Impact of an Educational Intervention on Caregivers' Beliefs About Infant Crying and Knowledge of Shaken Baby Syndrome

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ABSTRACT

OBJECTIVE: Shaken baby syndrome (SBS) is the leading cause of traumatic infant death. We examined whether the message about not shaking an infant should be included in the newborn anticipatory guidance provided by pediatric residents. The aim of this study was to determine the impact of an educational intervention (Take 5 Safety Plan for Crying) delivered by pediatric residents at newborn hospital discharge on beliefs about infant crying and knowledge of SBS among caregivers of young infants being treated in an urban primary care center.

METHODS: Structured interviews were done in one convenience sample of caregivers before (historical control group) and in a second set of different caregivers after (intervention group) an educational intervention was implemented at hospital discharge. Logistic regression was used to calculate adjusted associations between the intervention and caregivers' beliefs/knowledge.

RESULTS: One hundred ten caregivers were in the historical control group and 112 in the intervention group. The intervention group had more mothers and the infants were younger. Controlling for these differences, intervention group caregivers were more likely to state they would take a break if frustrated with infant crying (OR 3.10, 95% CI, 1.62–5.93), were more likely to state frustration caused infant shaking (OR 2.21, 95% CI, 1.20–4.20), and to state their knowledge of SBS was from hospital staff (OR 3.39, 95% CI, 1.61–4.20).

CONCLUSION: This targeted postpartum intervention incorporated into newborn anticipatory guidance can influence caregivers' beliefs about infant crying and knowledge of SBS.

KEYWORDS: abusive head trauma; infant crying; parent education; shaken baby syndrome

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WHAT'S NEW

This study demonstrates that a targeted post-partum educational intervention delivered by pediatric residents can positively impact caregivers' knowledge of SBS and beliefs about infant crying.

ABUSIVE HEAD TRAUMA, also known as shaken baby syndrome (SBS), is the leading cause of traumatic death in infancy and causes considerable morbidity in children aged younger than 2 years.[1,2] The incidence of abusive head trauma is estimated to be 30 cases per 100 000 infants aged younger than 12 months.[3–5] When a history is obtained, some caregivers admit to shaking the infant because of frustration with the infant's crying.[6–9]

Helfer[10] described the perinatal period as a window of opportunity "to enhance parent-infant interaction and ultimately lead to a decrease in the breakdown in family interaction commonly seen in cases of abuse, neglect, and sexual exploitation of children." Several investigators have demonstrated that the postpartum period is conducive to delivering information to caregivers about the dangers of shaking an infant.[11–14] These educational interventions, however, require substantial nursing support,[11] such as the viewing of a video[11,14] or the delivery of a DVD for home use by families,[12,13] resources that not all hospital nurseries may have.

In an effort to use the postpartum period in the hospital to provide focused information to parents about the prevention of a serious form of child abuse, we designed a simple and specific caregiver strategy for managing infant crying (Take 5 Safety Plan for Crying) and then evaluated its effect on the caregivers' beliefs about infant crying and knowledge of SBS. This educational intervention was incorporated into the routine anticipatory guidance delivered by pediatric residents at newborn hospital discharge.

METHODS

STUDY DESIGN

INTERVENTION

In June 2007, the Take 5 Safety Plan for Crying was incorporated into the newborn anticipatory guidance given

to caregivers by pediatric residents from Yale-New Haven Children's Hospital (YNHCH) at hospital discharge. This guidance also included information about feeding, the use of car seats, what to do if the infant developed a fever or jaundice, safe sleep practices, and umbilical cord care. Pediatric residents delivered the Take 5 Safety Plan for Crying to caregivers whose infants were born at Yale-New Haven Hospital (YNHH) and who planned to take their infants for well-child care to the Pediatric Primary Care Center of YNHCH.

There was consensus among the study investigators (K.B., J.M.L.) and the 2 nursery attendings, one of whom was an investigator (E.C.), as to the content and the decision to incorporate the safety plan into anticipatory guidance provided to parents prior to discharge. The content of the safety plan was based on work by previous investigators.[8,11] Prior to beginning the study, we pilot tested the intervention with 10 mothers to receive feedback about acceptability, feasibility, and content. All mothers involved in the pilot testing felt the intervention was acceptable, and minor suggestions for changes were incorporated into the final version of the intervention.

The 2 attending physicians primarily responsible for resident training and patient care in the Well Newborn Nursery were trained by one of the study investigators (K.B.) about how to incorporate the safety plan into the anticipatory guidance given to parents at the time of newborn discharge. The newborn nursery attendings then trained the pediatric residents during their well newborn rotations to incorporate the safety plan into the newborn discharge instructions. Residents were observed by the 2 nursery attendings to help insure that the content of the intervention (all 5 points of the safety plan) was delivered correctly to families at discharge. If the parents' primary language was Spanish, trained hospital Spanish interpreters provided translation of the safety plan, in addition to the rest of the customary anticipatory guidance. Parents were also given refrigerator magnets with the Take 5 Safety Plan for Crying in English or Spanish.

Residents were instructed to use the following script:

- If a caregiver becomes frustrated with an infant's crying:
- The caregiver should put the infant down on his/her back in a safe place, such as the crib or bassinet, or any fixed, firm surface from which the infant would not fall.
- The caregiver should then walk out of the room.
- The caregiver was encouraged to do something to relax or calm down, such as meditating, deep breathing, reading, listening to music, or doing house chores.
- The caregiver was encouraged to call a friend, family member, or the infant's doctor for help in dealing with the infant's crying, or to call someone to come to the house to watch the infant if the caregiver wanted to leave the house in order to calm down.
- The caregiver was advised not to return to the infant's room until he or she was calm enough to safely care for the infant.
- Crying can be a normal part of an infant's development and does not necessarily indicate that there is something wrong with the infant or with the caregiver's ability to soothe the infant. Crying does not hurt infants, but getting frustrated with crying can lead one to shake an infant.
- The caregiver was reminded never to shake a baby and to remind other caretakers of the baby to never shake a baby.

To assess compliance with delivery of the Take 5 Safety Plan for Crying at newborn discharge, the hospital's electronic medical records of 240 randomly selected infants were searched for resident discharge summaries from the Newborn Nursery for documentation that the Take 5 Safety Plan for Crying was given to families. To successfully complete documentation of newborn discharge, the resident had to indicate that the Take 5 Safety Plan for Crying either was or was not discussed with the caregivers.

Study Population

This study used an historical control group and an intervention group. At the time of the interview, both the historical control and intervention groups were convenience samples of caregivers whose infants were born at YNHH and who brought their infants for well-child care to the Pediatric Primary Care Center of YNHCH, a hospital-based clinic that primarily serves Medicaid-eligible patients. Caregivers were enrolled when an interviewer was available to conduct interviews during weekdays when the clinic was open. The historical control group was interviewed between March and December 2006. The caregivers in the intervention group were interviewed from November 2007 to June 2008.

Interviews were conducted on weekdays between 8:30 AM and 4:30 PM. The interviewer approached caregivers of infants who were born at YNHH and at their first well-child appointment as they were waiting to be evaluated by a clinician in the examination room. Caregivers were included if they spoke English or Spanish and gave informed consent to participate in the study.

Sample Size

We assumed that 40% of caregivers in the historical comparison group would report that they knew what SBS was and who would walk away if frustrated with infant crying. We hypothesized that the proportion of caregivers in the intervention group who reported SBS knowledge would be 60%. To detect a difference of 20% between groups with respect to these outcomes, with 80% power and $\alpha = .05$ (2 tailed), at least 96 caregivers were needed in each group.

Data Collection

After verbal consent was obtained from caregivers, structured, face-to-face interviews were conducted in either English or Spanish. Answers were recorded using the caregiver's own words when possible. The interviewers (K.L., N.S.) were observed by one of the authors (K.B.) for the first 10 interviews of the historical control and intervention groups to insure that the questions were asked and answers recorded in a consistent manner. The interviewers