Department of Surgery
2026 Research Day
6th May 2026 (Wednesday) | 7 am – Noon | MART Auditorium

Title: E-bike and e-scooter injuries: not a trivial problem in the suburbs.

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Introduction: The widespread use of e-scooters and e-bikes has led to a rise in related injuries, particularly as their growth has often outpaced public safety regulations. Consequently, hospitals are treating an increasing number of trauma cases involving e-bikes and e-scooters. While interest in e-bike and e-scooter injuries has grown, few studies have investigated injury patterns and outcomes in suburban settings.

Methods: We performed a retrospective observational study of adult trauma patients presenting after e-bike, e-scooter, or e-skateboard accidents between August 1, 2022, and October 31, 2024, at our institution. We performed nonparametric tests for our statistical analysis using Excel and SPSS.

Results: A total of 84 trauma patients aged 19 to 72 years (mean, 38 years; SD 15) presented to the emergency department of our institution. Of these, 43 patients (51.2%) were riding e-bikes, 37 patients (44%) were using e-scooters, and 4 (4.8%) were using e-skateboards. Males comprised most of the cohort (n = 70; 83,3%). The most frequently reported comorbidities were smoking, alcoholism, and diabetes. Helmet use at the time of injury was confirmed in 20.2% of cases and was significantly associated with the type of e-vehicle (p = 0.019), with the highest compliance among e-bike riders. Reported collision velocities ranged from 5 to 40 mph, with no significant differences across vehicle types. Median collision velocities did not differ significantly between patients with and without intracranial hemorrhage (20mph vs 20 mph; p = 0.319). The most common injury sites were the extremities (46.4%) and head/neck (41.7%), with long bone and cranial bone fractures occurring in 29.8% and 11.9%, respectively. Intracranial hemorrhages were identified in 13 patients (15.5%), with 3 of them requiring surgical intervention, a higher rate compared to our closest urban inner-city trauma center. Facial lacerations were recorded in 39.3% with a median length of 2.25 cm (IQR, 1 - 3.25). ED disposition showed that 35.7% of patients were discharged, 23.8% admitted to a stepdown unit, 15.5% to the ICU, 14% to a general floor, 9.5% taken directly to the OR, and 1% expired in the ED.

Conclusion: Our study highlights distinct injury patterns associated with e-bike, e-scooter, and e-skateboard use in a suburban setting. Among all injuries, head/neck and extremity injuries, as well as intracranial hemorrhages requiring operative intervention, were more frequent in our suburban institution. Given the potential for significant traumatic injuries even outside dense urban environments, comprehensive imaging should be considered due to the high-energy mechanisms of injury. The proportion of patients requiring ICU admission and, in some cases operative intervention, reflects the substantial injury burden. These findings support targeted prevention strategies, greater helmet compliance, and community-specific safety measures tailored to suburban settings.