

Survivability in Major Paediatric Burns: A Single Centre Experience at Women's and Children's Hospital (WCH), South Australia

HP Chong, E Gibson, L Quinn, R Cooksey, D Molony, A Jeeves, M Lodge, B Carney
 Women's and Children's Hospital (WCH), North Adelaide, South Australia

Introduction

Paediatric burn injuries of greater than 40% total burned surface area (TBSA) are associated with higher mortality and morbidity rates. The aim of this study is to examine the aetiology and better understand the outcomes of patients treated with burns of this magnitude.

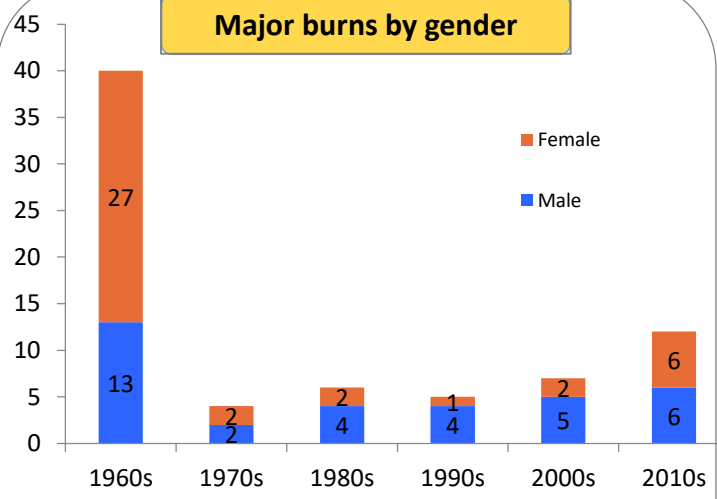
Methods

Our database was accessed to collate a single-site, retrospective study of burn injuries greater than 40% TBSA managed over 60 years at WCH.

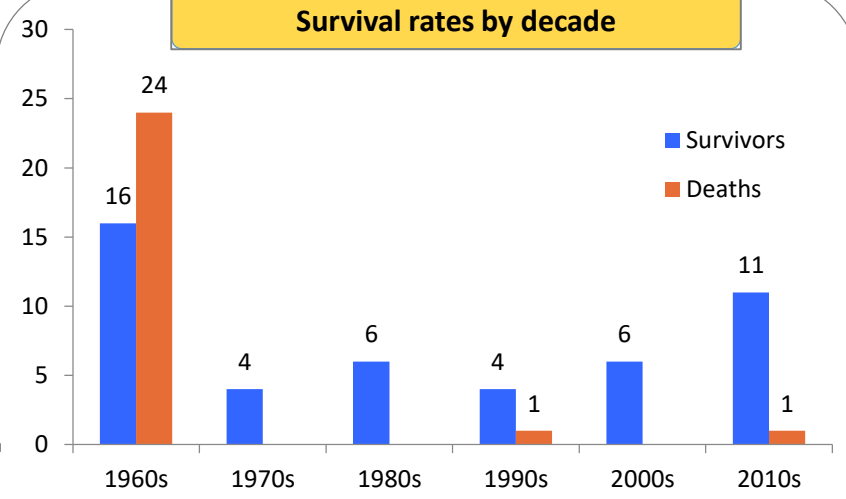
Results

We identified 73 patients who sustained burns of or greater than 40% TBSA. Incidence of major burns fell after 1970 and survival rates increased significantly with only two deaths in the last 5 decades. The mortality rate was 60% in 1960s. Mortality rates also trended upwards with each 10% increment of TBSA: 40-49% (9%), 50-59% (46%), 60-69% (50%), 70-79% (33%), 80-89% (80%), 90-100% (83%). Aetiology of burns were flame burns 75% (55), scalds 22% (16) and electrical 3% (2). Average length of stay for patient who survived was 87 days.

Major burns by gender



Survival rates by decade



Discussion

Our unit identified that of the 24 major burns which did not survive in the 1960s, the majority were from flammable clothing (50%, n=12). Other aetiology included flame explosion (2), immolation (2), bath-related (3), ran into hot bucket (1) and 4 were found in a burning environment. The significant drop in ignited clothing presentation is attributed to the Standards Association draft on flammability safety standards based on research by Thomas Pressley and work by Murray Clarke in the 1970s. Reported cause of death includes cardiac arrest secondary to aspiration of vomitus, sepsis, bronchohemorrhage and acidosis. Survival rates in our unit improved after that (80 – 100%), with the largest TBSA survivor being 91% (2016). Improvement in outcomes of burns survival has been multifactorial in our unit, amongst which includes a better understanding of pathophysiology of burns, availability of dermal substitutes, improved techniques and timing of excision and grafting, commencement of early enteral feeding, introduction of trained intensivist for children and more importantly, having a dedicated paediatric burns unit.