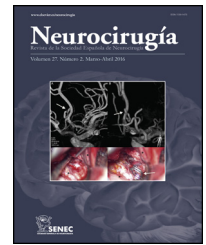




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Clinical Research

Characterization of 95 patients with traumatic brain injury due to gunshot wounds at a referral centre in Cali, Colombia[☆]



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ABSTRACT

Objective: This study aims to describe cases of traumatic brain injury due to gunshot wounds in civilian population over 18 years of age, treated at a referral hospital in Cali, Colombia and compare the clinical outcomes at discharge.

Methods: An observational, descriptive cross-sectional study was conducted by retrospectively collecting clinical data related to adult patients that presented traumatic brain injury due to civil gunshot-wounds and that consulted to the emergency room at Fundación Valle del Lili Hospital in Cali, Colombia between January 2010 and February of 2016. A univariate analysis was performed to determine factors associated with death and adverse clinical outcomes.

Results: A total of 95 patients older than 18 years, with traumatic brain injury by gunshot were included in the civil context. The 91.6% were male. The main context was interpersonal violence with 54.7%. The most common method of transportation was by ambulance (79%). The Glasgow score at admission was 3–8 in 64.2% of cases; 9–12 in 6.32% and 13–15 in 28.4%. On admission, head CT scan was performed in 82 (86.3%) patients within the first hour, finding a Marshall-Score between I–III in 60.9%, of IV in 17.8% of cases and a score between V–VI and in 4.1%. The trajectory was non-transfixing penetrating in 43.2%, transfixing in 27.3% and tangential in 9.5%. Mortality was 45.3% in total, 39% died within the first 24 h.

Conclusions: A major compromise on admission determines an overall poorer prognosis and a high likelihood of death in the first 24-h.

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Caracterización de 95 pacientes adultos con trauma craneoencefálico debido a herida por proyectil de arma de fuego en un centro de referencia en Cali, Colombia

R E S U M E N

Palabras clave:

Trauma craneoencefálico
Herida por proyectil de arma de fuego
Trauma craneano penetrante
Adultos

Objetivo: Este estudio busca describir casos de trauma craneoencefálico debido a heridas por proyectil de arma de fuego, en población civil mayor de 18 años, atendidos en un hospital de referencia y realizar una comparación de los pacientes de acuerdo a los resultados clínicos al egreso.

Métodos: Se trata de un estudio descriptivo, observacional, retrospectivo a través de la revisión de historias clínicas de los pacientes mayores de 18 años que ingresaron en la sala de urgencias de la Fundación Valle del Lili en Cali, Colombia con trauma craneoencefálico secundario a heridas por proyectil de arma de fuego, en contexto civil, entre enero del 2010 y febrero del 2016. Se realizó un análisis univariado para determinar factores asociados a muerte y resultados clínicos adversos.

Resultados: Se incluyó un total de 95 pacientes con trauma craneoencefálico por heridas por proyectil de arma de fuego en el contexto civil. El 91,6% fue de sexo masculino, el principal contexto fue violencia interpersonal en un 54,7%, el método de transporte más común fue ambulancia terrestre en un 79%, el puntaje de Glasgow (GCS) al ingreso fue 3-8 = 64,2%; 9-12 = 6,3%; 13-15 = 28,4%. Al ingreso se le tomó TAC simple a 82 (86,3%) pacientes dentro de la primera hora, encontrando una clasificación de Marshall entre I-III en 60,9%, un valor de IV en el 17,8% y entre V-VI en un 4,1%. La trayectoria era penetrante no transfixiante en el 43,2%, transfixiante en el 27,4% y tangencial en el 9,5%. La mortalidad fue del 45,3%, de esta 39% ocurrió en las primeras 24 h.

Conclusiones: Un mayor compromiso en el estado general del paciente al ingreso determina un pobre pronóstico y mayor probabilidad de muerte en las primeras 24 h.

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Introduction

Traumatic brain injury (TBI) has become an important matter in public health on a global level. It primarily affects young, economically active people of reproductive age, and is therefore one of the leading causes of loss of human potential.⁷ The incidence of TBI is around 200–600 cases for every 100,000 inhabitants.^{8–10} However, in middle- and low income- countries these figures are underestimated due to the paucity of epidemiological records.

In developed countries, road traffic accidents are one of the most common causes of TBI. In contrast, in developing countries interpersonal violence accounts for a greater proportion (especially in Central America, South America, Central Africa and the Middle East), with gunshot wounds (GSWs) standing out in particular.^{5–7} This suggests that the causes and characteristics of TBI are related to the social context. Colombia, for example, is a country where GSWs stand out as a prevalent cause,¹¹ especially in areas with a high rate of interpersonal violence, like for example the city of Cali.^{1–4}

In the USA, in a series of patient at emergency departments in Indianapolis, a survival rate of 7–15%¹² was reported in patients with TBI due to a GSW. The majority of victims (approximately 90%) die before reaching the emergency department, while only 50% of those who make it to hospital are known to survive. It is estimated that in the USA,

70,000 people/year are victims of GSWs, resulting in 30,000 deaths.^{13–16}

Cali is one of the most violent cities in Latin America, with a murder rate of 53.7 for every 100,000 inhabitants in 2016.¹⁷ For 1996, a rate of 105 murders per 100,000 inhabitants was recorded, falling to 81 per 100,000 by 2010.¹⁷ In the majority of cases, the cause of death was GSW, resulting in a serious public health problem.¹⁸ However, there is a lack of analysis of the clinical characteristics and outcomes of patients with TBI due to a GSW.

The purpose of this study is to present statistics on patients with GSWs to the head admitted to the Fundación Valle del Lili in Cali, Colombia, with the aim of characterising the affected population in order to identify actions that might contribute to reducing morbidity and mortality and contribute to improving post-trauma functioning.

Materials and methods

A descriptive, observational, retrospective study was conducted by reviewing the digital and physical medical records of patients over 18 years of age with TBI secondary to a GSW in a civil setting who were admitted to the emergency department of the Fundación Valle del Lili in Cali, Colombia, between January 2010 and February 2016. The data were entered in the Fundación Valle del Lili's neurotrauma database in the

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