

LETTER TO THE EDITOR

Mechanisms of paediatric trauma at a rural hospital in Uganda

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Dear Editor

Child injuries are a growing global public health problem¹, with injury and violence responsible for approximately 950 000 deaths annually in children. Injuries from accidents are the leading causes of death among those in the 10–19 year age group, with the 5 major causes being: (i) road traffic accidents (RTAs); (ii) burns; (iii) drowning; (iv) poisoning and; (v) falls². The burden of paediatric trauma is greatest in low- and middle-income countries where more than 95% of all injury deaths occur¹.

Many of these injuries are preventable and the incidence could be reduced by paediatric trauma prevention strategies directed at parents, children and other road users in developing countries³. Unfortunately the burden of other childhood disease such as HIV, malaria and malnutrition

obscures trauma care. This lack of emphasis on injury and trauma prevention cannot be allowed to continue while thousands of lives are lost in this way every year. Increased levels of research and better implementation of identified prevention strategies are urgently needed.

Most of the research in this area has focused on trauma in urban areas. However, I would like to bring to your attention a review that assessed the main causes of paediatric trauma in 2007 at the rural Kuluva Hospital in Uganda. Kuluva Hospital is a 250 bed mission hospital in rural north-west Uganda, 9 km from the town of Arua. The hospital is on the major route to Kampala and so has a good quality tarmac road, with the main types of transport being motorcycle taxi, bicycle and car.



Method

A retrospective case-note review was conducted on the notes of all paediatric patients (those aged 16 years and under) admitted to Kuluva Hospital in 2007 with trauma-related injuries. Data were collected on the mechanism of injury and the injuries sustained. The patient's age, sex, length of hospital stay and discharge destination were also recorded. Patients were excluded if their case notes were missing or incomplete.

Results

Of the 4479 paediatric admissions in 2007, 160 paediatric patients (3.6%) were admitted with trauma related injuries. Of the trauma patients, 68.4% ($n = 106$) were male and 31.6% ($n = 49$) female (5 patients were excluded due to incomplete notes). The mean age was 7.4 years and the mean length of stay was 8.1 days. Of the 155 patients, 149 were discharged, 1 absconded, 3 were referred to other hospitals and 2 died. Both deceased patients were male (aged 4 and 9 months, respectively) and suffered from fire burns. The most common mechanisms of injury were falls, followed by RTAs (Table 1), and the most common injuries were soft tissue injuries, lower limb fractures and lacerations (Table 2).

Discussion

Young children are most at risk of injury due to their lack of understanding of risk, and this is increased if they are allowed to play unsupervised. Males are more likely to be trauma victims and in this study boys comprised over two-thirds of those injured. This trend is well recognised and it has been theorised that boys are more likely to take risks, act more impulsively and are allowed more freedom by parents to play away from home unsupervised¹. In fact, unsupervised play is the main reason that children are injured in falls, as was seen in this study, where falls were the leading cause of

trauma admission (32.9%), with falls from trees accounting for 9.7% of the total falls. Improved adult supervision and simple education could reduce falls injuries.

Road traffic injuries were also significant in this rural environment, accounting for 29% of trauma admissions. Strategies to reduce RTAs, such as the installation of speed bumps, a reduction in alcohol-impaired driving, empowering passengers to challenge dangerous driving and an increase in police patrols have all been successful but must be acted upon to save children from injury⁴⁻⁷.

Burns are an important cause of preventable injury in developing countries¹ where, in the absence of an electricity supply, outdoor cooking on charcoal is common. When combined with poor supervision of children, outdoor cooking is a key risk factor for burns. Physiologically young children are more at risk from burns due to their large surface-area-to-volume ratio. In this study the average age of the patients involved in fires was 2.7 years, which was similar to a study in Nigeria⁸ and is significantly younger than the overall average age of patients. Babies and toddlers are at greater risk of burns because they lack awareness of the dangers of fire and very hot liquids.

Conclusion

Trauma due to falls, RTAs and burns were shown to be important causes of paediatric mortality and morbidity in a rural area of Uganda. Trauma has been a neglected cause of child mortality in resource poor settings due to the burden of infectious diseases, but it deserves greater funding and more research. Preventative methods in the community must be enforced to reduce the burden of paediatric trauma. Special emphasis should be placed on preventative strategies for young males because they are more likely to be victims of trauma.



Table 1: Common mechanisms of injury

Mechanism of injury	Average age of injured (years)	Injuries n (%)
Falls	6.5	51 (32.9)
Road traffic accident	8.9	45 (29)
Fall from tree	7.3	15 (9.7)
Snake bite	9.9	12 (7.7)
Scalding	2.7	12 (7.7)
Assault	10.8	6 (4.5)
Crush injury	7.7	3 (1.9)
Fire burn	2.6	4 (2.6)
Miscellaneous	7.7	7 (4.5)

Table 2: Type of injury sustained

Injury sustained	Injuries n (%)
Soft tissue injury	43 (27.7)
Lower limb fracture	33 (21.3)
Laceration	17 (11.0)
Snake bite	12 (7.7)
Upper limb fracture	12 (7.7)
Burns (scalding)	12 (7.7)
Minor head injury	9 (5.8)
Burns (from fire)	4 (2.6)
Skull fracture	3 (1.9)
Dislocated elbow	2 (1.3)
Jaw fracture	2 (1.3)
Pelvic fracture	1 (0.6)
Miscellaneous	5 (3.2)

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References

1. World Health Organization. *Violence and injury prevention and disability (VIP)*. (Online) 2008. Available: http://www.who.int/violence_injury_prevention/child/injury/world_report/en/ (Accessed 1 November 2009).
2. World Health Organisation. *The global burden of disease 2004 update*. Geneva: WHO, 2004.



3. Nwadinigwe CU, Ihezic CO, Iyidiobi EC. Fractures in children. *Nigerian Journal of Medicine* 2006; **15(1)**: 81-84.
 4. Afukaar F. Speed control in developing countries: issues, challenges and opportunities in reducing road traffic injuries. *Injury, Control and Safety Promotion* 2003; **10(1-2)**: 77-81.
 5. Goss CW, Van Bramer LD, Gliner JA et al. Increased police patrols for preventing alcohol-impaired driving. *Cochrane Database of Systematic Reviews* 2008; **(4)**: CD005242.
 6. Alsop Z. Passengers play a key part in road safety in Kenya. *Lancet* 2009; **373(9682)**: 2188.
 7. Bishai D, Asiime B, Abbas S, Hyder AA, Bazeyo W. Cost-effectiveness of traffic enforcement: case study from Uganda. *Injury Prevention* 2008; **14(4)**: 223-227.
 8. Archibong AE, Antia UE, Udosen J. Childhood burns in south eastern Nigeria. *East African Medical Journal* 1997; **74(6)**: 382-384.
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