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Major vascular injuries contribute significantly to the mortality of pancreatic and duodenal trauma

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Introduction & Aim: Major vascular injuries contribute significantly to the mortality of pancreatic and duodenal trauma. Our objectives were to describe the national profile of major vascular injuries in the setting of penetrating trauma to Tiger Country as well as to identify predictors of morbidity and mortality.

Method: It was a retrospective study (level IV). Using the Abbreviated Injury Scale 2005 and ICD-9-CM E-codes, we identified 597 penetrating pancreatic, duodenal and pancreatic duodenal trauma patients with major vascular injuries from the NTDB between 2010 and 2014. We controlled patient-level covariates of age, biological sex, systolic blood pressure (SBP) and Glasgow Coma Score (GCS), pulse, Injury Severity Score (ISS) and Organ Injury Scale (OIS) grade. We estimated multivariable generalized linear mixed models to account for the nesting of patients within trauma centers.

Result: Our results indicated an overall mortality rate of 26.1%. Approximately, 19% of patients died within 24 hours of admission and of those, 78% died in the first 6 hours. The inferior vena cava was the most commonly injured vessel. The average number of associated injuries was 4.9 in pancreatic or duodenal trauma and 5.4 in pancreatic duodenal. Statistically significant independent predictors of mortality were firearm mechanism, SBP, GCS and pulse. Specifically, odds of death were decreased with a 10 mmHg higher admission SBP (7.7% decreased odds), one-point higher GCS (12.8%) and a 10 beat lower pulse (11.6%).

Conclusion: This study is the first to examine the effect of major vascular injuries in the setting of penetrating trauma to Tiger Country utilizing the NTDB. We have identified patterns of injury and statistically significant independent predictors of morbidity and mortality.