Spinous Process Fracture

Isolated transverse process fracture and spinous process fractures (TPFx and SPFx) in the thoracic and/or lumbar region have been deemed clinically insignificant in the adult population. This same rule is often applied to the pediatric population; however, little evidence exists in this younger group.

A study describe the clinical, radiographic, and long-term data on isolated TPFx and SPFx in an exclusively pediatric population.

A retrospective chart review at Monroe Carell Jr. Children's Hospital at Vanderbilt University identified 82 pediatric patients with isolated TPFx and/or SPFx following a traumatic event between January 2000 and December 2013. Patient demographic information, presenting symptoms, radiographic characteristics, and follow-up data were collected. Follow-up was used to determine the outcome (presence of neurological deficits) of such injuries via complete physical examination and, when available, radiographic evidence.

In the 82 identified patients, the mean age was 15.5 ± 3.1 years (mean is expressed ± SD throughout), with 72 injuries (87.8%) resulting from a motor vehicle, motorcycle, or all-terrain vehicle accident. There was a mean of 1.7 ± 1.0 fractured vertebral levels involved and a mean of 1.8 ± 1.1 fractures was identified per patient. Seventy-one patients (86.6%) needed bedside pain control, 7 (8.5%) were prescribed a brace, and 4 patients (4.9%) received a collar. Physical therapy was recommended for 12 patients (14.6%). A total of 84.1% had follow-up, and the mean length of follow-up was 19 ± 37 months. No patients had true neurological deficits at presentation or follow-up as a result of their isolated fractures, whereas 95.1% had other associated system injuries.

These data shows that there is no appreciable long-term complication associated with isolated thoracic and/or lumbar TPFx and/or SPFx in an exclusively pediatric population. Because these fractures are, however, associated with high-energy blunt trauma, they often result in associated soft-tissue or other skeletal injury. All pediatric patients in the cohort benefited from conservative management and aggressive treatment of their comorbidities [1].

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Akinpelu BJ, Zuckerman SL, Gannon SR, Westrick A, Shannon C, Naftel RP. Pediatric isolated thoracic and/or lumbar transverse and spinous process fractures. J Neurosurg Pediatr. 2016 Jun;17(6):639-44. doi: 10.3171/2015.10.PEDS15377. Epub 2016 Feb 19. PubMed PMID: 26894517.

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