluded that we have room to improve as an acute care surgery community as we work together to decrease variability and increase the value of the great care we provide for our patients every day.



SESSION XIII: POSTERS II

By Lillian S. Kao, MD, MS

In this session, broad topics covered in the 69 posters included shock and transfusions, critical care, emergency general surgery, outcomes, and guidelines. All of the posters were excellent and addressed important topics. There were multiple topics that were particularly popular:

- **Whole blood versus component therapy:** Several posters provided additional support for the use of whole blood resuscitation for hemorrhagic shock over component therapy. Pokorny et al from the University of Texas Health Science Center at San Antonio (Poster #84) introduced the WATCHER approach (Whole blood Approach to Transfusion in Critical Hemorrhage and Emergency Resuscitation). They propose to redefine massive transfusion protocol (MTP) thresholds in the era of whole blood as >3 U of whole blood or >1500 mL of total product. The same group (Poster #89) also showed that whole blood resuscitation allowed surgeons 4 more hours in which to combat hemorrhage and showed promising trends towards mortality reduction. Siletz et al from the University of California in Los Angeles (Poster #87) reported that thromboelastography (TEG) profiles, number of units transfused, and outcomes were similar between those whose initial resuscitation started with whole blood versus component therapy.
- **Resuscitative balloon occlusion of the aorta (REBOA):** REBOA continues to be a popular topic. Three posters focused on technique – cut-down versus percutaneous access to the femoral artery, strategies for correctly landing the balloon into the targeted zone, and timing of aortic occlusion before traumatic arrest. Anderson and the AAST



Aorta Study Group (Poster #75) found that ongoing CPR was the greatest predictor of need for a cut-down during REBOA placement. Matsumoto et al from Saiseikai Yokohamashi Tobu Hospital (Poster #92) showed that direct measurement for placing REBOA catheters resulted in poor concordance with the targeted zone (79% for Zone 1 and 7% for Zone 3). Orlas et al from Fundacion Valle Del Lili (Poster #79)

evaluated the optimal timing of aortic occlusion with REBOA or emergency thoracotomy; they found that a SBP of 60 mmHg should trigger aortic occlusion to avoid traumatic cardiac arrest. Other posters focused on use of REBOA in pelvic hemorrhage and in obstetric emergencies. Brenner et al from University of California Riverside (Poster #132) compared outcomes of patients who underwent preperitoneal packing, angioembolization, or both after zone 3 REBOA placement for pelvic hemorrhage. REBOA with preperitoneal packing alone was associated with less systemic and local complications. Taylor et al from University of Arkansas (Poster #94) described the successful use of REBOA for placenta accreta and peri-partum hemorrhage by a multidisciplinary team.



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- **Extracorporeal Membrane Oxygenation (ECMO):** One poster focused on a single-institutional experience. Wright et al from Baylor University Medical Center (Poster #107) described their institutional experience with extracorporeal CPR (e-CPR). Two posters evaluated ECMO use and outcomes in trauma patients nationally over time; they utilized different databases but both showed increasing use over time. Guttman et al from University of Toronto (Poster #101) utilized Trauma Quality Improvement Program data and showed increasing frequency of ECMO use. More than two-thirds of patients survived their hospitalization. Checchi et al from Scripps Mercy Hospital Trauma Service (Poster #108) used the National Trauma Data Bank to look at trends in ECMO use which increased incrementally from 2013-2016 at Level 1 and 2 trauma centers; survival was higher at centers that did at least 9 ECMO procedures. All of these studies taken together suggest a role for the development of guidelines and protocols for ECMO use in trauma.
- **Opioid epidemic:** Opioid use – predictors of increased and persistent use and interventions to reduce use – is a popular topic across medical and surgical specialties, and acute care surgery is no exception. Biffl et al from Scripps Memorial Hospital in La Jolla (Poster #125) demonstrated lack of concordance between opioid discharge prescriptions and use. Habib et al from Allegheny Health Network (Poster #126) identified risk factors for protracted opioid use among opioid naïve patients such as those with multi-system orthopedic injuries, older patients, women, and patients with insurance. Ortiz et al from the University of Texas Health Science Center at Houston (Poster #103) showed that serious mental illness, which is 3x more common among the trauma population than the general population is associated with increased opioid and sedative utilization. Magrum et al from The Ohio State University (Poster #123) reported on the success of a surgeon/pharmacist-led Opioid Reduction Initiative. Clearly more work remains to be done to address the opioid epidemic, particularly among vulnerable patient populations.
- **Impact of the Affordable Care Act (ACA):** Several studies evaluated the impact of ACA on access to care and outcomes. Studies from Godat and Costantini from University of California, San Diego, suggested no difference in hospital length of stay (LOS) or readmissions after pelvic fractures (Poster #135) and no difference in LOS or costs of care for EGS patients (Poster #116) post-ACA. On the other hand, Lester et al from Cook County Hospital (Poster #129) found that there was a decrease in mortality after trauma post-ACA driven by effects in non-white racial groups.

Other popular topics included ongoing controversies about: the role of different agents and blood products in resuscitation of patients with hemorrhagic shock (TXA – Poster #72, liquid plasma – Poster #74, fibrinogen concentrate and platelets – Poster #90); development of predictive models (prehospital waveforms and massive transfusion – Poster #76, multi-organ stress index and mortality – Poster #91, factors predicting massive transfusion in penetrating trauma – Poster #93, biomarker predictors of VTE – Poster #97, autonomous physiologic data and organ failure – Poster #109, risk factors for ICU readmission – Poster #110, loss of lymphocytes and complications – Poster #127, predictors of early mortality – Poster #130), and utility of predictive grades/scores/etc (shock index – Posters #80 and #82, AAST scores for acute appendicitis and acute mesenteric ischemia – Posters #113 and 117 respectively, grading of polytrauma patients – Poster #137).

Overall, the posters were well-presented and engaged the audience in fruitful discussions. The posters highlight the amount of work that is yet to be done to identify solutions to the issues facing acute care surgeons today in identifying best practices for resuscitating patients with hemorrhagic shock, identifying patients at high risk for complications and mortality so as to intervene sooner, and preventing the long-term sequelae of trauma and injury in survivors such as opioid dependence. Looking forward to continued research in these important areas!

SESSION XIVA: PAPERS 45-53

By John J. Como, MD, MPH

First, Christopher Tignanelli from the University of Minnesota gave a talk about natural language processing of prehospital Emergency Medical Services trauma records to characterize the appropriateness of treatment for motor vehicle collision patients. Next, Bourke Tillman from Sunnybrook Health Science Centre reported a significant variation in both the rates of under- and over-triage and of the accuracy of secondary triage at non-trauma centers. Lisa Knowlton from Stanford presented her research which showed that Medicaid expansion under the affordable care act was associated with a decrease in injury-related Emergency Department visits. Similarly, John Scott from Harborview reported that state Medicaid expansion led to an 80% reduction in the uninsured rate among non-elderly adults admitted for injury. He noted that this also appears to have shifted much of the financial risk from injured patients and hospitals to the state.

Marta McCrum from the University of Utah reported on the incidence of readmission after non-operative

trauma, which was associated with increased mortality and potentially preventable costs. Along the same readmission theme, the next presentation was by Erin Hall from the Washington Hospital Center who reported on the 92% increase in the attributable risk of injury readmission after an initial index trauma.

Next, Patricia Ayoung-Chee from NYU presented research about the introduction of a hospitalist co-management program at her hospital, concluding that this was beneficial with respect to length of stay and mortality for surgical patients. The next paper was presented by Timothy Wolff, from Grant Medical Center in Ohio, and investigated fatigue and burnout risk in trauma surgeons. This group found that trauma surgeon on call fatigue level is directly related to call length, especially with 24-hour call shifts, and correlates strongly with pre-call fatigue level. However, on-call fatigue, call frequency, or call duration did not predict higher risk of burnout. Finally, Joseph Ebersole, from Vanderbilt University, presented a comparison of the AAST grading scale to the modified Hinchey classification in acute colonic diverticulitis and found that they were equivalent with respect in predicting the need for procedural intervention and complications.



SESSION XIVB: PAPERS 54 -63

By Jeffrey A. Claridge, MD

The first paper discussed the use of Mesenchymal Stem Cell-Derived Exosomes and it was presented by Dr. Williams a general surgery resident from Michigan. They sought to evaluate the use of exosomes in the “golden hour” in a large animal model of TBI and hemorrhagic shock with resuscitation. The results demonstrated that animals who were treated with exosomes had improved ICP and CPP compared to other groups. Blood-based biomarkers were also evaluated. The authors concluded that an early single dose may offer neuro protection. The discussion was about timing of dosing and “mass production” of exosomes. The best quote was by Dr. Carrie Sims, the discussant who stated, “Exosomes are really cool”

The second paper presented work about the gut microbiome and its association with outcomes after trauma. I had the honor of discussing this paper which was presented by Dr. Nicholson from San Antonio. She presented a very interesting paper looking at the association of the gut microbiome and outcomes

in trauma patients. The work is very novel and demonstrated differences in the gut microbiome within 1 hour of trauma in patients who died vs those that did not. As the discussant, I could not help myself from saying “it’s all about the pooh”, especially given the great presidential address by Dr. Croce (aka: AAST president Pooh).

The third paper was presented by Dr. Linda Schulzman from the University of California, Davis. She discussed the role of P-Selectin in pulmonary arterial thrombosis. This work was done in a murine model and concluded that P-Selectin blocking antibody administered

after trauma is effective in preventing pulmonary thrombosis. They proposed this could lead to earlier administration of prophylaxis. The paper was discussed by Dr. Amy Makley who asked key questions about the potential added effect of heparin and specifics about the model.

The fourth paper was presented by Dr. Kornblith from UCSF who presented her work on post-injury platelet biology in traumatic brain injury. This was a proof of concept paper that was discussed by Dr. Marty Schreiber who asked several questions about patient sampling and handling of samples.

The fifth paper, or the halfway point of the session, was a presentation by Dr. Emigh who presented a multicenter AAST Study looking at reversal of novel oral anticoagulants. The authors concluded that patient on NOACs had a four-fold increase of mortality when specific reversal agents were used. The paper was discussed by Dr. Sandro Rizoli who asked “should we warn surgeons about these medications?”. There were several questions from the floor to the author about timing, patient selection, and costs.

The next paper was presented by Dr. Mira Ghneim who presented a multicenter study looking at geriatric



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TBI patients. This is a large observational study across 43 trauma centers that included over 3000 patients. Dr. Patel discussed this paper and commented that this was “a great study” however he did question “what type of study design is this?” Dr. Ghneim responded, “...this was a retrospective analysis of prospectively collected data”.

We then heard from Dr. Keihani who presented a paper evaluating the AAST renal injury grading scale. This was a collaboration of 14 centers that focused on looking at high grade renal injuries. The paper was discussed by Dr. Fernando Kim who asked how the classification should change.

We then heard Dr. Gupta present on the efficacy of preperitoneal packing in patients with blunt pelvic fracture. The primary outcome was mortality. In this population of patients from Italy, propensity analysis demonstrated that extraperitoneal packing can be lifesaving. The paper was discussed by Dr. Joergensen.

Dr. Amanda Smith presented a paper looking at a PI improvement project. The project was the implementation of a multidisciplinary perinatal emergency response team (PERT) in pregnant trauma patients. The group demonstrated improvement in performance after the implementation of PERT. Dr. Zakrisson was the discussant and pushed the issue and question of, “What should we be measuring in these patients?”

We then had technological failure with slides going missing and loss of microphone. Dr. Smith finished her discussion with a loud and clear voice.

The last paper started with no microphone, but Dr. Ladhani (my resident by the way) proceeded without the microphone like a champ. He presented work from MetroHealth Medical Center looking at the use of an opioid risk assessment tool in patients after traumatic injury. The results demonstrated that the risk tool could identify patients at less risk of higher opioid use. Dr. Andrew Bernard was the discussant and highlighted long term information on opioid use.

Overall this was a diverse session that covered many areas. The presenters did a great job and should be very proud of themselves.

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