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Hot tea and tiny tots don't mix: A cross-sectional survey on hot beverage scalds

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ABSTRACT

Objective: Hot beverage scalds are a leading cause of burns in young children. The aim of this study was to look at the circumstances surrounding these injuries in terms of setting, mechanism, supervision and first aid to inform a prevention campaign.

Methods: A cross-sectional study was delivered via iPad to parents and caregivers presenting with a child aged 0–36 months with a hot beverage scald at a major paediatric burns centre.

Results: Of the 101 children aged 0–36 months that presented with a hot beverage scald over a 12-month period, 54 participants were included. The scald aetiology was as expected with the peak prevalence in children aged 6–24 months, pulling a cup of hot liquid down over themselves. The majority of injuries occurred in the child's home and were witnessed by the caregiver or parent. The supervising adult was often in close proximity when the scald occurred. Less than a third (28%) of participants received recommended first aid treatment at the scene, with an additional 18% receiving this treatment with three hours of the injury—usually at an emergency department.

Conclusions: While the aetiology of these scalds were as expected, the low use of recommended burn first aid was of concern. Although supervision was present in almost all cases, with the parent/caregiver close-by, this proximity still permitted injury. Attentiveness and continuity of supervision, which can be difficult with competing parental demands, appear to play a more important role; as do considerations of other safety mechanisms such as hazard reduction through keeping hot drinks out of reach and engineering factors such as improved cup design.

By incorporating the findings from this study and other research into a hot beverage scald prevention campaign, we hope to see a change in knowledge and behaviour in parents and caregivers of young children, and ultimately a reduction in the incidence of hot beverage scalds.

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1. Introduction

Hot beverage scalds are a leading cause of burns in young children and are an important paediatric public health issue globally [1-3]. In Australia, hot beverage scalds account for one in five of all paediatric burns [4,5]. Despite the high incidence, these injuries are often overlooked in research and injury prevention. The high incidence of hot beverage scalds has not changed in the past 15 years [5].

The aetiology of these scald injuries is well documented. The majority (77-90%) occur in children under 36-months of age; peaking between 12 and 18 months. The main mechanism is the child pulling a cup of hot liquid down over him/herself [4-9]. What is not so well documented are the detailed circumstances surrounding the scald in terms of supervision, setting and immediate first aid (if any) at the scene.

Supervision, or lack of, is often cited as a primary contributor to childhood injuries [10-13]. While parents and caregivers invariably want to avoid harm to the child they can be caught off-guard by the heightened curiosity and increased mobility of an infant/toddler. Supervision, as it relates to young children, includes several key dimensions including attention, proximity and continuity [12,13]. Details around supervision at the time of hot beverage scalds occurring is not well known and is often not recorded in healthcare records or trauma databases.

There is good evidence that applying recommended first aid after a burn improves wound healing by reducing burn depth, providing pain relief, faster re-epithelialisation, improved scar management and shorter hospital stays [14-16]. Unfortunately, there is also good evidence showing the low knowledge and use of burn first aid by the general public [8,14-17].

To better inform a hot beverage scald prevention campaign, this cross-sectional survey was undertaken. This paper provides a better understanding of hot beverage scald injuries by going beyond the broad aetiology of the injury to describe in more detail the setting, supervision and first aid provided to children presenting at a major paediatric burns unit.

2. Methods

2.1. Study design

Cross-sectional survey.

2.2. Study setting

This study was conducted at the Pegg Leditschke Paediatric Burns Centre (PLPBC), Lady Cilento Children's Hospital (LCCH), Brisbane, Australia. The LCCH is a specialist hospital that provides healthcare services to children from across Queensland and northern New South Wales. As a tertiary burns centre, children are often referred to PLPBC from other hospitals and medical centres after their initial presentation. The PLPBC is one of the largest paediatric Burns Centres in Australasia.

2.3. Study participants

The study involved children aged 0-36 months presenting with a hot beverage scald at the PLPBC between November 2014 and October 2015. Children were excluded if they were under the care of Child Protection Services or if the attending parent/caregiver had limited English language skills.

2.4. Ethics approval

This study was approved by the University of Queensland Institutional Human Research Ethics Committee (approval number: HREC/14/QRCH/335).

2.5. Sampling

Convenience sampling was used in this study. Parents/caregivers are routinely approached by the Clinical Research Manager during outpatient clinics at PLPBC and asked if they are willing to participate in research studies run through the Centre. Parents of inpatients are also approached. For this study, parents/caregivers were approached at the child's dressing change appointments if they had previously indicated a willingness to participate in research, and met the eligibility criteria (child aged 0-36 months, presenting with a hot beverage scald).

2.6. Data source

Data were collected via a brief, self-completed iPad survey from parents and caregivers of children attending the burns centre, and matched with data from the Queensland Paediatric Burns Registry.

2.7. Data collection

Data collected via the survey were matched with data from the Queensland Paediatric Burns Registry (QPBR) on burn severity (superficial/partial/deep/full-thickness), total burn surface area (TBSA), body part scalded, first aid treatment, surgical interventions (if any) and demographic information. The iPad survey took approximately five minutes to complete and included 45 questions covering the setting, mechanism, supervising adult, first aid treatment, first aid information source, and caregiver demographics (postcode, age, education level, smoking and marital status). Most questions had multiple choice answers, and a free text option was given if the parent/caregiver wanted to provide additional information on how the injury occurred. For burn first aid, participant responses were categorised into adequate (20min or more of cool running water within 3h of burn), and inadequate (anything other than 20min or more of cool running water within 3h of burn).

2.8. Data analysis

Data were analysed using IBM SPSS v.23.

Descriptive statistics were used to describe the sample characteristics (n, % for categorical variables, Mean and SD for parametric numerical variables, and Median, IQR for non-

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