**Sex-based Differences in the Outcomes of Admitted Burns Patients in Urban India: A Multi-centre Cohort Study**
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**INTRODUCTION:** Out of 9 million thermal injuries, 2.6 million new burns cases were from India in 2017. Factors which contribute to mortality in burns patients are %TBSA burns, age and inhalation injury. Historically, sex did not influence the outcomes of burn injury. Recent studies among burns patients correlate female sex to increased mortality independent of other factors, but the Indian literature is deficient in establishing if this increased mortality is merely a result of sex-based differences in other variables. Thus, we aim to study if sex is an independent risk factor associated with mortality in patients with burns in India.

**METHODS:** Our study population was defined as those patients admitted with “Burns” listed as their mechanism of injury or who had a ICD-10 diagnostic code consistent with a burn (T20 to T32), included in the multicenter prospective observational study ‘Towards Improved Trauma Care Outcomes (TITCO)’ in India conducted in October 2013 to December 2015.

**RESULTS:** 1209 patients were identified as having suffered a burn from the TITCO cohort. The mean age was 23 years with 58.9% females. The mortality was 48.5%. After accounting for confounding factors, females were at a significantly higher risk of death(OR=1.73 p=0.02). The mean %TBSA of burns patients who survived was 28% while that of patients who succumbed was 63%.

**CONCLUSION:** Proportions of female burns and their mortality are very high as compared to males. Sex is an independent risk factor associated with mortality in patients with burns in Indian population.

**Stop the Bleed: A Prospective Evaluation and Comparison of Tourniquet Application in Security Personnel vs Civilian Population**
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**INTRODUCTION:** Stop the Bleed (STB) is a national training program aiming to decrease the mortality associated with life-threatening bleeding due to injury. The purpose of this study was to evaluate the efficacy and confidence level of security personnel placing a tourniquet (TQ) compared to civilians.

**METHODS:** Pre and post questionnaires were shared with security personnel (Group 1), and civilians (Group 2). Both groups were assessed to determine comfort level with TQ placement. Time and success rate for placement was recorded pre- and post-STB training. A generalized linear mixed model or generalized estimating equations were used.

**RESULTS:** 234 subjects were enrolled. There was a statistically significant improvement between the pre- and post-training responses in both groups with respect to comfort level in TQ placing. Participants also demonstrated increased familiarity with the anatomy and bleeding control after being trained. A higher successful tourniquet placement was obtained in both groups after training (Pre-training: Group-1[17.4%], Group-2[12.8%], Post-training: Group-1 [94.8%], Group-2[92.3%]). Both groups demonstrated improved time to placement with a longer mean time improvement achieved in Group 1. Although the time to TQ placement pre-and post-training was statistically significant, we found that the post-training times between groups 1 and 2 were similar (p=0.983).

**CONCLUSION:** Participants improved their confidence level and dramatically increased the rate and time to successful TQ placement. While civilians had the greatest increase in comfort level, the security personnel group saw the most significant reduction in the time to successful placement. These findings highlight the critical role of STB in bleeding control techniques.

**Testosterone, Age, and Sex Affect Platelet Responsiveness in Vitro**
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**INTRODUCTION:** Female sex confers a survival advantage following trauma in the setting of trauma-induced coagulopathy (TIC), with female platelets having a heightened responsiveness to stimuli. This is thought to be mediated by female sex hormones, but studies examining the effect of testosterone on platelet behavior is lacking. We hypothesize that, regardless of sex, testosterone decreases in vitro platelet response.

**METHODS:** Apheresis platelets were collected and divided into the following groups: older male (OM) ≥45 years, younger male (YM) < 45 years, older female (OF) ≥ 54 years, and younger female (YF) < 54 years. Platelets, incubated with testosterone [531ng/dL, healthy male median concentration] or vehicle (naive), were stimulated with adenosine diphosphate (ADP,20μM) or platelet activating factor (PAF,2μM). Aggregation was measured by aggregometry and activation was measured by CD41 surface expression via flow cytometry.
RESULTS: Testosterone treatment led to decreased aggregation within all sex and age profiles compared to controls for ADP (p<0.0014) and PAF (p<0.0001). There was a baseline difference in aggregation between YM vs. OM (p<0.0001) and YM vs. YF (p<0.0001). However, in response to ADP, but not PAF, aggregation increased in YF vs. OF (p=0.0096) and OF vs. YM (p<0.0001). Testosterone decreased CD41 expression by 38.6±14.1% (ADP) and 34.6±13.9% (PAF) (no difference in control with and without testosterone).

CONCLUSION: Testosterone decreases platelet aggregation and activation to ADP and PAF within all sex and age groups vs controls, indicating that a mechanistic effect exists for testosterone on platelets. These results, ever relevant in a male-dominated trauma population, highlight the potential for androgenic inhibitors as a therapeutic adjunct in TIC.

The Impact of COVID-19 and Associated Social Restrictions on Violence Related Trauma: Experience From an Urban Trauma Center
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INTRODUCTION: During the Covid 19 pandemic social policies were implemented to limit spread of disease. With the implementation of these policies, we observed a change in pattern of trauma encounters. The aim of this study was to assess the effect of Covid 19 related social policies on trauma volume and injury mechanism at our urban trauma center.

METHODS: Trauma registry data was reviewed from March 2019 to July 2020 and was stratified according to activation level. Violence related injuries (VRI) included gunshot wounds, stab wounds, and blunt assault. We correlated trends in trauma encounters with the severity of pandemic, implementation of policies, and ease of lock-down.

RESULTS: A total of 1620 trauma encounters were identified. During the peak of the pandemic there was a 25% reduction in the number of total activations compared to the corresponding months in 2019. Level 1 and level 2 activations decreased by 31% and 34% respectively, but the acuity of patients presenting was higher. With ease of lock-down, there was a 40% increase in the number of encounters when compared to the same months in 2019. Majority of this surge was due to a 28% increase in gunshot related injuries.

CONCLUSION: Although total traumas decreased during the peak of Covid, injury severity remained high. There was an unprecedented surge of violence related injuries in comparison to prior years as social restrictions were eased. Thus, trauma capabilities need to be maintained at institutional and regional levels through all phases of a pandemic.

The Impact of Gender on Clinical Outcomes after Sustaining Pelvic Fracture
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INTRODUCTION: In trauma care, pelvic fractures contribute to significant morbidity and mortality. Since men and women have different pelvic structures and hormonal milieu, we studied if these gender differences affect clinical outcomes after pelvic fractures.

METHODS: Using the 2016 American College of Surgeons Trauma Quality Improvement Program (ACS TQIP) database, we stratified 24,425 patients with pelvic fractures by gender into male and female groups. Each group was analyzed for differences in comorbidities, complications, and other clinical parameters.

RESULTS: Female patients were older (p<0.001) and had significantly more comorbidities (p<0.001), such as bleeding disorder, congestive heart failure, chronic obstructive pulmonary disorder, dementia, chronic renal failure, diabetes mellitus, and hypertension. Although female patients were sicker prior to sustaining pelvic fractures, male patients had significantly higher rates of post-trauma complications (p<0.001), such as acute kidney injury, deep vein thrombosis, unplanned admission to the intensive care unit (ICU), and unplanned return to the operating room (OR). More specifically, being male independently increased the risk of developing at least one complication by 26.96% (p<0.001). Male patients also had a significantly higher average injury severity score (ISS) (21.9 ± 0.089 vs 20.7 ± 0.11, p<0.001) and longer hospital length of stay in comparison to female patients (13.4 ± 0.12 days vs 11.8 ± 0.14 days, p<0.001).

CONCLUSION: Although female patients were older and had more pre-existing comorbidities, male patients developed significantly more post-trauma complications and had longer hospital stays. These dissimilar responses to trauma may be explained by gender-related differences in pelvic structure and hormone levels.

The Social Vulnerability Index: A Useful Needs Assessment Tool to Guide Intervention and Prevention Efforts after Injury?
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