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Are We Aware of the Risks of Children's Fractures From Bunk Beds?

Monica Y*

Department of Medical Science, Bhutan

Abstract

Children frequently suffer trauma as a result of falls from heights. On the other hand, BBR fractures are poorly understood. We were interested in learning more about the most common BBR fracture types and age ranges. Methods and Materials: From January 2014 to December 2021, we examined the medical records and imaging procedures of patients under the age of 18 who were treated in our department for a bunk bed injury. Demographic data were used to evaluate the age groups, mechanisms, types, and anatomical regions of fractures. 162 patients, ranging in age from 0 to 15, were included, with 59.9% being men. There were 80 fractures, representing 49.4 percent, and 49 contusions and abrasions, representing 30.2%. 44.8 percent of children under the age of three, 50.8 percent of children under the age of five, 58.5 percent of children under the age of six, and 28.5 percent of children under the age of ten were affected by BBR fractures. The clavicle (n = 13, 16.3 percent), humerus (n = 10, 12.5 percent), foot (n = 8, 10 percent), hand (n = 5, 6.3 percent), lower leg (n = 5, 6.3 percent), and skull (n = 5, 6.3 percent) were the most common fractures. One hundred twenty-one patients, or 16.3%, were admitted to the hospital, where they remained for an average of two days and 1.6 hours. Twelve cases, or 15.0%, required surgery, with closed reduction (n = 7) and closed reduction with internal fixation (n = 5) being the most common types. Parents ought to be aware that children and adolescents, particularly those under the age of 10, suffer a significant amount of severe trauma from bunk beds. Information and techniques for preventing BBR fractures that are supported by evidence would be beneficial to caregivers.

Keywords: Children; Mechanism; Fracture; Surgery

Introduction

The majority of pediatric trauma visits to the emergency room are caused by falls from heights. For instance, an estimated 23,000 children between the ages of 6 and 9 in the United States receive treatment each year for injuries brought on by bunk beds. In industrialized nations, bunk beds are frequently installed in homes to save space in crowded urban areas. Even though guardrails and mandatory product safety standards have been established, serious injuries are still frequently reported. The US Consumer Product Safety Commission has recommended that the upper bunk be marked with a warning in order to prevent children under the age of six from using it. However, previous research has demonstrated that the majority of injuries to bunk beds (BBRs) still occur in this age group. Upper extremity fractures, which occur in two-thirds of BBR falls, account for up to 40% of all injuries [**1**-**4**]. Nearly six times as likely are these children to require hospitalization. However, there are not many data on BBR fractures.

Fractures

For instance, in addition to fractures of the upper or lower limbs, we discovered five skull fractures, or 6% of the body. who found the same amount of skull fractures. A total of seven of the 218 children, or 3.2 percent, were able to recover from their skull fractures without experiencing any complications or neurological issues. Due to their higher center of gravity, young children typically fall headfirst, causing skull fractures and concussions. Sawyer also looked into the patterns of fractures caused by falls from high places. He stated that babies and children break their bones with their hands or feet, whereas adults and teenagers break their bones first with their feet [**5**]. However, we were unable to identify this pattern in terms of skull fractures because two of the children in our cohort were younger than three years old and the remaining three were older than six years old.

Fractures Have an Effect on Age

According to the majority of reports, patients under the age of six are most likely to sustain various BBR injuries. D'Souza and co. found that almost half of the injured children in the United States were under the age of six over a 16-year period. When McFaull looked at the Canadian cohort, he came to the same conclusion: a high number of incidents involving children between the ages of three and five. However, the majority of primary school students and more than 90% of children who broke their bones in this study were under the age of 10. Patients aged 6 to 9 years old had the highest rate (58.5%) [**6**]. However, the absence of patients who required imaging to examine suspected BBR fractures or injuries—such as superficial lacerations, contusions, abrasions, concussions, or strains/sprains—may be the cause of this finding. Furthermore, Mack et al. In addition, they informed their cohort that the age range of six to nine years had the highest fracture rate (34.4 percent).

Discussion

Because of space-saving necessities, most metropolitan abodes have cots, which are every now and again remembered to be undeniable. Because bunk beds caused children such severe trauma, standards were established decades ago. However, severe BBR injuries have been documented in previous reports. The purpose of this retrospective study was to investigate BBR fractures at tertiary trauma centers.

We found that 162 patients underwent imaging after a BBR injury. Men experienced 59.9% of all cases, according to the literature [**7**].

The incidence of fractures following an injury to a bunk bed ranges from 10% to 40%, according to reports; However, there are still relatively few papers that provide in-depth information on BBR fractures. We

***Corresponding author:** Monica Y, Department of Medical Science, Bhutan, E-mail: moni@ca.gmail.com.in

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found that 49% of the patients in our cohort broke something. Because we only included children on whom an imaging procedure was carried out, our number of fractures was higher than that of previous publications and could not be compared. In contrast, the majority of recent studies that look at all BBR injuries are not this way. assert that based on our findings, 78% of fractures affected the upper extremities. In 2008. 572,580 children and adolescents under the age of 21 who went to the emergency room for BBR issues were examined by the authors. 68% of those patients broke their upper limbs, and 19.9% of those patients broke something else. In addition, described the 40% fracture rate in Canada's emergency room visits for BBR injuries between 1990 and 2009. With 411 affecting the upper extremities and 340 causing a fracture, over 80% of the 934 incidents involving upper bunks were related to fractures. In our cohort, forearm fractures accounted for 43% of all fractures, followed by clavicle (16%), humerus (13%), foot (10%), hand (6%), lower leg (6%), skull (6%), and the femur in one child **[8,9]**. Lower-extremity injuries, such as strains and sprains, were more common in jumps from the bunk bed. On the other hand, the physiological attempts to absorb a fall with outstretched arms may have increased the risk of upper-extremity fractures, as previously discussed in studies on bunk bed injuries **[10]**.

Conclusions

The majority of children in this retrospective study broke their bones after being hurt on a bunk bed. Caregivers would benefit from information and strategies for preventing BBR fractures based on evidence.

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