A ten-year perspective on the question of whether surgeries for adolescent idiopathic scoliosis are "one and done?"

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INTRODUCTION:

Adolescent idiopathic scoliosis (AIS) is the most common cause of pediatric spinal deformity, for which larger curves may be considered for surgical correction. Posterior scoliosis fusion (PSF) for AIS is considered a highly successful surgery with excellent outcomes. However, especially as many patients “graduate” from their pediatric surgeons, there is the need to quantify the long-term reoperations of such surgeries.

METHODS:

The 2010 Pearldiver MSpine dataset was queried for those who were 10 to 18 years old with AIS undergoing PSF with at least 10 years follow up. Patient characteristics were abstracted. Reoperations were identified based on coding for any subsequent thoracic/lumbar surgery/revision. The ten-year reoperation rate and reasons for reoperation were determined, and multivariate regression was performed to determine reoperation risk factors.

RESULTS:

In total, 2050 AIS PSF patients were identified. Of the study cohort, reoperation within ten-years was done for 165 (8.0%). The median (interquartile range) for timing of reoperations was 379 (128-1111) days. Broken down by time frame, reoperations were done withing the first three months for 36 (21.8%), three months to two years for 75 (45.4%), and two years to ten years for 54 (32.7%). Figure 1 shows the reoperation timing curve.

Of all reoperations, infections were the primary cause of 29.7% (49 patients). A majority of infections occurred within the first ninety days following surgery (57%). For those who had a reoperation for non-infection reasons, the majority of reoperations were after the initial ninety days (78.4%, of which almost two thirds were during the 90 day to 2 year time window). Based on multivariate regression, need for reoperation was correlated with greater than thirteen segments of instrumentation (OR: 1.48, p = 0.02) but not age, gender, insurance, or comorbidities.

DISCUSSION AND CONCLUSION:

The current study of a large national AIS PSF population found 8.0% to undergo reoperation in the ten years following their index operation. Although specifics about the curve pattern and surgical indications were limited, the reoperation incidence, timing, and correlation with higher range of spinal segments fused are notable and important for patient counselling.

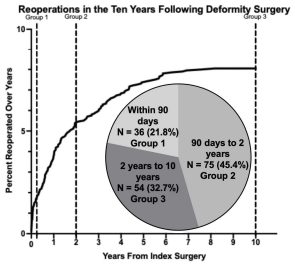

Figure 1: The overall rate of reoperation and when reoperations occurred over a ten-year time period is shown.