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Adverse events in paediatric spinal deformity surgery – 12-year review of specialist spinal deformity practice

Abstract:

Purpose: Adverse events following paediatric spinal deformity surgery in the United Kingdom suffers from significant reporting gaps, as current data relies predominantly on voluntary incident submissions. This retrospective study seeks to comprehensively assess the incidence of all surgical adverse events at a specialised paediatric spinal orthopaedic centre.

Methods: A retrospective review of prospectively collected data from 2010–2022 systematically evaluated perioperative and postoperative adverse events. Patients were analysed by scoliosis aetiology and adverse events were stratified according to the Clavien–Dindo classification system. Adverse events were further grouped by common themes including but not limited to implant-related, infection-related, and neurological events.

Results: In a retrospective study of 871 paediatric spinal deformity patients comprising 1020 operations with 2 years follow up, 324 (37.1%) experienced an adverse event. Adolescent Idiopathic Scoliosis represented 545 patients (66.7%). Adverse event severity varied: 39.8% Grade 1, 14.2% Grade 2, 3.1% Grade 3A, 39.2% Grade 3B, 3.4% Grade 4, and 0.3% Grade 5. Implant-related issues were most frequent (112 patients, 34.6%), followed by curve progression and persistent pain (32 and 33 patients each). Neurological events included 4 complete cord injuries (0.5%) and 4 incomplete cord injuries which fully recovered (0.5%). One perioperative death occurred.

Conclusions: In this cohort of paediatric spinal deformity surgeries, over one-third of patients experienced adverse events, predominantly of low severity requiring minimal to no further intervention. Implant-related adverse events were most frequent, while the incidence of both complete and incomplete spinal cord injury as well as mortality remained reassuringly low across all procedures.

Biography

Adya has recently graduated in July 2024 with MBChB from University of Sheffield with a keen interest in Pediatrics. She is on the Specialised Foundation Program: Medical Education and has been involved with research affiliated with Sheffield Children's Hospital and been President of University of Sheffield Pediatrics Society in 2022–2023.