

Clinical Impact Correlation of a Delphi-Based Proximal Junctional Kyphosis Severity Scale and HRQOL

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Introduction

Proximal junctional kyphosis (PJK) and proximal junctional failure (PJF) are adverse outcomes following adult spinal surgery (ASD) surgery. There is a lack of consensus regarding which patients (pts) require revision surgery. The Hart ISSG PJK severity scale correlates with the need for revision surgery. This study evaluates the Hart International Spine Study Group (ISSG) PJK severity scale and health-related quality of life (HRQOL) measures in pts with PJK.

Patients and Methods

All ASD pts with PJK and/or PJF who eventually underwent revision surgery were identified from two large academic medical centers. Pts were retrospectively assigned scores based on the Hart ISSG PJK severity scale: neurological status, focal pain, instrumentation problem, kyphosis severity/PLC integrity, UIV/UIV + 1 fracture, and level of UIV. Scores range from 0 to 15. Pre-PJK revision HRQOL measures included: Oswestry disability index (ODI), short-form 36 (SF-36), and Scoliosis Research Society questionnaire (SRS30). Scores were subcategorized into 0 to 2, 3 to 5, 6 to 8, 9 to 11, and 12 to 15, and differences in HRQOL outcomes were determined with linear regression. Correlation was assessed with a Pearson correlation coefficient.

Results

A total of 54 cases were included, out of which 31.5% were male, and the mean age was 64.9 years. The Hart ISSG PJK severity scale scores ranged from 4 to 15, with the median being 8. PJK/PJF occurred in the upper thoracic spine in 24.1% of the cases. 54.8% had fractures and 77.8% had instrumentation issues. Overall, 55.6% had neurological deficits, with 16.7% having weakness and/or myelopathy. All pts had preoperative pain (median VAS 9/10). While statistical significance on linear regression was not seen, there were obvious trends that correlated with the Hart ISSG PJK severity scale. Higher Hart ISSG PJK severity scale scores were associated with higher ODI ($p = 0.283$, $r = 0.350$), lower SRS30 function ($p = 0.821$, $r = -0.323$), and lower SRS mental ($p = 0.646$, $r = -0.592$).

Conclusion

The Hart ISSG PJK severity scale has been shown to be predictive in the decision making of when patients require revision surgery. Based on the current study, it may also correlate with functional outcomes, specifically ODI and SRS30 components.