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ACUTE SEVERE POISONINGS IN CHILDREN (ASPIC)

Abstract

Poisoning occurs when someone is exposed to a substance that can affect his or her health. Accidental or unintentional poisonings involve people poisoning themselves or others without wanting to cause harm. Accidental poisoning in children is a common reason for attendance at healthcare providers[1]. Young children, especially those under five, have an inquisitive nature, and frequently put things found in their environment into their mouths[1]. Teenagers involved in taking illicit drugs or alcohol are also in danger of poisoning themselves unintentionally because of their risk-taking behaviour.

Serious consequences are rare after an accidental poisoning and most children are either discharged or observed for a few hours[1,2]. Child-resistant containers for medicines and other dangerous substances have contributed significantly to a reduction in serious harm. However, a number of children continue to suffer significant harm, with between 5 and 10 deaths each year[3] and around 50 children admitted to intensive care within the UK[4]. In particular, there are a number of medications in which a single adult dose unit is potentially fatal to a toddler[5]. The majority of these are packaged in blister packs, which are not subject to current child resistant closure legislation. Accidental poisoning is essentially an avoidable problem and, as a result, remains an important public health issue.

There is very little detailed data regarding serious poisoning in children in the UK. This study, for the first time, will determine the incidence and identify the circumstances surrounding severe accidental poisoning in children under 15 years in the UK and Republic of Ireland resulting in death, or signs and symptoms of poisoning defined as needing significant monitoring or support.

Accidental poisoning is an avoidable problem and remains an important public health issue. It is well recognised that blanket approaches to public health campaigns are often ineffective. By identifying specific trends in severe poisonings, in particular including specific substances that frequently cause significant harm, it is hoped that these can be subsequently be targeted.

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Website

www.rcpch.ac.uk/bpsu/poisoning

Coverage

United Kingdom and Republic of Ireland

Duration

July 2018 to July 2019 (13 months of surveillance).

Research Questions

- To prospectively determine the incidence of accidental poisoning in children less than 15 years in the UK and ROI resulting in either death **AND/OR** requiring any of the interventions below (**criteria A-E**)
- To identify specific trends in severe poisonings that cause significant harm that can be a target for future public health interventions
- To describe the demographics of the populations (including sex, age, and ethnicity) that present with severe poisoning episodes

- To determine the circumstances surrounding the severe poisoning event
- To calculate the severity of the poisoning event determined by the EAPCCT poisoning severity score
- To define:
    - The clinical features that surround the severe poisoning episode
    - The common substances causing a severe poisoning episode
    - The investigations and managements used for severe poisoning events
    - The outcomes following a severe poisoning event

Case definition

Any accidental or unintentional poisoning in children < 15 years resulting in:

1 death **AND/OR**

2 signs and symptoms defined as needing **ANY** of the below interventions

A Further Monitoring	• Continuous Oximetry PLUS Oxygen PLUS ECG monitoring • Arterial/CVP monitoring
B Further airway and respiratory support	• Invasive ventilation • Non-invasive ventilation e.g. CPAP • Use of an adjunctive airway e.g. NPA • Nebulised adrenaline for airway obstruction, • Intravenous bronchodilators
C Cardiovascular support	• 40 mls/kg fluid resuscitation • > 80 mls/kg fluid resuscitation over 24 hours • Inotropic/vasopressor treatment • Arrhythmia needing treatment or acute cardiac pacing
D Neurological Support	• GCS < 12 AND frequent GCS monitoring (1 hour or less) • Prolonged epileptic seizure requiring continuous IV infusions
E Other support	• Acute renal replacement (e.g. CVVH/HD/PD) • Plasma filtration or Exchange transfusion • Extracorporeal Liver Support (MARS) or Admission to a Paediatric Liver Unit • CPR in the last 24 hours

Reporting instructions

Please report any cases seen within the last month which meet the case definition. Please report to the BPSU even if you believe the case may have been reported from elsewhere.

Methods

Each paediatrician reporting a child who meets the above case definition of death or significant intervention in a child with accidental or unintentional poisoning will be sent a clinical questionnaire by the study team, which explores demographic and clinical information about the affected child. Throughout the study, all patient data will be dealt with in strict confidence, and families will not be contacted directly by the study team at any stage.

Ethics approval

This study has been approved by Nottingham 1, East Midlands REC Research Ethics Committee 2 (REC reference: 17/EM/0464; IRAS project ID: 191072); HRA Confidentiality Advisory Group (reference: 18/CAG/0006); and the Scottish Public Benefit and Privacy Panel (1718-0299).

Support group

Children's Accident Prevention Trust

Funding

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References

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