Emergency Department Procedural Sedation in the Elderly

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Introduction
The use of procedural sedation and analgesia (PSA) for the performance of Emergency Department (ED) procedures has been reported to be safe and effective. However, few studies have evaluated the safety of PSA in the elderly, with conflicting results. Our primary objective was to determine if elderly patients undergoing PSA for the management of an orthopedic injury had an increased risk of adverse events (AEs) during the procedure.

Methods
This was a retrospective review of prospectively recorded data between 2006 and 2016 that included patients aged ≥16 years undergoing PSA to facilitate treatment of a fracture or dislocation. The primary AEs studied include hypoxia and hypotension, along with their corrective interventions. Logistic regression (LR) models tested for associations between age and outcome measurements. Effect sizes were described as odds ratios (OR) and 95% confidence intervals.

Results
4171 patients were studied, including 1125 patients ≥65 years of age. More than 90% of the time, propofol was used as a single agent sedative. Medication dosing declined as patients aged. In the young group, the average total propofol dose was 2.34mg/kg compared to 1.42 mg/kg in the elderly (≥85 years subgroup: 1.07mg/kg). Despite this, hypoxia was more likely to occur in elderly patients (2.3%) compared to younger patients (0.4%). LR models demonstrated that hypoxia was more likely to occur in: the elderly [OR 4.29 (1.58,11.70)], patients with an ASA classification score of 3 or higher [OR 4.71 (1.89,11.70)], and with higher dosing of fentanyl in the elderly [OR 2.35 (1.21,4.57)].

Conclusion
When performing PSA, clinicians should be aware of the increased risk of AEs in the elderly, particularly hypoxia, and modify selection, dosing, and administration of the PSA medication(s) appropriately. Future study should examine the intermediate and long-term outcomes of elderly patients following ED PSA.