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# An Early Look at Operative Orthopaedic Injuries Associated with Electric Scooter Accidents: Bringing High-Energy Trauma to a Wider Audience

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## Abstract

**Background:** There is a new method of transportation that started in our community in late 2017—rideshare electric scooters (e-scooters). These scooters have proven immensely popular and can now be found in many cities around the world. Despite the pervasiveness of e-scooters, their associated injury patterns are poorly understood. The purpose of this study was to describe our department's experience at the epicenter of the e-scooter phenomenon that is sweeping the globe and to characterize operative orthopaedic injuries that are related to e-scooter accidents.

**Methods:** We performed a retrospective chart review of all of the operative orthopaedic cases and trauma consults at 2 trauma centers (a level-I center and a level-II center) between September 2017 and August 2019. We identified all operative injuries in which the cause of injury was an e-scooter accident. Data that included demographics, mechanism of injury, diagnosis, and treatment were collected.

**Results:** Seventy-five operative injuries were identified in 73 patients during the study period. The mean patient age was 35.4 years (range, 14 to 74 years), and the median age was 32 years. There were 4 pediatric patients (14, 15, 15, and 17 years old). Thirty-two patients (43.8%) sustained upper-extremity injuries, and 42 patients (57.5%) sustained lower-extremity injuries; 1 of these patients had both upper and lower-extremity injuries. Nine patients (12.3%) had open fractures. There were 7 hip fractures in patients with an average age of 42.4 years (range, 28 to 68 years). Seventy-one (97.3%) of 73 patients were e-scooter riders, and 2 (2.7%) were pedestrians who were struck by e-scooter riders.

**Conclusions:** E-scooters can cause serious injury. Seventy-three patients required operative treatment in just the first 2 years of e-scooter use in our community. Operative injuries occurred throughout the skeletal system, and several were injuries that are typically associated with high-energy trauma. Although, as a rule, e-scooter use is limited to adults and banned in high pedestrian-traffic areas in our city, the inclusion of 4 underage riders and 2 pedestrians in our cohort suggests that these rules

are not always followed. As e-scooters continue to increase in popularity, additional steps should be taken to regulate their use and protect riders and the public.