Child Abuse & Neglect xxx (2013) xxx–xxx

Contents lists available at ScienceDirect

Child Abuse & Neglect

Accuracy of a screening instrument to identify potential child abuse in emergency departments☆,☆☆

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ARTICLE INFO

Article history:
Received 12 March 2013
Received in revised form 31 October 2013
Accepted 6 November 2013
Available online xxx

Keywords:
Child abuse
Mass screening
Emergency service
Hospital
Validation studies as topic

ABSTRACT

Although screening for child abuse at emergency departments (EDs) increases the detection rate of potential child abuse, an accurate instrument is lacking. This study was designed to measure the accuracy of a screening instrument for detection of potential child abuse used in EDs. In a prospective cohort study at three Dutch EDs, a 6-item screening instrument for child abuse, *Escape*, was completed for each child visiting the ED. The data from the completed Escape instrument was used to calculate sensitivity, specificity, and the positive/negative predictive value per item. The clinical notes and conclusions of the screen instruments of all potentially abused children reported to the hospitals' Child Abuse Teams were collected and reviewed by an expert panel. A logistic regression model was used to evaluate the predictors of potential abuse. Completed Escape instruments were available for 18,275 ED visits. Forty-four of the 420 children with a positive screening result, and 11 of the 17,855 children with a negative result were identified as potentially abused. Sensitivity of the Escape instrument was 0.80 and specificity was 0.98. Univariate logistic regression showed that potentially abused children were significantly more likely to have had an aberrant answer to at least one of the items, *OR* = 189.8, 95% CI [97.3, 370.4]. Most of the children at high risk for child abuse were detected through screening. The Escape instrument is a useful tool for ED staff to support the identification of those at high risk for child abuse.

Introduction

Early intervention in childhood abuse is important to prevent or reduce long-term adverse effects (Afifi et al., 2007; Chartier, Walker, & Naimark, 2007; Ethier, Lemelin, & Lacharite, 2004; Felitti et al., 1998). Although screening for child abuse at emergency departments (EDs) is known to increase the detection rate of potential child abuse, an accurate screening instrument for use in the ED setting is still lacking (Louwers, Affourtit, Moll, Koning, & Korfage, 2010; Woodman et al., 2008). Because EDs have a high turnover of patients and staff work under considerable pressure and time constraints, a short and reliable screening instrument is needed that can be completed quickly.

☆☆ The Netherlands Institute for Health Research and Development (ZonMw 63300023) and Foundation Physico Therapeutic Institute provided funding for this study.
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http://dx.doi.org/10.1016/j.chiabu.2013.11.005

1. Is the history consistent?	Yes	No
2. Was seeking medical help unnecessarily delayed?	Yes	No
3. Does the onset of the injury fit with the developmental level of the child?	Yes/N. A.	No
4. Is the behavior of the child, his or her carers and their interaction appropriate?	Yes	No
5. Are findings of the head-to-toe examination in accordance with the history?	Yes	No
6. Are there other signals that make you doubt the safety of the child or other family members? *If Yes describe the signals in the box 'Other comments' below.	Yes*	No
Other comments		

Fig. 1. 'Escape instrument': the screening instrument for child abuse used at the emergency departments. One (or more) ticked answers in the dark boxes indicate the possibility of an increased risk of child abuse and further action is recommended.

A team of pediatricians and screening experts developed an instrument to screen for child abuse in EDs to identify high-risk children. The design was based on a systematic literature review (Louwers et al., 2010), earlier screening instruments (Benger & Pearce, 2002; Bleeker, Vet, Haumann, van Wijk, & Gemke, 2005; Pless, Sibald, Smith, & Russell, 1987; Sidebotham & Pearce, 1997), interviews with professionals, and pretesting of the concept with emergency department nurses (Fig. 1). This screening instrument, *Escape*, is a 6-item checklist addressing risk factors for child abuse, which may be predictive for child abuse in any child. The instrument is to be used irrespective of the patient's reason for their visit; it is not an injury evaluation checklist. The present study was designed to measure the accuracy of this newly developed screening instrument for child abuse in EDs using expert panels. The possibility to minimize the burden of completing the instrument while maintaining sensitivity and specificity was also examined.

Methods

Intervention

The Escape instrument was implemented in three Dutch hospitals (Louwers et al., 2012), where it was to be used in each child aged 18 years or younger who visited the ED. ED nurses completed the Escape instrument during the triage of the patients. The typical triage included a head-to-toe assessment. The goals of the head-to-toe assessment were to examine the whole skin for rashes, to look at the hydration state, and to ensure no injuries were missed. If one or more items of the instruments were aberrant, the screening result was considered positive. The nurse was instructed to inform the ED physician of the result of the screening.

The physician provided care as usual to every patient and had the final responsibility to evaluate the increased risk of child abuse. When it was very clear that a child had been abused (e.g., a fracture in an infant or signs of inflicted traumatic brain injury) or when the ED physician remained concerned about the safety of the child after taking the history of and examining the child, the physician referred the child to the hospital's Child Abuse Team for further care (irrespective of the screening result). The Child Abuse Teams evaluated every case that was referred to them and assessed which action was needed to increase the safety of the child (e.g., a call to the general practitioner of the child or a referral to Child Abuse Centers). Child Abuse Centers explore the cases of suspected child abuse and take care of adequate aid if necessary. All kinds of professionals and citizens can voluntary report suspected child abuse to the Child Abuse Centers, there is no mandatory reporting in the Netherlands. It was also possible that the ED physician was reassured that abuse did not occur after taking the history of and examining the child and so did not refer the child to the Child Abuse Team.

Data from all Escape instruments completed between July 2008 and December 2009 (18 months) were used to measure the accuracy of this screening instrument for child abuse in EDs. The study was approved by the Medical Ethical Committee of the Erasmus MC (MEC-2007-195).

Case definition

The aim was to ensure that data of all cases of potential child abuse were collected from each ED and to establish to what extent cases were uniformly defined across the participating departments. In doing so, we first contacted the Child Abuse Teams of the three hospitals and collected data on all potentially abused children who had been reported by the ED staff during the study period. Subsequently, to establish whether or not these cases were child abuse, the data were independently evaluated by an expert panel consisting of four physicians with extensive experience in child abuse, of whom one was a forensic pediatrician and two were pediatricians.

Please cite this article in press as: Louwers, E. C. F. M., et al. Accuracy of a screening instrument to identify potential child abuse in emergency departments. *Child Abuse & Neglect* (2013), http://dx.doi.org/10.1016/j.chiabu.2013.11.005