

Assessing The Impact of High-Risk Committees In Adult Cervical Deformity Corrective Surgery: A Retrospective Review Of Outcomes, Complications, And Frequency of Procedures Receiving Pre-Operative Multidisciplinary Evaluation

Peter Gust Passias, Oluwatobi Onafowokan, Max Ray Fisher, Ethan Cottrill, Alan H Daniels, Ankita Das, Bassel Diebo, Robert Kenneth Eastlack, Matthew Galetta, M. Burhan Janjua, Pawel P Jankowski, Arman Kishan, Jordan Lebovic, Nathan August Lorentz, Liban Mohamed, Gregory Michael Mundis, Stephane Owusu-Sarpong, Alexander W Parsons, Brett Roccos, Shaleen Vira, Caroline Wu

INTRODUCTION: To assess the frequency, outcomes, and impact of high-risk procedures receiving pre-operative multidisciplinary review in adult cervical deformity (ACD) patients

METHODS: ACD patients were stratified by whether they underwent a high-risk review versus not (HRR+ vs HRR-). High risk patients defined by meeting ≥ 1 of: anterior-posterior CD fusion ≥ 3 levels, planned 3-column osteotomy, VCR, and/or ACR, deformity correction with severe baseline (BL) neurological deficit, severe BL myelopathy (mJOA < 11), severe osteoporosis with fusion ≥ 4 levels. Differences in demographics, radiographic, and complication rates were assessed via means comparison. Adjusting for BL age and mACD-FI, follow up univariate one-way ANCOVAs were performed to assess post-operative outcomes. Logistic regressions assessed the impact of committee review on prediction of complications or reoperation.

RESULTS: Of 149 ACD patients (57.5 ± 10.9 years, 58.2% female, 28.5 ± 7.8 kg/m²), and 51.0% (n=76) underwent committee review. At baseline, cohorts were comparable in age, gender, and BMI, though HRR+ were frailer per mACD-FI ($p < .001$). HRR+ patients were also significantly more likely to have a history of myocardial infarction ($p = .045$). Radiographically, HRR+ were more likely to have more severe deformity per TS-CL ($p = .031$) and C2-C7 SVA ($p < .001$) compared to HRR- patients. Peri-operatively, HRR- patients had significantly higher mean operative time ($p < .001$), and were more likely to undergo any osteotomy ($p = .020$) or 3CO ($p = .045$), though total EBL, length of stay, SICU admissions, and discharge dispositions were comparable between groups (all $p > .05$). Rates of any complications and mortality were also comparable between groups (all $p > .05$). HRR+ patients demonstrated lower reoperation rates ($p = .037$). Yet, adjusted regression revealed that HRR was not independently predictive of intraoperative major complications, nor reoperation (all $p > .05$).

DISCUSSION AND CONCLUSION: Implementation of high-risk committees is associated with a lower frequency of high-risk procedures over time. However, the risk of complications is not necessarily diminished after the establishment of such committees.