Impact of Obesity on Mortality in Adult Trauma Patients
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Introduction: Trauma is a major cause of morbidity and mortality amongst all populations in the United States. With the widespread increase of obesity in the United States, studies have been conducted to compare different body mass index (BMI) groups and their clinical outcomes for traumatic injuries. The goal of this study was to retrospectively compare mortality between adult trauma patients with a high BMI to those with a lower BMI as well as investigate whether the mechanism of trauma had an effect on the outcome.

Method: This study was a retrospective review of all adult trauma patients presented to the emergency department at Arrowhead Regional Medical Center (ARMC) between January 2014 and October 2019. The outcome was all-cause mortality. Patients were grouped according to BMI and mechanisms of injury, including blunt trauma, low and high velocity penetrating trauma.

Results: Among the 9642 patients assessed in this study, majority (88%) of patients sustained blunt trauma. The number of patients among the three different BMI groups was appropriately equal with 34.4% of normal BMI, 34.6% overweight, and 31.1% obese. The overall mortality of all patients studied was 2.6% (n=248). There was no statistically significant difference in mortality among the three different BMI groups for blunt trauma, penetrating trauma, and subgroup analyses stratified by ISS score (ISS<16 or ISS ≥ 16).

Conclusion: Our study found no statistically significant differences in mortality among the three BMI groups in regard to mortality, even when stratified by ISS, or mechanism of injury, and traumatic velocities.

Abstract

The objective was to determine the association between BMI and mortality in patients that experienced blunt or penetrating trauma.

Objectives

- Retrospective chart review of trauma patients between January 2014 and October 2019
- Inclusion Criteria:
  - Adult trauma patients ≥ 18 years old who sustained blunt or penetrating trauma
  - Clearly documented BMI
- Exclusion Criteria:
  - Adult trauma patients ≤ 18 years old who didn’t sustain blunt or penetrating trauma
  - BMI not documented
- BMI Groups:
  - Normal weight (BMI 18.5-24.9 kg/m²)
  - Overweight (BMI 25-29.9 kg/m²)
  - Obese (BMI ≥ 30 kg/m²)
- Additional Variables:
  - Age
  - Sex
  - Injury Severity Score
  - Mechanism of Injury
  - Traumatic Velocity (low vs high velocity injury)

Methods

- Overall Analysis:
  - N = 9642 total patients studied
  - ISS ≥ 16
  - ISS < 16
  - BMI ≥ 30
  - BMI < 30

- Subgroup Analysis:
  - Blunt Trauma
  - Penetrating Trauma

Results

- No statistically significant difference in mortality between the three BMI groups
- No statistically significant difference in mortality between the three BMI groups

Conclusions

- The study did not yield any statistically significant data.
- The findings had no statistical significance in mortality between each BMI group
- No statistical significance was found when comparing mechanism of injury (blunt vs penetrating), injury severity score, or traumatic velocities
- Evidence suggests a multifactorial process that occurs amongst obese trauma patients
- More studies are needed to dissect the specifics of the pathophysiological process in traumatic patients of different BMIs

References