

Injuries to Children Related to Shopping Carts

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ABSTRACT. *Study Objective.* To describe the epidemiology of shopping cart-related injuries among children and to consider targeted prevention strategies based on these epidemiologic findings.

Design. A consecutive series of patients.

Setting. The emergency department of a large, academic children's hospital.

Participants. Sixty-two children treated for shopping cart-related injuries during a 15-month period.

Results. Children ranged in age from 4 months to 10 years (mean, 2.8 years). Thirty-three children (53%) were boys. Twelve patients (19%) arrived via ambulance. Forty-nine children (79%) had injuries to the head, including one child admitted to the hospital. Eleven children (18%) had fractures, including 5 (8%) with skull fractures. Nine patients (14%) had lacerations, and 30 patients (48%) had superficial injuries (ecchymoses or abrasions). The most common mechanism of injury was falling out of the carts (58% of children), followed by cart tip-overs (26% of children). Injuries caused by falls from the carts occurred across the entire age range, whereas injuries caused by cart tip-overs were most frequent among children 1 year of age or younger. The sitting position was associated with tip-over injuries, and standing in the cart basket was associated with falling from the cart.

Conclusions. Shopping cart-related injuries cause serious pediatric morbidity, especially among children younger than 5 years of age, and are potentially fatal. Based on identified age-specific mechanisms of injury, currently used prevention strategies are not sufficient. The use of infant seats and restraining belts is an inadequate strategy for prevention of shopping cart-related injuries among children 1 year of age or younger, because cart tip-over is an important mechanism of injury in this age group. Shopping carts should be redesigned to decrease the tip-over hazard. Transportation of children in shopping carts of current design should be prohibited. *Pediatrics* 1996;97:161-165; *pediatric trauma, falls, injury epidemiology, injury prevention, shopping carts.*

ABBREVIATION. CT, computed tomography.

Young children often accompany their parents during shopping trips and are transported in shopping carts. The US Consumer Product Safety Commission estimates that 21 000 children 0 to 4 years of age and more than 4000 children 5 to 14 years of age are treated in emergency departments each year in

the United States because of injuries associated with shopping carts.¹ The American Academy of Pediatrics published a commentary in June 1993 expressing concern about these injuries and emphasizing the need for effective preventive measures. However, the epidemiology of these injuries has not been well described. A case series from Great Britain reported 10 children who were treated in an emergency department after falling from shopping carts. All children had head injuries, and 30% required admission to the hospital.² The death of a 3-year-old boy resulting from a fall from a shopping cart was reported in July 1992.³ Another infant in a shopping cart also died after being thrown to the ground when the shopping cart overturned.⁴

This report describes the epidemiology of shopping cart-related injuries among children. An illustrative case is presented, followed by an analysis of 62 children with shopping cart-related injuries treated in a pediatric emergency department. Targeted prevention strategies are discussed based on the epidemiology of these injuries.

METHODS

Data were collected for all patients with injuries related to shopping carts who were treated in the emergency department of Columbus Children's Hospital from March 1993 through May 1994. More than 75 000 children are treated annually in the emergency department of this large, academic children's hospital. Information was obtained from emergency department medical records and ambulance run sheets. Patients' parents were contacted for information not available in medical records. Data were collected separately for the initial case in 1992. This study was approved by the Human Subjects Research Committee.

Data were analyzed using EpiInfo⁵ software. Statistical analysis was performed using the χ^2 test with Yate's correction.

Case Report

The authors' interest in shopping cart-related injuries was heightened after treatment in our emergency department of a 3-year-old boy with a life-threatening injury caused by a fall from a shopping cart in 1992. The injury occurred at 1 pm when the child fell from the cart basket and struck his head. There was no loss of consciousness. He went home and took a nap for about 1 hour and was playful on awakening. Later that afternoon, he had a headache, which gradually became more severe. There was no vomiting. The boy then became limp and unresponsive and was taken to the emergency department in his family's car.

On arrival in the emergency department at 6:20 pm, the child had a fixed, dilated right pupil, left-sided decorticate posturing, and periods of apnea. The child was intubated and hyperventilated. An emergency head computed tomography (CT) scan showed a large right epidural hematoma (Fig 1). He was taken to the operating room, where a craniotomy and evacuation of the hematoma were performed. A right parietal skull fracture and two lacerations in the middle meningeal artery were identified intraoperatively. The postoperative hospital course was uneventful, except for a transient third-nerve palsy. The child was discharged

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