



Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury



Horse-related injuries in children – unmounted injuries are more severe: A retrospective review

Grace E.L. Wolyncewicz^{a,b}, Cameron S. Palmer^{c,e}, Helen E. Jowett^b, John M. Hutson^{a,b,f}, Sebastian K. King^{a,b,d,g}, Warwick J. Teague^{a,b,c,d,*}

^a Surgical Research Group, Murdoch Children's Research Institute, Melbourne, Australia

^b Department of Paediatrics, University of Melbourne, Melbourne, Australia

^c Trauma Service, The Royal Children's Hospital, Melbourne, Australia

^d Department of Paediatric Surgery, The Royal Children's Hospital, Melbourne, Australia

^e Department of Epidemiology & Preventive Medicine, Monash University, Melbourne, Australia

^f Department of Urology, The Royal Children's Hospital, Melbourne, Australia

^g Department of Gastroenterology & Clinical Nutrition, The Royal Children's Hospital, Melbourne, Australia

ARTICLE INFO

Article history:

Received 29 September 2017

Received in revised form 13 November 2017

Accepted 5 December 2017

Keywords:

Children

Horses

Falls

Accidental

Injuries and wounds

Injury severity score

Protective devices

ABSTRACT

Introduction: Horse-related injuries account for one quarter of all paediatric sports fatalities. It is not known whether the pattern of injury spectrum and severity differ between children injured whilst mounted, compared with those injured unmounted around horses. We aimed to identify any distinctions between the demographic features, spectrum and severity of injuries for mounted versus unmounted patients.

Patients and methods: Trauma registry data were reviewed for 505 consecutive paediatric patients (aged < 16 years) admitted to a large paediatric trauma centre with horse-related injuries over a 16-year period. Patients were classified into mounted and unmounted groups, and demographics, injury spectrum, injury severity, and helmet usage compared using odds ratios and Wilcoxon rank-sum tests. **Results:** More patients (56%) were injured in a private setting than in a sporting or supervised context (23%). Overall, head injuries were the most common horse-related injury. Mounted patients comprised 77% of the cohort. Mounted patients were more likely to sustain upper limb fractures or spinal injuries, and more likely to wear helmets. Unmounted were more likely to be younger males, and more likely to sustain facial or abdominal injuries. Strikingly, unmounted children had significantly more severe and critical Injury Severity Scores (OR 2.6; 95% CI 1.5, 4.6) and longer hospital stay (2.0 days vs 1.1 days; $p < 0.001$). Unmounted patients were twice as likely to require intensive care or surgery, and eight times more likely to sustain a severe head injury.

Conclusions: Horse-related injuries in children are serious. Unmounted patients are distinct from mounted patients in terms of gender, age, likelihood of personal protective equipment use, severity of injuries, and requirement for intensive or invasive care. This study highlights the importance of vigilance and other safety behaviours when unmounted and around horses, and proposes specific targets for future injury prevention campaigns, both in setting of organised and private equestrian activity.

© 2017 Elsevier Ltd. All rights reserved.

Introduction

Horse-riding is a popular pastime for Australian children, with more than 17,000 children registered with the national peak body,

Pony Club Australia, in 2016 [1]. Many more children ride, or are otherwise exposed to horses, in rural, semi-rural and sporting settings. Although the incidence of injury during equestrian sport is lower than other childhood sports [2], horse-related injuries tend to be more severe, with higher rates of hospitalisation and mortality [3]. Strikingly, horse-related incidents account for one quarter of all paediatric sports fatalities [4].

Injuries to children while mounted on a horse – particularly falling from the horse – occur more frequently than those while unmounted and near horses [2,5]. However, no recent study has specifically investigated patterns of injury for mounted and

* Corresponding author at: Trauma Service, The Royal Children's Hospital, 50 Flemington Road, Parkville, VICTORIA 3052, Australia.

E-mail addresses: gracewoly@gmail.com (G.E.L. Wolyncewicz), cameron.palmer@rch.org.au (C.S. Palmer), helen.jowett@rch.org.au (H.E. Jowett), john.hutson@rch.org.au (J.M. Hutson), sebastian.king@rch.org.au (S.K. King), warwick.teague@rch.org.au (W.J. Teague).

unmounted children, and it is unclear which mechanism is more likely to result in severe injury. Current recommendations regarding the use of personal protective equipment (PPE), such as helmets, chest protection and safety stirrups, focuses on the mounted child [6]. The risks of being injured during unmounted activities, such as grooming, are less well recognised, with no

recommendations about safety or PPE use in this context [2,7]. This leaves the equestrian community less able to target prevention strategies at specific age groups or levels of exposure to horses. [8].

The principal aim of this study was to compare the epidemiology, spectrum and severity of injuries sustained by children injured mounted on a horse versus those injured unmounted, or around a

Table 1
Comparison of mounted and unmounted patients, further broken down by sub-mechanism. Percentages are shown in brackets, and medians are provided with overall and interquartile ranges in brackets. 95% confidence intervals are provided in brackets where appropriate.

Mechanism Sub-mechanism	Mounted				Unmounted				All patients
	Fall	Fall + Horse landed on patient	Fall + Other	All mounted	Kick	Trample	Other Unmounted	All Unmounted	
Total patients	305	39	47	391	85	13	16	114	505
Gender									
Male	38 (12)	4 (10)	10 (21)	52 (13)	36 (42)	5 (38)	7 (44)	48 (42)	100 (20)
Female	267 (88)	35 (90)	37 (79)	339 (87)	49 (58)	8 (62)	9 (56)	66 (58)	405 (80)
Helmet use									
Unknown	66 (22)	11 (28)	13 (32)	92 (24)	34 (40)	4 (31)	10 (63)	48 (42)	140 (28)
Known	239 (78)	28 (72)	32 (68)	299 (76)	51 (60)	9 (69)	6 (37)	66 (58)	365 (72)
Wearing *	221 (92)	26 (93)	29 (91)	276 (92)	5 (10)	2 (22)	1 (17)	8 (12)	284 (78)
Not wearing †	18 (8)	2 (7)	3 (9)	23 (8)	46 (90)	7 (78)	5 (83)	58 (88)	81 (22)
Place of injury									
Private setting (Home/Farm)	152 (50)	18 (46)	25 (53)	195 (50)	69 (81)	10 (77)	8 (50)	87 (76)	282 (56)
Sporting/Other supervised	80 (26)	12 (31)	12 (26)	104 (27)	6 (7)	0 (0)	5 (31)	11 (10)	115 (23)
Unknown/Other	73 (24)	9 (23)	10 (21)	92 (24)	10 (12)	3 (23)	3 (19)	16 (14)	108 (21)
Region of injury †									
Head	96 (31)	16 (41)	8 (17)	120 (31)	33 (39)	4 (31)	3 (19)	40 (35)	160 (32)
Face	37 (12)	5 (13)	13 (28)	55 (14)	47 (55)	2 (15)	5 (31)	54 (47)	109 (22)
Chest	11 (4)	1 (3)	14 (30)	26 (7)	10 (12)	1 (8)	5 (31)	16 (14)	42 (8)
Abdomen	35 (11)	10 (26)	10 (21)	55 (14)	19 (22)	4 (31)	1 (6)	24 (21)	79 (16)
Spine	59 (19)	5 (13)	4 (9)	68 (17)	3 (4)	0 (0)	3 (19)	6 (5)	74 (15)
Upper limb	110 (36)	3 (8)	11 (23)	124 (32)	6 (7)	2 (15)	8 (50)	16 (14)	140 (28)
Pelvis	6 (2)	9 (23)	0 (0)	15 (4)	2 (2)	0 (0)	0 (0)	2 (2)	17 (3)
Lower limb	43 (14)	14 (36)	14 (30)	71 (18)	3 (4)	2 (15)	1 (6)	6 (5)	77 (15)
Type of injury ‡									
Head	94 (31)	16 (41)	7 (15)	117 (30)	30 (35)	4 (31)	3 (19)	37 (32)	154 (30)
Facial	14 (5)	3 (8)	1 (2)	18 (5)	14 (16)	1 (8)	1 (6)	16 (14)	34 (7)
Internal	23 (8)	4 (10)	12 (26)	39 (10)	16 (19)	3 (23)	2 (13)	21 (18)	60 (12)
Spinal	56 (18)	5 (13)	4 (9)	65 (17)	3 (4)	0 (0)	3 (19)	6 (5)	71 (14)
Fracture	111 (36)	18 (46)	17 (36)	146 (37)	37 (44)	1 (8)	2 (13)	40 (35)	186 (37)
Joint	14 (5)	3 (8)	2 (4)	19 (5)	6 (7)	0 (0)	0 (0)	6 (5)	25 (5)
Soft tissue	28 (9)	6 (15)	8 (17)	42 (11)	2 (2)	1 (8)	2 (13)	5 (4)	47 (9)
Digital	1 (0)	1 (3)	3 (6)	5 (1)	0 (0)	2 (15)	6 (38)	8 (7)	13 (3)
Head injury severity §									
Mild	78 (26)	14 (36)	2 (4)	94 (24)	13 (15)	2 (15)	2 (13)	17 (15)	111 (22)
Serious	7 (2)	2 (5)	5 (11)	14 (4)	4 (5)	1 (8)	0 (0)	5 (4)	19 (4)
Major	9 (3)	0 (0)	0 (0)	9 (2)	13 (15)	1 (8)	1 (6)	15 (13)	24 (5)
Injury Severity Score Category									
Minor	107 (35)	9 (23)	12 (26)	128 (33)	13 (15)	6 (46)	6 (38)	25 (22)	153 (30)
Moderate	176 (58)	25 (64)	26 (55)	227 (58)	53 (62)	5 (38)	7 (44)	65 (57)	292 (58)
Severe	17 (6)	4 (10)	8 (17)	29 (7)	16 (19)	2 (15)	3 (19)	21 (18)	50 (10)
Critical	5 (2)	1 (3)	1 (2)	7 (2)	3 (4)	0 (0)	0 (0)	3 (3)	10 (2)
Median ISS (IQR)	4 (1–6)	5 (2.5–9.5)	5 (1.5–10)	4 (1–5)	5 (2–10)	2 (1–10)	4 (1–5)	5 (2–10)	4 (1–6)
ICU requirement	16 (5)	5 (13)	5 (11)	26 (7)	14 (16)	1 (8)	1 (6)	16 (14)	42 (8)
Surgery requirement	75 (25)	12 (31)	17 (36)	104 (27)	42 (49)	5 (38)	8 (50)	55 (48)	159 (31)
Median LOS (days)	1.0 (0.7–2.5)	2.8 (0.9–5.8)	2.0 (1.0–3.0)	1.1 (0.7–2.8)	2.2 (1.0–5.6)	1.0 (0.6–4.6)	2.0 (1.0–6.0)	2.0 (0.9–5.7)	1.5 (0.8–3.1)

* Expressed as a percentage of children with known helmet status.

† Body region(s) of injury irrespective of severity. Does not total to 100%.

‡ Injury type(s) excluding isolated superficial injuries. 'Head' includes skull fractures; 'Facial' includes ocular and oral injuries; 'Internal' includes vascular injuries; 'Spinal' includes all cord, bony spine, ligamentous and sprain ('SCIWORA') injuries; 'Soft tissue' includes nerve injuries; 'Digital' includes fractures and amputations of fingers or toes. Does not total to 100%.

§ Severity of worst injury in patients with injury type 'Head'.

Download English Version:

<https://daneshyari.com/en/article/8718651>

Download Persian Version:

<https://daneshyari.com/article/8718651>

[Daneshyari.com](https://daneshyari.com)