Spinal deformity

Latest Spinal deformity-related articles in PubMed

- Iliac screw failures compromise long-term radiographic and clinical outcomes of adult spinal deformity surgery without impeding fusion at the lumbosacral junction: a retrospective study in Korea
- An Elderly Patient With Lumbar Spondylodiscitis and Psoas Abscess: Diagnostic Considerations in the Context of Aerococcus urinae
- A Giant Lipoma Presenting With Neurological Symptoms: A Rare Clinical Presentation
- Pelvic Incidence-Dependent Clustering of Sagittal Spinal Alignment in Asymptomatic Middle-Aged and Elderly Adults: A Machine Learning Approach
- Comparing Folic Acid Interventions and Arsenic Reduction Strategies for Neural Tube Defect Prevention in Bangladesh: A Systematic Review and Decision Analysis
- Case 342
- Neural network-based multi-task learning to assist planning of posterior spinal fusion surgery for adolescent idiopathic scoliosis
- Similar reoperation rates in upper versus lower thoracic to pelvis instrumentation: an analysis of 7,300 patients utilizing a national administrative database

Update

Berven SH, Mummaneni PV. Spinal Deformity Update. Neurosurg Clin N Am. 2023 Oct;34(4):xiii-xiv. doi: 10.1016/j.nec.2023.06.017. Epub 2023 Jul 21. PMID: 37718116 [1)]

Classification

Adolescent spinal deformity

Adult spinal deformity

Neuromuscular spine deformity

Thoracolumbar spinal deformity

Cervical spine deformity

see Sagittal spinal deformity

Chiari type 1 deformity, with syringomyelia (CIM+SM) is often associated with spinal deformity.

Spinal deformities are frequent and disabling complications of movement disorders such as Parkinson's disease and multiple system atrophy. The most distinct spinal deformities include camptocormia, antecollis, Pisa syndrome, and scoliosis.

Early diagnosis of spinal tuberculosis and prompt treatment is necessary to prevent permanent

neurological disability and to minimize spinal deformity [2) 3)].

The correction of spinal deformity may be achieved by a variety of methods, each of which has advantages and disadvantages. The goals of spinal deformity surgery include reasonable correction of the curvature, prevention of further deformation, improvement of sagittal and coronal balance, optimization of cosmetic issues, and restoration/preservation of function. The failure to consider all these factors appropriately may result in a suboptimal outcome. Understanding fundamental biomechanical principles involved in the formation, progression, and treatment of spinal deformities is essential in the clinical decision-making process [4)].

Spinal Deformity in Neurofibromatosis

Spinal Deformity in Neurofibromatosis.

Diagnosis

Spine Deformity diagnosis

Treatment

To establish expert consensus on various parameters that constitute elevated risk during spinal deformity surgery and potential preventative strategies that may minimize the risk of intraoperative neuromonitoring (IONM) events and postoperative neurological deficits.

Through a series of surveys and a final virtual consensus meeting, the Delphi method was utilized to establish consensus among a group of expert spinal deformity surgeons. During iterative rounds of voting, participants were asked to express their agreement (strongly agree, agree, disagree, strongly disagree) to include items in a final set of guidelines. The consensus was defined as ≥ 80% agreement among participants. Near-consensus was ≥ 60% but < 80% agreement, equipoise was ≥ 20% but < 60%, and consensus to exclude was < 20%.

Fifteen of the 15 (100%) invited expert spinal deformity surgeons agreed to participate. There was consensus to include 22 determinants of high-risk (8 patient factors, 8 curve, and spinal cord factors, and 6 surgical factors) and 21 preventative strategies (4 preoperative, 14 intraoperative, and 3 postoperative) in the final set of best practice guidelines.

A resource highlighting several salient clinical factors found in high-risk spinal deformity patients, as well as strategies to prevent neurological events, was successfully created through expert consensus. This is intended to serve as a reference for surgeons and other clinicians involved in the care of spinal deformity patients [5)].

Case series

2017

A cohort comprised 55 599 adults who underwent spinal deformity fusion in the 2001 to 2013 National Inpatient Sample database. Patient variables included age, gender, insurance, median income of zip code, county population, severity of illness, mortality risk, number of comorbidities, length of stay, elective vs nonelective case. Hospital variables included bed size, wage index, hospital type (rural, urban nonteaching, urban teaching), and geographical region. The outcome was total hospital cost for deformity surgery. Statistics included univariate and multivariate regression analyses.

The number of spinal deformity cases increased from 1803 in 2001 (rate: 4.16 per 100 000 adults) to 6728 in 2013 (rate: 13.9 per 100 000). Utilization of interbody fusion devices increased steadily during this time period, while bone morphogenic protein usage peaked in 2010 and declined thereafter. The mean inflation-adjusted case cost rose from $32 671 to $43 433 over the same time period. Multivariate analyses showed the following patient factors were associated with cost: age, race, insurance, severity of illness, length of stay, and elective admission ($P < .01$). Hospitals in the western United States and those with higher wage indices or smaller bed sizes were significantly more expensive ($P < .05$).

The rate of adult spinal deformity surgery and the mean case cost increased from 2001 to 2013, exceeding the rate of inflation. Both patient and hospital factors are important contributors to cost variation for spinal deformity surgery [6].

Societies

Scoliosis Research Society.

Journal

http://www.spine-deformity.org/

Spine Deformity, the official journal of the Scoliosis Research Society, is an international peer-reviewed publication to disseminate knowledge on basic science and clinical research into the etiology, biomechanics, treatment methods and outcomes of all types of spinal deformities. The international members of the Editorial Board provide a worldwide perspective for the journal's area of interest.

see Spine deformity and syringomyelia

1)
Berven SH, Mummaneni PV. Spinal Deformity Update. Neurosurg Clin N Am. 2023 Oct;34(4):xiii-xiv. doi: 10.1016/j.nec.2023.06.017. Epub 2023 Jul 21. PMID: 37718116.
2)
Jain AK. Tuberculosis of the spine: a fresh look at an old disease. J Bone Joint Surg Br 2010;92(7):905–13
3)

Jain AK, Dhammi IK. Tuberculosis of the spine: a review. Clin Orthop Relat Res 2007;460(July):39–49
4)

Schlenk RP, Kowalski RJ, Benzel EC. Biomechanics of spinal deformity. Neurosurg Focus. 2003 Jan 15;14(1):e2. Review. PubMed PMID: 15766219.
5)

Iyer RR, Vitale MG, Fano AN, Matsumoto H, Sucato DJ, Samdani AF, Smith JS, Gupta MC, Kelly MP, Kim HJ, Sciubba DM, Cho SK, Polly DW, Boachie-Adjei O, Angevine PD, Lewis SJ, Lenke LG. Establishing consensus: determinants of high-risk and preventative strategies for neurological events in complex spinal deformity surgery. Spine Deform. 2022 Feb 23. doi: 10.1007/s43390-022-00482-z. Epub ahead of print. PMID: 35199320.
6)

Zygourakis CC, Liu CY, Keefe M, Moriates C, Ratliff J, Dudley RA, Gonzales R, Mummaneni PV, Ames CP. Analysis of National Rates, Cost, and Sources of Cost Variation in Adult Spinal Deformity. Neurosurgery. 2017 May 9. doi: 10.1093/neuros/nyx218. [Epub ahead of print] PubMed PMID: 28486687.