



Antibiotics in prehospital trauma care: a rational approach.

Catorze N, Lufinha A

VMER Hospital São Francisco Xavier, Lisbon, Portugal (Director: Rita Perez, MD)

INTRODUCTION

Worldwide 1400 people die each day from sepsis and this number is expected to grow at a rate 1,5% each year. Trauma patients are more susceptible to infections demanding a tight vigilance and a high degree of suspicion to diagnose and treat septic situations.

Prophylactic antibiotherapy (ATB) is given to some trauma patients in hospital settings, specially those with open fractures, perforated wounds and emergency iatrogenic manoeuvres.

METHODS

We retrospectively analysed, from 2003 – 2005, our medical records, concerning the trauma patients attended by our Prehospital Emergency Medical Team (VMER). All deaths on site or during transportation were excluded from these study.

The anatomical segments involved on trauma, perfusion abnormalities, consciousness level (Glasgow Score), prehospital technical procedures, time spent on the scene and during transportation, the level of the trauma centre that received our patients were all subject of analysis.

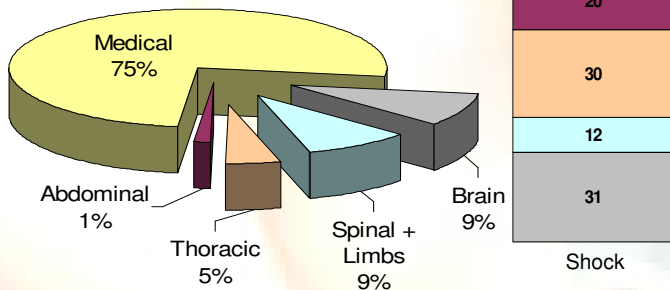


Figure 2. From a total 25% of all episodes, the distribution of the trauma segments in our series was almost uniform between traumatic brain injury (TBI), spinal and limbs trauma and others. The TBI and thoracic trauma were the events most related with shock.

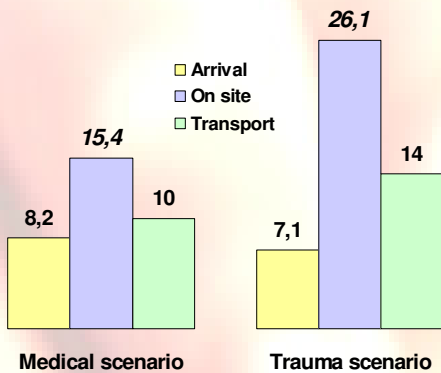


Figure 3. Time spent in all the steps between activation until hospital arrival. In almost all of our patients the golden hour objective was achieved.

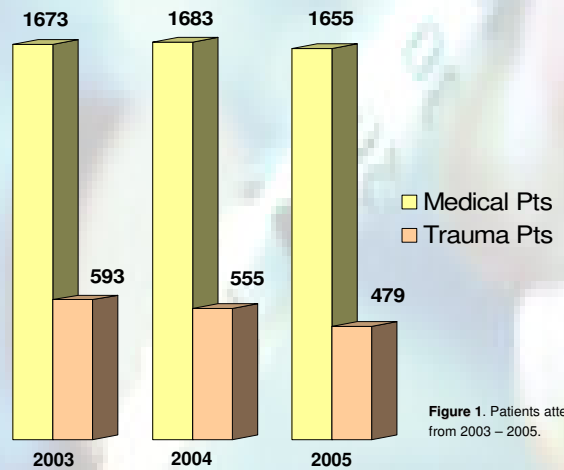


Figure 1. Patients attended from 2003 – 2005.

RESULTS

Our teams attended 1627 trauma patients (25% of a total 6638 patients) [Figure 1]. Traumatic brain injuries (618), limbs fractures (602), thoracic trauma (309) and abdominal lesions (98) were the most observed. From those, 93 patients were in hypovolemic shock [Figure 2], resuscitated with fluids and vasoactive drugs and transported to a trauma centre. Emergency manoeuvres comprehended airway control (384), invasive ventilation (304), chest drainage (19), tracheotomy (5), central venous catheter (30) and pericardium drainage (4). Epinephrine, dopamine, fluids (crystalloids and colloids), sedatives and analgesic drugs were used in all patients accordingly with their clinical condition. During our intervention no ATB was given, despite their indication and use for prophylaxis and treatment in trauma protocols. The majority of these patients (67%) were transported to a level II trauma centre, but 537 (33%) were admitted directly at the operating room or intensive care unit, where antibiotherapy was administered promptly. There was no follow up afterwards.

Intraosseous device	10
Central Venous Catheter	30
Endotracheal intubations	384
Mechanical Ventilation	304
Gastric intubations	276
Tracheotomy	5
Brachial Plexus Block	9
Pericardiocentesis	4
Thoracostomy	19

Table 1. Invasive medical procedures done in prehospital settings. Peripheral venous access wasn't considered in our study.

CONCLUSION

Trauma patients are a high risk group for infection and sepsis. The compliance with the surviving sepsis campaign bundles requires the administration of empiric antibiotherapy as soon as possible (three hours after arriving to an emergency department or one hour after diagnosis of sepsis). Shock, open wounds and invasive technical procedures in such kind of population are considered conditions that predispose for infection.

The reduction of infection and sepsis episodes in these patients, with the precocity of prophylactic ATB administration, under a tight protocol, should be considered and studied in the future.