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“Does Patient Presentation Time Impact the Use of Damage Control Laparotomy in Trauma?”

Introduction: Damage control laparotomy (DCL) is a mainstay for the treatment of the severely injured trauma patient, but this procedure is not without risks when compared to definitive closure. Trauma patients can present at any time, and multiple studies have looked at the impact presentation time has on a variety of patient outcomes. However, there is a lack of studies which specifically evaluated for the impact presentation time may have on the propensity for a DCL in trauma patients. The objective of this study was to investigate if trauma patients presenting at night had a DCL performed at equivalent rates compared to similarly injured patients who presented during the daytime.

Methods: A retrospective chart review was conducted of adult patients who presented at a Level 1 trauma center and underwent an exploratory laparotomy for their injuries from July 2012 to December 2021. The data collected included patient demographics, patient presentation time, whether or not a DCL was performed, Injury Severity Score (ISS), length of stay, and patient outcomes including 90-day patient mortality. A patient was classified as presenting during the night at their presentation time if the sun was below the horizon as determined by publicly available astronomical records. Univariate analysis was performed with $p < 0.05$ considered to be significant.

Results: A total of 474 patients met inclusion criteria for our study with 302 (63.7%) presenting at night. 228 (48.1%) of all patients had a DCL, with 145 (63.59%) of the night cohort receiving a DCL. However, there was no significant difference between daytime and nighttime DCL rates, intra-op mortality rates, or 90-day mortality rates, even when controlling for ISS ($p > 0.05$).

Conclusions: The results from this study demonstrated no increased rate of DCL for trauma patients who presented at night compared to daytime, nor any difference in mortality.