Preventing head trauma from abuse in infants

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See related research paper by Barr and colleagues, page 727

Head trauma from abuse in infants, including shaken baby syndrome, is the most common cause of death from physical abuse among children.[1] Most victims are under 1 year of age and are helpless to protect themselves. The outcomes for survivors of this type of abuse are grim: compared with children who receive nonintentional head injuries, children with head trauma from abuse are more likely to have major cognitive deficits, motor impairment and visual impairment.[2] Given the poor outcomes of these children, the prevention of shaken baby syndrome and other forms of head trauma is urgent.

How can we prevent shaken baby syndrome? Educating parents is effective. One study compared the rate of shaken baby syndrome between counties in which parents of newborns received education about the dangers of shaken baby syndrome and counties in which parents received no such education.[3] Over a 5-year period, the rate of shaken baby syndrome in the counties with the education program decreased by 66%, while the rate in the other counties remained the same. Other preventive interventions, such as home-visit nursing programs, have shown a difference in reported child maltreatment cases, but these programs did not specifically target head injuries.[4]

In this issue of *CMAJ*, Barr and colleagues[5] report the results of their study on the effectiveness of the Period of PURPLE Crying program. Their prevention strategy, designed with the US National Center on Shaken Baby Syndrome, provides parents with educational materials about how to deal with their frustration with crying infants. The creators of this program recognized that the peak incidence of both infant crying and shaken baby syndrome occurs at about 2 months after birth[6] and that shaken baby syndrome is related to caregivers' frustrated reactions to crying. This has led to a new way of thinking about the prevention of shaken baby syndrome: in this program, excessive crying is recognized as a normal part of child development.

The PURPLE program is very attractive for several reasons. First, it represents a public health approach for the primary prevention of child abuse. Second, this program is based on sound developmental principles supported by research. Third, the program materials are inexpensive and the program could be easily adopted by other regions. The materials have been extensively tested in practice and refined, and they have been translated into multiple languages. Finally, the outcomes of the program are being tested by use of carefully designed prospective studies.

The initial results from this program are promising. Compared with mothers who received the control materials, mothers who were given materials from the PURPLE program had more knowledge about infant crying. These mothers were also more likely to discuss the dangers of shaking with other caregivers and to walk away from a crying baby and take a "time out" if they were feeling frustrated. What we don't know, however, is whether their infants were less likely to be mishandled or injured as a result of the intervention. Self-reports by caregivers are subject to biases of social desirability and social stigma.[7]

Key points

- Educating parents is effective in preventing shaken baby syndrome.
- Barr and colleagues report that the Period of PURPLE Crying program is effective in increasing maternal knowledge about infant crying.
- This program is currently being tested in a large clinical trial.

Recognized occurrences of head trauma from abuse among infants are rare. A thorough review in North Carolina of all admissions to intensive care units and deaths due to head injury reported an incidence of 17.0 cases of head trauma from abuse per 100 000 person-years for all children and 29.7 cases per 100 000 person-years for children less than 1 year of age.[8] To determine whether the PURPLE program has an effect on the incidence of infant head injuries, a randomized trial involving a large numbers of children is needed. A statewide study of this nature is currently being conducted in North Carolina.

Another area of uncertainty is whether the prevention of 1 particular type of abuse should be addressed separately from other types of family violence and child maltreatment.[9] Given the limited resources available, it is reasonable to start by addressing the prevention of head trauma from abuse, since this is a highly lethal form of abuse.

Although the cost–benefit ratio for the PURPLE program has not yet been established, the article by Barr and colleagues is encouraging in 2 ways. First, the authors have thought of a new, innovative way to protect children from abuse. Second, if even 1 baby in this study group avoided a head injury because of the Period of PURPLE Crying program, the governments of Canada and British Columbia have saved the enormous amount of money that would have been spent on in- and out-patient care, supporting a disabled citizen for life, educating a child with special needs, investigating a crime, and possibly conducting a criminal trial and incarcerating a caregiver or family member.

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