Prevalence of prehospital hypoxemia and oxygen use in trauma patients.

OBJECTIVE: This study estimates the prevalence of injured patients requiring prehospital supplemental oxygen based on existing recommendations, and determines whether actual use exceeds those recommendations.

METHODS: Prehospital oxygen use and continuous peripheral oxygen saturation measurements were prospectively collected on a purposive sample of injured civilians transported to an urban level 1 trauma center by paramedics. Structured chart review determined injury characteristics and outcomes. Supplemental oxygen administration indications were hypoxemia (peripheral oxygen saturation ≤ 90%), hemorrhagic shock (systolic blood pressure < 100 mmHg), or paramedic suspicion of traumatic brain injury.

RESULTS: Paramedics enrolled 224/290 screened subjects. Median (range) age was 34 (18-84) years, 48.7% were nonwhite, 75.4% were male, and Injury Severity Score was 5 (1-75). Half (54.5%) were admitted; 36.2% sustained a penetrating injury. None underwent prehospital endotracheal intubation. Hypoxemia occurred in 86 (38.4%), paramedics suspected traumatic brain injury in 22 (9.8%), and 20 (8.9%) were hypotensive. Any indication for supplemental oxygen (107/224 [47.8%, 95%CI 41.3%-54.3%]) and prehospital administration of oxygen (141/224 [62.9%, 95%CI 56.2%-69.2%]) was common. Many (35/141 [24.8%]) received oxygen without indication.

CONCLUSIONS: On the basis of current guidelines, less than half of adult trauma patients have an indication for prehospital supplemental oxygen, yet is frequently administered in the absence of clinical indication.