

METHODS: A retrospective study of 200 trauma patients with >3 ICU days was performed. Patients were identified as having feeding intolerance if they had 2 or more symptoms of slowed gastrointestinal motility including nausea, vomiting, abdominal distension, elevated gastric residual volumes and ileus. Patients with feeding intolerance had significantly higher injury severity score (ISS); thus, patients were matched according to ISS resulting in 67 patients per group. Data were compared using ANOVA or Chi-square analysis.

RESULTS: 57% of trauma patients developed feeding intolerance according to our classification. Length of hospital and ICU stays, and time to reach feeding goal were significantly longer in the feeding intolerance group. Patients with feeding intolerance also displayed significantly altered markers of inflammation and increased infectious and thrombotic complications. Patients with feeding intolerance who were diagnosed with ileus were treated with prokinetics significantly more than patients without ileus ($p=0.001$). When patients treated with prokinetics were compared to untreated patients within the feeding intolerance group, no difference in time to reach feeding goal was observed (4.67 ± 0.69 vs 4.86 ± 0.36 , $p = 0.84$).

Table.

Category	No symptoms	Slowed motility	p Value
Morphine Equivalents (avg/day)	68.1 \pm 12.6	83.4 \pm 18.9	0.50
Prealbumin (mg/dL)	14.19 \pm 0.98	10.00 \pm 0.44	<0.001
CRP (mg/L)	127.79 \pm 7.15	154.41 \pm 4.78	0.017
Days to Goal Feeding	2.8 \pm 0.2	5.5 \pm 0.4	<0.001
LOS / ICU (days)	16.0 \pm 1.3 / 7.4 \pm 0.6	34.4 \pm 3.9 / 19.0 \pm 3.3	<0.001 / <0.001
Infectious Complications	23 (34%)	41 (62%)	0.002
Thrombotic Complications	4 (6%)	13 (19%)	0.02
Sepsis	5 (7%)	26 (39%)	<0.001
Readmission	9 (13%)	25 (37%)	0.009

CONCLUSIONS: Similar to postoperative patients, feeding intolerance in trauma patients leads to prolonged time to reach feeding goals and lengthened ICU stays. Prokinetic treatment did not reduce the time to reach feeding goal, emphasizing the need for the development of effective drugs to treat slowed gastrointestinal motility in trauma patients.

Liberal Use of Pelvic Binders in the Pre-Hospital and Emergency Room Setting may be Harmful



Eugene Wang, MD, Elizabeth R Benjamin, MD, PhD, FACS, Saska Byerly, MD, Heura Llaquet, MD, Kazuhide Matsushima, MD, Kenji Inaba, MD, FACS FRCS, Demetrios Demetriades, MD, PhD, FACS
Los Angeles County+University of Southern California, Los Angeles, CA

INTRODUCTION: Pelvic fractures (PFx) are a significant source of hemorrhage and mortality after trauma. The importance of early stabilization has been clearly recognized and has become a national quality improvement initiative and monitored metric. As such, pelvic binders, a rapid and inexpensive method of stabilization,

are being considered for liberal pre-hospital use by military and emergency providers. The safety of this intervention, however, remains uncertain.

METHODS: A 2.5-year analysis of all trauma patients with PFx admitted to an urban I trauma center. Potential benefit or harm of binder application was based on type of fracture: potential benefit in pubic symphysis diastasis; potential harm in fractures of the iliac wing, acetabulum, and femoral neck; uncertain effect in sacroiliac dislocation, pubic rami, and sacral fractures.

RESULTS: There were 713 trauma patients with PFx. Overall, only 2.9% of patients would have potentially benefited from binder application while 59.2% would have potentially been harmed ($p<0.001$), and in 37.9%, the effect would have been uncertain. In the subset of patients with field hypotension, routine use of binders would have been potentially beneficial in only 5.8%, harmful in 53.6% ($p<0.001$), and had uncertain effect in 40.6%.

Table.

	Benefit from binder	Harm from binder	Uncertain effect from binder	p Value
All patients, n=713	21/713 (2.9%)	422/713 (59.2%)	270/713 (37.9%)	<0.001*
Hypotension, n=69	4/69 (5.8%)	37/69 (53.6%)	28/69 (40.6%)	<0.001*

*One sample t-test comparing percentages from Benefit group and Harm group

CONCLUSIONS: Routine use of pelvic binders in trauma is potentially harmful in the vast majority of patients, including those with hemodynamic instability. Pelvic binders should be applied only after imaging to assess the fracture type. Routine use of pelvic binders should not be incorporated into pre-hospital care.

Mortality and Timing of Emergency Laparotomy in Penetrating Trauma Patients: A Propensity Matched Analysis



Nasim Ahmed, MBBS, FACS, Patricia Kooker, Kambiz Kamrani, MD
Jersey Shore University Hospital, Neptune, NJ

INTRODUCTION: The purpose of the study was to evaluate the impact of the timing of an emergency laparotomy in penetrating injury cases on mortality under these recommendations.

METHODS: Study data was obtained from the National Trauma Data Bank (2007-2010 edition). Only patients who sustained penetrating injuries, presented with an initial systolic blood pressure (SBP) ≤ 90 mmHg, and who underwent an exploratory laparotomy within 4 hours of hospital arrival were included. Patients who underwent laparotomy within one hour (Group 1) were compared to patients who had a laparotomy between 1-4 hours post-admission (Group 2). Propensity score matching was

performed using baseline characteristics in an attempt to better balance the two groups.

RESULTS: Of 2,345 sample, 1,931 (82.35%) patients qualified for Group 1 and 414 (17.65%) qualified for Group 2. The raw mortality results between Groups 1 and 2 was 37.4% vs 15.5% ($p < 0.001$) respectively. Logistic regression analysis revealed a significant increase in the odds of mortality for patients in Group 1. Using the paired data after the propensity matching, the overall mortality rates were 26.3% vs 15.46% ($p < 0.001$) for the 2 groups respectively. There was an 11% increase in the absolute risk difference in mortality for group 1.

CONCLUSIONS: Approximately 80% of patients who sustained penetrating injuries and had a SBP ≤ 90 mmHg at hospital presentation underwent a laparotomy within 1 hour of hospital arrival per the ACS recommendations. However, it was found that they had a significantly higher mortality rate when compared to those who had a laparotomy between 1 and 4 hours post-admission.

Multivariate Regression Analysis of Risk Factors for Acute Kidney Injury after Traumatic Rhabdomyolysis



Alberto F Garcia, MD, Juan G Bayona, MD,
Juan C Puyana, MD, FACS, Dary Villa, MD, Sebastian Ossa,
Nathalia Martinez,
Juan M Martinez, Manuel S Moreno, Maria P Naranjo
Fundación Clínica Valle del Lili Bogotá, Colombia

INTRODUCTION: Traumatic rhabdomyolysis (TR) has been associated with the development of AKI. The relationship and the role of other associated risk factors has not been investigated. We retrospectively analyzed multiple factors to identify possible associations between clinical and laboratory variables and the risk of developing AKI in subjects with TR.

METHODS: Adult trauma patients admitted to the ICU between 2011-2015, with measurements of CPK, were analyzed. Demographics, CPK levels, trauma characteristics, lactic acid, and BD levels, fluid balance, transfusions, administration of IV contrast agents or sodium bicarbonate were registered. Potential associations were evaluated by simple logistic regression. Definitive assessment of independent predictors as of AKI development (KDIGO score ≥ 1) was performed by multivariable logistic regressions (MLR), retaining variables with a p -value < 0.1 .

RESULTS: Three hundred fifteen patients were included. Median age was 28 years (IQR 22-41). Trauma mechanisms were penetrating (30.3%), blunt (54.5%) and explosion (15.2%). Median ISS was 21 (ICR 16-29). Median CPK in the first day was 1662 (IQR 770-4125). AKI occurred in 75 subjects (23.8%). In univariate analysis CPK > 5000 u/Lt showed a positive association with AKI risk (OR=2.78, 95% CI 1.29-4.3). MLR identified that age,

thorax AIS, APACHE-II, CPK > 5000 u/Lt, dose of NaH₂CO₃, dobutamine administration and BD increased independently the risk of AKI.

Table. Independent Risk Factors of AKI in Traumatic Rhabdomyolysis

Variable	OR (95% CI)	p Value
CPK > 5000 u/Lt	2.42 (1.17-4.97)	0.02
Age (every 10 years)	1.26 (1.03-1.55)	0.03
B.D. (Meq/Lt)	1.09 (1.01-1.18)	0.04
Thorax AIS	1.26 (1.06-1.50)	0.01
Apache II	1.05 (1.002-1.09)	0.04
NaH ₂ CO ₃ dose (each 100 Meq)	1.18 (1.02-1.35)	0.02
Dobutamine administration	3.12 (1.01-9.64)	0.05

CONCLUSIONS: The administration of sodium bicarbonate or dobutamine, age, severity of thoracic trauma APACHE-II, and initial level of metabolic acidosis are independently associated with high risk of AKI in patients with a CPK > 5000 u/Lt. These results question the protective role alluded to sodium bicarbonate administration in the past.

Open Abdomen Management in the Age of Damage Control Resuscitation



Edward Chao, MBBS, Joshua H Johnson,
Afshin Parsikia, MD, MPH, Joelle Getrajdman, MD,
Zachary Adorno,
Srinivas H Reddy, MD, Sheldon H Teperman, MD, FACS,
Melvin E Stone, MD, FACS
Jacobi Medical Center, Bronx, NY

INTRODUCTION: Damage control resuscitation (DCR) involving early blood product transfusion and limiting crystalloid has become a mainstay of trauma management. Some authors have suggested DCR has contributed to successful early abdominal closure after damage control surgery, however, there are few specific studies. We hypothesized that after a formal adoption of DCR in 2009, our institution was more successful in early closure of open abdomens largely based on limited crystalloid resuscitation.

METHODS: The trauma registry and OR database were queried for all patients with an open abdomen after laparotomy between 2000 and 2015. Charts were reviewed for demographics, resuscitation/operative data, and complications. The pre-DCR group before 2009 was then compared with the post-DCR group after 2009. Early successful abdominal closure was defined as closure ≤ 8 days, a cited cutoff when complications related to the open abdomen significantly increase.

RESULTS: Sixty-four open abdomen cases were analyzed. After implementation of DCR, there was a dramatic statistically significant decrease in crystalloid received in the first 24hr and a higher success rate of fascial closure ≤ 8 days, with no difference in complications (Table). In subgroup analysis of patients that could not