A particular phenomenon of interest in health literature is the well-known "Hispanic Paradox." This refers to Hispanics having similar or lower mortality rates than non-Hispanic Whites, despite having higher risks associated with lower socioeconomic status. This has also been shown within the trauma population and indicates Hispanic patients are different than patients of other race and ethnicity.

The Hispanic population is the largest minority in the United States and is expected to comprise one in three residents by the year 2050. However, very little is known about trauma patients of Hispanic ethnicity.

While specialized studies previously conducted on trauma and mortality among Hispanic subpopulations reveal unique risks and outcomes, they do not address national trends in the host of different injury factors over time. Furthermore, evaluations of trauma mortality are often limited to small regions or involve grouping minorities into a single group as a comparator, thereby assuming minority patients are homogenous.

**OBJECTIVES**

- The purpose of this study was to define nationwide epidemiological trends in injuries and outcomes among Hispanic trauma patients.
- Additionally, Hispanic trauma patients were compared to non-Hispanic White and African American patients to determine what differences exist in and among race/ethnic groups in trauma, including mortality outcome.
- Lastly, mortality rates were calculated at each trauma center (TC) and by race/ethnicity at each TC.

**METHODS**

Patients:
We retrospectively analyzed adult (>18 years of age) trauma patients using the National Trauma Data Bank's National Sample Program (NTDB NSP) from 2003 to 2010. Patients were divided into three groups: Hispanics (n=1,098), non-Hispanic Whites (NHWs, n=136,446), and African Americans (AA, n=184,148). For our analyses, patients with a race and/or ethnicity classification of "Other" were not included, due to small sample size, and patients with missing data for covariates used in a logistic model to estimate mortality probability (see below) were not included.

Outcome: Injury Incidence and In-Hospital Mortality

Statistical Methods:
Demographic and injury characteristics were evaluated by race/ethnicity. A reanalyzing procedure was used to test for race differences in relative frequencies (categorical variables) or means (continuous variables) for each of the variables. Results are presented as proportions (categorical variables), or means and standard deviations (SD) (continuous variables).

Logistic regression was used to model mortality odds based on patient covariates for variables including age, gender, hypotension (systolic blood pressure < 90 mmHg), injury severity score (ISS), abbreviated injury score (AIS) for the head region, injury type, and Glasgow coma scale (GCS), which was treated as an ordinal variable. An additional variable was included in the model called the "hospitalization intensity score" (HIS) derived from length of hospital stay (days), number of days in ICU, and number of ventilator days.

**RESULTS – DEMOGRAPHICS AND INJURY TRENDS**

Table 1. National Trauma Demographic and Injury Characteristics by Race/Ethnicity.

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>n</th>
<th>% Male</th>
<th>Mean Age</th>
<th>SD</th>
<th>AIS Head</th>
<th>AIS Face</th>
<th>AIS Pelvis</th>
<th>AIS Extremity</th>
<th>ISS</th>
<th>ISS SD</th>
<th>ISS P</th>
<th>GCS</th>
<th>GCS SD</th>
<th>GCS P</th>
<th>Injury Type</th>
<th>Injury Type P</th>
<th>Burn</th>
<th>Burn P</th>
<th>Other</th>
<th>Other P</th>
<th>Mortality</th>
<th>Mortality P</th>
</tr>
</thead>
</table>

**RESULTS – EVALUATING MORTALITY WITHIN RACE/ETHNICITY IN TRAUMA CENTERS**

Table 2. Mechanisms of Injury and Insurance Type by Race/Ethnicity.

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>n</th>
<th>% Male</th>
<th>Mean Age</th>
<th>SD</th>
<th>Motorcycle</th>
<th>Motorcycle SD</th>
<th>MVC</th>
<th>MVC SD</th>
<th>Fall</th>
<th>Fall SD</th>
<th>P</th>
<th>Motorcycle</th>
<th>Motorcycle P</th>
<th>MVC</th>
<th>MVC P</th>
<th>Fall</th>
<th>Fall P</th>
<th>Median</th>
<th>Median P</th>
</tr>
</thead>
</table>

**CONCLUSIONS**

- Hispanic patients are following national trends in injury incidence, with rates of falls increasing and rates of MVCs decreasing.
- Work-related injuries are significantly higher and remain higher over time among Hispanics.
- Epidemiology of Injury and Mortality among Hispanic patients differs from that of both NHWs and AAs.
- Hispanics had lower mortality odds and significantly lower ORs compared to NHWs and AAs across the entire spectrum of racial comparisons, confirming the Hispanic Paradox is sustained over time in trauma, irrespective of TC mortality odds.

Future Considerations:
Injury prevention is necessary to decrease the high rates of work-related injuries and falls observed among Hispanics.
Hispanic trauma patients have consistently better mortality outcomes compared to NHWs and AAs which suggest the implementing mechanisms lead to favorable outcomes in this subpopulation to improve outcomes in other race and/or ethnic groups.

**REFERENCES**

American College of Surgeons. Creation of the National Sample: National Sample Project of the National Trauma Data Bank (NTDB), 2007.

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