

Pediatric cervical spine disorder

Cervical spine disorders in children are relatively uncommon; therefore, paradigms for surgical and nonsurgical clinical management are not well established. The purpose of a study was to bring together an international, multidisciplinary group of pediatric cervical spine experts to build consensus via a modified Delphi approach regarding the clinical management of children with cervical spine disorders and those undergoing cervical spine stabilization surgery.

A modified Delphi method was used to identify consensus statements for the management of children with cervical spine disorders requiring stabilization. A survey of current practices, supplemented by a literature review, was electronically distributed to 17 neurosurgeons and orthopedic surgeons experienced with the clinical management of pediatric cervical spine disorders. Subsequently, 52 summary statements were formulated and distributed to the group. Statements that reached near consensus or that were of particular interest were then discussed during an in-person meeting to attain further consensus. Consensus was defined as $\geq 80\%$ agreement on a 4-point Likert scale (strongly agree, agree, disagree, strongly disagree).

Forty-five consensus-driven statements were identified, with all participants willing to incorporate them into their practice. For children with cervical spine disorders and/or stabilization, consensus statements were divided into the following categories: A) preoperative planning (12 statements); B) radiographic thresholds of instability (4); C) intraoperative/perioperative management (15); D) postoperative care (11); and E) nonoperative management (3). Several important statements reaching consensus included the following recommendations: 1) to obtain pre-positioning baseline signals with intraoperative neuromonitoring; 2) to use rigid instrumentation when technically feasible; 3) to provide postoperative external immobilization for 6-12 weeks with a rigid cervical collar rather than halo vest immobilization; and 4) to continue clinical postoperative follow-up at least until anatomical cervical spine maturity was reached. In addition, preoperative radiographic thresholds for instability that reached consensus included the following: 1) translational motion ≥ 5 mm at C1-2 (excluding patients with Down syndrome) or ≥ 4 mm in the subaxial spine; 2) dynamic angulation in the subaxial spine $\geq 10^\circ$; and 3) abnormal motion and T2 signal change on MRI seen at the same level.

In this study, the authors have demonstrated that a multidisciplinary, international group of pediatric cervical spine experts was able to reach consensus on 45 statements regarding the management of pediatric cervical spine disorders and stabilization. Further study is required to determine if implementation of these practices can lead to reduced complications and improved outcomes for children ¹⁾.

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Dastagirzada YM, Alexiades NG, Kurland DB, Anderson SN, Brockmeyer DL, Bumpass DB, Chatterjee S, Groves ML, Hankinson TC, Harter D, Hedequist D, Jea A, Leonard JR, Martin JE, Oetgen ME, Pahys J, Rozzelle C, Strahle JM, Thompson D, Yaszay B, Anderson RCE. Developing consensus for the management of pediatric cervical spine disorders and stabilization: a modified Delphi study. J Neurosurg Pediatr. 2022 Oct 28;1-11. doi: 10.3171/2022.9.PEDS22319. Epub ahead of print. PMID: 36308472.

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