Characteristics of Penetrating Intracranial Gunshot Wound Victims and Factors Affecting Survival.

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Introduction

In the United States, the most common causes of penetrating wounds are gunshots and stabbings. Penetrating head wounds have an especially high mortality rate.(1,2) Recent analysis of characteristics and outcomes for gunshot wounds (GSW) to the head is sparse. This study examines the characteristics of victims suffering from penetrating GSW to the head and the factors associated with intent and mortality at a Level 1 Trauma Center in New Orleans, Louisiana.

Methods

A retrospective chart review of a proscpectivrly collected database was performed using the Louisiana State University Health Sciences Center- New Orleans Trauma Registry. A query of neurosurgery consults with penetrating trauma was completed from January 2008 to October 2013. Patients with penetrating intracranial GSW were included in the study.

Table 1: Demographics by Intent

	Total	Assault	Self-inflicted	Survival
Total	111	63	39	NS
Age <40		54	23	NS
Male		61	35	NS
Single		59	33	NS
African American		52	6	NS
Caucasian		7	28	NS
+ EtOH		13	8	NS
+ Tox		31	19	p=.003
Insured		30	21	p=.001
Death	46	23	18	

Results

111 patients met the inclusion criteria. Of those patients, 55% survived. The majority of victims were single, young African American males (64/111). Patients with insurance and those who were under the influence of drugs were significantly more likely to survive (OR 4.14, 3.65; p=.001, .003). Those who presented with Glasgow Coma Score (GCS) less than 12 were significantly less likely to survive (OR 0.517, p<.0001). Gender, age, race, marital status, and alcohol intoxication were not significantly associated with survival.

African Americans were nearly 5 times more likely to be victims of assault (p<.0001), while Caucasians were more than 6.5 times more likely to suffer self-inflicted (SI) injuries (p<.0001). There was no statistical difference between SI GSW and assault for survival.

Conclusions

The results of this study demonstrate that GCS on presentation has an important association with survival. Furthermore, there is a clear racial disparity in intent with penetrating GSW to the head in New Orleans. SI GSW disproportionately affects young Caucasian males and assaults exceedingly involve young African American males. This is the first study to highlight racial disparities in GSW injuries.

Learning Objectives

1. To determine key populations affected by penetrating gunshots to the head.
2. To learn the racial disparities in penetrating gunshot wounds to the head.
3. To understand how demographic variables affect survival in penetrating gunshot wounds to the head.

References

1. Pruitt, B. Management and Prognosis of Penetrating Brain Injury. J Trauma. 2001; 51(2):S1–S86.
2. Smith JE, Kehoe A, Harrisson SE, Russell R, Midwinter M: Outcome of penetrating intracranial injuries in a military setting. Injury 45:874-878, 2014