Impact of Obesity on Prehospital Analgesia Administration for Patients with Long Bone Fractures

AUTHORS
Christopher Villani[1]; Josh Kimbrell, NRP[2]; Kyle Rice, NRP[3]; Adam Wagner, MSc, NRP[4]; Amelia Breyre, MD, NRP[5]; Alison Treichel, MPH[6]; Scott Bourn, PhD, RN, FACHE[6]

AFFILIATIONS
1. Durham; County EMS, Durham, NC; 2. Medisys Health Network Department of Pre-Hospital Care, New York City, New York; 3. Saint Francis Hospital EMS, Wilmington, DE; 4. Oregon Health and Science University, and Oregon Tech EMS, Portland, OR; 5. Department of Emergency Medicine, Yale University, CT; ESO, Austin, TX

Background

While prehospital race/ethnicity, gender, and socioeconomic disparities in pain management are well documented, there are few studies exploring disparities in prehospital care for patients with obesity.

OBJECTIVE:

To investigate the impact of obesity on prehospital analgesia administration for patients with long bone fractures at the intersection of race/ethnicity, gender, and socioeconomic status

Methods

Design & Population

- Retrospective Analysis
- ESO Data Collaborative Research Dataset
- Jan 1 2022 to Dec 31 2022

Outcome Measures

- EMS pain assessment
- EMS analgesia administration
- Reduction in pain assessment score by two points or more, from first to last assessment

Inclusion Criteria

- 911 response, ALS unit
- Patient ≥ 18 years old
- Long bone fracture diagnosis (ED ICD-10 codes)
- GCS >14
- Provider-documented patient weight, race/ethnicity, and gender

Analysis

- Descriptive statistics
- Logistic regression

Patients with obesity received **similar** rates of pain assessment, analgesia administration, and pain reduction as those without obesity.

No differences were found when adjusting for age, gender, race/ethnicity, fracture location, and pain severity.

CDC Weight Status	BMI	Median Age	n
1: Underweight	< 18.5	82	1,309
2: Normal Weight	18.5 – 25	77	6,780
3: Overweight	25 – 30	71	6,283
4: Class 1 Obese	30 – 35	67	3,619
5: Class 2 Obese	35 – 40	63	1,554
6: Class 3 Obese	> 40	61	1,744

Chart 1: Study Population
n = 21,289 patients with long bone fractures included

Limitations

This dataset represents a convenience sample of EMS records. To determine provider impression of patient weight, BMI is calculated using CDC average weight by gender/race and is approximate. In the case of critically injured patients, life-saving procedures may have been prioritized over analgesia.

Results

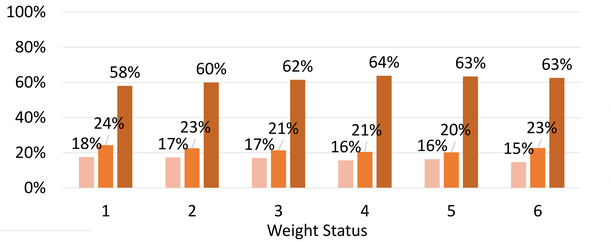

Figure 1: Prehospital Pain Assessment by Patient Weight Status

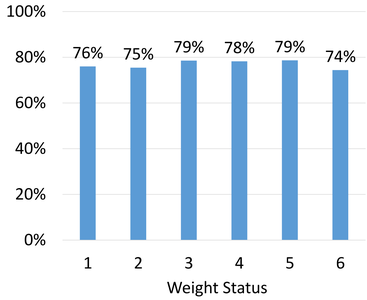

Figure 2: Prehospital Analgesia Administration for Patients with Severe Pain by Weight Status

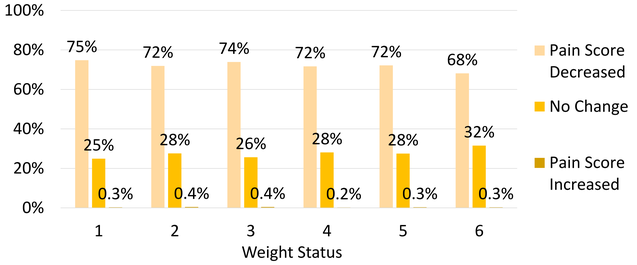

Figure 3: Prehospital Reduction in Pain Score by Two Points or More for Patients with Initial Severe Pain by Weight Status

Next Steps

Future research should examine more discretionary indications for analgesia administration, such as less obvious injuries, for patients by weight status.

Take a picture to read the full abstract →