

Letter to the Editor

AMJ 2016 9(4)

Non-accidental trauma in children presenting with orthopaedic injuries in a single centre in New Zealand

Corresponding Author:

Yassar Alamri

Canterbury District Health Board and New Zealand Brain Research Institute

Email: yassar.alamri@nzbri.org

Dear Editor,

There have been some concerns recently about the higher rates of non-accidental injuries (NAI) in New Zealand (NZ) children compared with rates in other developed countries.¹ Compared with 2012, there were more incidents of emotional, physical, and sexual abuse and neglect incidents in 2013.¹ As a result, a focus on NAI research has garnered much attention recently.

One of the hallmarks of child physical abuse is unusual bony injuries.² These include unexplained, occult, multiple, and/or healing fractures in the absence of an underlying medical condition (e.g., osteogenesis imperfecta). Additionally, delayed presentation of patients with physical injuries raises suspicion for NAI. The Royal Australian and New Zealand College of Radiologists has recently published a protocol for skeletal surveys of suspected non-accidental injuries in children.²

Several factors have been reported to be associated with child abuse, the most common of which has been race. Significant Māori overrepresentation has been reported in sexual abuse.³ For physical abuse, however, inconsistent coding may have spuriously inflated reported racial differences.⁴ Another factor associated with higher risk of abuse was area of residence (urban vs. rural). However, the current epidemiological literature from NZ is outdated.

We prospectively studied 139 consecutive admissions to the Paediatric Orthopaedic service at the Christchurch Public Hospital, Canterbury, New Zealand. The hospital is the

largest tertiary centre of NZ's South Island and serves a population of close to 540,000.

There were five cases of suspected NAI (3.6 per cent; see Table 1). Compared with the study sample, children of Māori and Pasifika ethnicities were overrepresented (60 per cent vs. 17.3 per cent); however, the difference did not reach statistical significance ($p=0.16$). Age ($p=0.20$) and sex ($p=0.89$) were not different in the two groups. Two (40 per cent) out of the five cases were from rural areas, compared with 11 per cent in the Canterbury region.¹ All identified cases received prompt paediatric medical and multidisciplinary evaluation.

Three common themes emerge from examining our results and NAI literature: NAI is more common in lower socioeconomic status groups;³ delayed presentation should raise suspicion for NAI; and certain fracture patterns are more common in NAI patients.⁴ Finally, due to the nature of the study, limited conclusions may be drawn. However, the trends observed in this small study corroborate findings from previous studies from NZ. This calls for large nationwide studies to examine and address, if found, the racial and rural health disparities.

Sincerely,

Yassar Alamri

Canterbury District Health Board and New Zealand Brain Research Institute, Christchurch, New Zealand

Conflict of Interest

None to declare

References

1. New Zealand Government. Ministry of Social Development Child, Youth and Family. Key statistics and information for media. [Internet]. 2014 [cited 2015 October 23]. Available from: <http://www.cyf.govt.nz/about-us/key-statistics/>
2. Phillips KL, Bastin ST, Davies-Payne D, et al. Radiographic skeletal survey for non-accidental injury: systematic review and development of a national New Zealand protocol. *Journal of medical imaging and radiation oncology*. 2015;59(1):54-65.

3. Fanslow JL, Robinson EM, Crengle S, et al. Prevalence of child sexual abuse reported by a cross-sectional sample of New Zealand women. *Child Abuse Negl.* 2007;31(9):935-45.
4. Kotch JB, Chalmers DJ, Fanslow JL, et al. Morbidity and death due to child abuse in New Zealand. *Child Abuse Negl.* 1993;17(2):233-47.

Table 1: Case details of suspected NAI cases

	Age (year)	Sex	Ethnicity	Residence	Orthopaedic injury	Clinical details
Case 1	1.5	M	European	Rural	Spiral femoral fracture	Associated dental injury
Case 2	2.2	F	Māori	Urban	Crush injury to index finger	Delayed presentation
Case 3	0.6	F	Pasifika	Rural	Spiral femoral fracture	Multiple fractures at different stages of healing
Case 4	5.9	M	Māori	Urban	Supracondylar fracture	Delayed presentation
Case 5	12.6	M	European	Urban	Distal radius fracture	Delayed presentation and multiple previous injuries
<i>F = female; M = male</i>						