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Pediatric spine injuries – A retrospective analysis of peculiarities and patterns over a decade

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Purpose: Spine injuries occur infrequently in children but may be associated with significant disability and mortality. The purpose of this study was to review the experience of our institute (NIMHANS) to determine the epidemiology, risk factors, mechanisms, levels and types of injury associated with these potentially devastating injuries.

Methods: A retrospective analysis of 155 consecutive pediatric spine injuries treated at our institute over a 10 year period (January 2002 through December 2011) was performed.

Results: The mean age was 15.2 years; (range: 2-18 yrs). 78.7% were boys, while 21.3% were girls. The injuries were more common in second decade. The most common mechanism of injury was fall from height of more than 10 ft (54.8%), followed by RTA (25.2%), followed by trivial fall (9%). In children less than 10 years of age, fall was the commonest cause (10/14), while RTA was the cause in 35/141 older children. 54.8% percent of all children sustained injuries to cervical spine, 27.1% to lumbar spine and 14.8% to dorsal spine. 35.5% children had frankel grade A injury, 26 children (16.8%) had Frankel grade E injury. 48 children had stable injuries. 19 children sustained multilevel injuries. 34.8% had complete cord injury while 18.2% had only bony injury.

Conclusions: Mechanisms and patterns of injury in children are age related, with younger children (0-10 yrs) sustaining spine injuries as a result of trivial fall and fall while playing, while older adolescents are commonly injured during fall from height of more than 10 ft and RTA. Spine injuries in children most commonly involve the cervical spine and most are Frankel grade A injuries.