Blunt injuries related to equestrian sports: results from an international prospective trauma database analysis

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Abstract

Introduction The objective of this study was to investigate the nature, management, and outcome of major injuries related to equestrian sports and to define the at-risk groups for serious and life-threatening injuries.

Methods We analyzed demographic, pre-hospital, clinical, and outcome data from an international population-based prospective trauma database (TraumaRegister DGU®). Patients with major injuries (Injury Severity Score [ISS] ≥ 9 points) related to equestrian sports activities were included (January 1, 1993, to December 31, 2012). Clinical and outcome parameters were stratified for four different types of injury mechanisms: fall from horse (FFH), horse-kick (HK), horse crush (HC), and carriage-related accidents (CRA). Participating countries included Germany, Austria, Switzerland, Finland, Slovenia, Belgium, Luxembourg, and The Netherlands. Statistical analyses were performed with SPSS (Version 22, IBM Inc., Armonk, NY).

Results The database identified 122,000 documented patients, of whom 679 were equestrian incidents. Among these, the four major injury mechanisms were: FFH (n = 427), HK (n = 188), HC (n = 34), and the CRA (n = 30). Females were more likely to sustain FFH (75.5%, p < 0.001), leading to head injuries (n = 204, 47.8%) and spinal fractures (n = 109, 25.5%). HK injuries often resulted in facial fractures (29.3%, p < 0.001). Individuals sustaining HC injuries had a high risk for pelvic (32.4%, p < 0.001) and abdominal injuries (35.2%, p < 0.001). In contrast to the FFH cohort, the CRA cohort involved older males (57 ± 13 years), with chest (63.3% p = 0.001), and extremity injuries, resulting in significant injury severity (ISS 20.7 ± 10.6). In the CRA cohort, 16% were in haemorrhagic shock on scene, and also the highest in-hospital mortality (14.8%, p = 0.006) was observed.

Conclusions Young female riders are at risk from falling, horse-kicks, and crush-injuries. Older males in carriage-related accidents sustained the highest injury severity and mortality rate, and must specifically be targeted by future prevention initiatives.

Level of evidence Descriptive Epidemiologic Study, Level II.

Keywords Equestrian sports · Severe injuries · Fall from horse · Horse kick · Carriage · Mortality

Introduction

Equestrian sports belong to the most popular recreational and competitive activities in Europe [1]. However, various equestrian disciplines were described to be associated with a multitude of potential injuries, ranging from minor to fatal [2–4]. The current literature reports a higher risk for major injuries and mortality from equestrian sports than for other sports; including American football, automobile racing, and

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