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.