

Introduction

Traumatic cardiac arrest (TCA) in children has traditionally been described as having a poor outcome. Survival rates vary widely between studies with higher rates observed from mechanisms leading to a respiratory cause of TCA (e.g. drowning and hanging). However, there is little evidence regarding outcomes following TCA in children. This study aims to describe the epidemiology and aetiology of paediatric TCA in England and Wales in an attempt to guide further research.

Methods

The Trauma Audit Research Network (TARN) database was interrogated to identify all children (<18 years) sustaining TCA between 2009 and 2015. For the purpose of this study, TCA was defined as a patient sustaining trauma, with agonal or absent respiration in the absence of a central pulse. Patients sustaining TCA following drowning, asphyxiation and electrocution were not included in the analysis. Patients with TCA both in the prehospital setting and in the emergency department (ED) and were included. The primary outcome was 30 day survival. Data on mechanism of injury, age, and injury severity were also analysed.

Results

65 patients met inclusion criteria sustaining TCA. The majority occurred in the prehospital setting (53.8%). 60% were male, median age 11 years (IQR 2.8-17.7 years) and median ISS 35 (IQR 26-75). Blunt injuries predominated (81.5%) with RTC the most common mechanism (61.5%). Overall 30 day survival was 6.2% (n=4); all survivors were in the prehospital TCA subgroup.

6.2%
30 day survival

PAEDIATRIC
TRAUMATIC
CARDIAC
ARREST

Conclusion

Although a rare event, this study has demonstrated that resuscitation of children in TCA is not futile with overall outcomes comparable to survival rates seen in adults. Survival from prehospital TCA is possible and the early identification and aggressive management of these patients is advocated.

Epidemiology & Aetiology in England & Wales

Dr J Vassallo, Dr M Webster, Dr E Barnard,
Miss M Fragoso-Iñiguez, Dr M D Lyttle, Prof J E Smith