



Paediatric Out-of-hospital Cardiac Arrest Resuscitation Outcome - An Asia-Pacific Population-based Study

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Introduction

- ▶ Though infant mortality rates has been improving over the decades, survival rate of paediatric out-of-hospital cardiac arrest in Singapore remained poor (4.7%) compared to published survival rate of up to 10% in US and European studies.
- ▶ Not much data is available regarding out-of-hospital resuscitation strategies.
- ▶ The current ILCOR guidelines still recommend conventional CPR for bystander CPR in children, in view of majority of cardiac arrests being of respiratory causes



Introduction

- ▶ A recent paper by Kitamura et al showed that for arrest of cardiac causes, either conventional or compression-only CPR is similarly effective. (9·9% [28/282] vs 8·9% [14/158]; OR 1·20, 0·55–2·66). In non-cardiac causes of arrest, conventional CPR produced more favorable outcome than compression only CPR.

Lancet 2010;375:1347–54



Aims

- ▶ To study the epidemiology (including etiology), outcome and predictors of outcome in paediatric out-of-hospital cardiac arrest within the Asia-Pacific region.
- ▶ To develop effective paediatric out-of-hospital resuscitation strategies to improve outcome.
- ▶ identify preventable risk factors in paediatric OHCA, through the etiologies, which differ from adult.



Methods

- ▶ An international, multi-center cohort study on paediatric out-of-hospital cardiac arrest in Singapore and the Asia-pacific region.
- ▶ Data will be collected from emergency dispatch records, ambulance patient case notes, emergency department and in-hospital records.
- ▶ All completed data will then be collected and sent to the Study Co-ordination Center (Singapore) for data management using Electronic Data Capture (EDC).



Methods

- ▶ Eligibility

All paediatric OHCA patients, 17 years and below, presenting to EMS '995' or Emergency Departments during the study period as confirmed by the absence of pulse, unresponsiveness and apnoea.



Methods

- ▶ Assuming that about 20% of the sample size for the study is of the paediatric age-group, we can potentially enroll ~ 2600 paediatric patients in the study.
- ▶ The overall epidemiology and outcome (survival from hospital discharge) can be studied from the data
- ▶ The predictors of outcome, can also be compared between different region (South East Asia versus Japan/Korea versus Australia), such as bystander CPR rates.



Methods

- ▶ The etiology of the paediatric cardiac arrests may be collated from the pathological reports if post-mortem conducted, or from the ED case records if cause of death determined at ED.
- ▶ This etiological causes again can be compared across the region.



Methods

- ▶ If numbers permit, a cost analysis for the various strategies will be conducted to determine the incremental cost-effectiveness in Singapore for each strategy.



Significance

- ▶ Currently, there is not much data on paediatric OHCA in the Asian population.
- ▶ By analyzing the predictors of outcome, and the etiology, specific strategies pertaining to improvement of survival and outcome in paediatric Asia–pacific population can be further developed and studied.