Chapter 5

What parental characteristics can predict child maltreatment at the Emergency Department? Considering expansion of the Hague protocol

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ABSTRACT

The Hague protocol considers three parental characteristics of Emergency Department adult patients to identify child abuse: (a) domestic violence, (b) intoxication, and (c) suicide attempt or auto mutilation. This study investigated whether additional parental characteristics could be included to improve the chance of detection. Using a nested case-control design, we compared parents identified as child abusers who were missed by the protocol with a matched group of non-abusing parents, The parental characteristics used were, among others, all physical injuries possibly resulting from domestic violence, psychological, or mental complaints that might indicate elevated domestic stress levels and the number of Emergency Department visits during the previous year.

None of the characteristics were statistically significantly associated with child abuse. The Hague protocol will not be improved by adding one or more of the characteristics that were investigated.

Introduction

The Emergency Department (ED) is the hospital frontline and a suitable location to detect child abuse. Currently, however, this potential is insufficiently realized, The Dutch Inspectorate has highlighted this issue [1] . To improve the efficiency of child abuse detection at the ED, a new protocol, called the 'Hague protocol', was created at the ED in the Medical Center Haaglanden (MCH) in The Hague in 2007 [2]. The focus of this protocol is based on parents (not on children) attending the adult ED seeking medical assistance after (a) domestic violence; (b) intoxication with alcohol or drugs; and (c) suicide attempt or auto mutilation. ED professionals ask these patients whether they are responsible for minors or whether the patient is pregnant. If this is the case, their children will be referred to the Reporting Center for Child Abuse and Neglect (RCCAN). The referral is based on the knowledge that the children of these parents have a high risk of being, or becoming, victims of maltreatment [3-7]. The RCCAN is a non-judicial institute. It investigates the situation and offers voluntary community-based services, or in severe cases, hands them over to the Child Protective Service (CPS).

The RCCAN professionals (medical doctor, social worker, and child behavioral specialist) invite the family for an interview and evaluate the problems. The Hague protocol has proven to be very successful. Before its introduction (2006-2007), a total of four parents out of 385 626 patients attending the ED (one per 100 000) were referred to the RCCAN. In the period after its introduction (2008-2011), the number increased to 565 parents out of 885 301 patients (64 per 100 000). At assessment, child abuse was confirmed in 91% of referred cases [2]. The Dutch Government has made the detection of child abuse on the basis of parental characteristics mandatory for all medical professionals. Knowing that the Hague protocol has a high positive predictive value (PPV), we set out to investigate whether it could be broadened by the addition of extra categories of parental characteristics and thereby enhance the already high PPV. We aimed to find characteristics that would distinguish parents who are perpetrators of child abuse from parents who do not abuse their children.

Materials and methods

We investigated parents who attended the ED and who were identified as potential child abusers by the RCCAN, but did not fit into the three categories of the protocol.

We compared these child abuse cases with similar cases of parents whose children were not referred to the RCCAN.

From July 1st, 2011 to December 31st, 2011 (six months), we collected all RCCAN child referrals from The Hague region that were not derived from an ED. We then searched the MCH hospital's database to investigate whether one or both parents of these children had visited the ED at the MCH during a 12-month period before referral of their child to the RCCAN, and if so, for what reason. Parents who were admitted to the ED for reasons not included in the protocol guidelines were collected and labeled as 'rightfully missed" (RM).

We investigated this 'RM group' for distinctive characteristics relative to a control group using a nested case-control design, in which we matched this RM group with a 'control group'. The control group included parents who attended the MCH adult ED during the same period as the RM parents. Each RM-control group pair was also matched on the basis of three characteristics: age, sex, and postal code.

The RM group was compared with the control group on a number of variables: that is, (a) all physical injuries possibly resulting from domestic violence; (b) psychological or mental complaints that might indicate elevated domestic stress levels (e.g. cardiac pain or hyperventilation); (c) number of ED visits during the previous year; (d) patients transported to the ED by ambulance; and (e) having a positive Audit-C score. The Audit-C is an alcohol screening that can help identify patients who are hazardous drinkers or have active alcohol use disorders, including alcohol abuse or dependence [8].

Injuries that possibly could have resulted from domestic violence were grouped into various categories (e.g. wounds, concussion, fracture). According to the protocol's guidelines, children of parents who are admitted to the ED as a result of domestic violence are automatically referred to the RCCAN. The cases in this study are not. This 'theoretically possible domestic violence' group, used as a variable, includes all parents whose injuries, in theory, could have been a result of domestic violence. They were not referred to the RCCAN because their injury, behavior, or history did not strike the ED professional as a clear domestic violence case. Nevertheless, this group was used as a variable to explore whether a specific injury might be significant enough to be added to the current categories.

Statistical analyses

Data from cases and controls were analyzed as matched pairs. Differences between the two groups were examined using McNemar's test (for categorical variables) and dependent *t*-tests for continuous variables. Analyses were carried out using SPSS, version 20.0 (IBM Corp., Armonk, NY, USA). For all tests, a two-tailed significance level of 0.05 was used.

Table 1: Various factors present in the group 'Rightfully missed' cases (N = 100) and the control cases (N = 100).

	'Rightfully missed' cases (*n*)	Control cases (*n*)	Significance
Medical Diagnosis			
Possible Domestic Violence			
No	76	66	0.164
Yes	24	34	
Stress-related symptoms			
No	90	96	0.180
Yes	10	4	
Excessive alcohol usage			
No	97	97	1.00
Yes	3	3	
Referred by the general practitioner			
No	81	80	1.00
Yes	19	20	
Diagnosis hyperventilation			
No	97	97	1.00
Yes	3	3	
A specific cardiac pain			
No	97	99	0.625
Yes	3	1	
Gynecological problems			
No	91	95	0.388
Yes	9	5	
Mode of transport to ED			
Ambulance	12	8	0.388
Other	88	92	
Mean (SD)			
Number of MCH ED visits previous year	3.2 (5.0)	2.7 (3.8)	0.388

note: ED: Emergency Department, MCH: Medical Center Haaglanden

Results

The RM group was compared with the matched control group on a number of variables. None of these showed a significant difference between the RM group and the control group (Table 1). As shown in Table 1, one quarter of the RM group and 34% of the parents in the control group had injuries that theoretically could have been sustained by domestic violence. Specifying the variables of injuries possibly caused by domestic violence (Table 2) did not indicate any significant difference between the groups.

Table 2: Types of injuries possibly caused by domestic violence (N = 100).

	'Rightfully missed' cases (*n*)	Control cases (*n*)	Significance
Medical diagnosis			
Fracture			
No	95	93	0.774
Yes	5	7	
Wounds			
No	94	92	0.607
Yes	6	2	
Contusion			
No	86	86	1.000
Yes	14	14	
Head or neck trauma			
No	100	97	-
Yes	0	3	
Brain injury			
No	100	98	-
Yes	0	2	

Discussion

The numbers of patients in this study are not very large; however, it is large enough to provide insight into strong predictors. None of the variables studied were prevalent among the child abusers or in the control group. Therefore, our results indicate that the variables studied are not strong predictors of child abuse. Future research could test our findings in a prospective study.

Another limitation involves the parents in our control group. Although their children were unknown to the RCCAN, there is a small chance that they could be perpetrators of child abuse.

The Hague protocol has a high predictive value [2]. If it were possible to improve the detection of child maltreatment by adding extra groups of parental characteristics, it could be a breakthrough. However, no scientific grounds were found to expand the protocols' guidelines with one or more parental categories.

The results also show that haphazardly referring children of parents who are admitted to the ED with any type of injury could lead to many false-positive referrals. Of course, this outcome does not excuse ED professionals from remaining alert in these situations. Studies by Boursnell and Prosser [9] and McMurray [10] showed that specialized training of ED professionals can improve their confidence, practice, and skills in the identification of domestic violence.

This can be substantiated by the outcomes of the study by Diderich et.al. [2], where all ED professionals were trained before implementation and child maltreatment was not confirmed by the RCCAN in only 2% of all referrals on the basis of parental characteristics (n=565).

Conclusion

The PPV for detection of child abuse on the basis of the parental characteristic of the Hague protocol is high, namely, 0.91. This study shows that the additional characteristics studied will not improve the validity of the protocol. Doing so could lead to many 'false-positive' referrals that could undermine the credibility of the protocol. We therefore conclude that the Hague protocol is very valuable as it is. At present, there are no good reasons to extend it.

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