



Adam, Clayton J. and Izatt, Maree T. and Labrom, Robert D. and Askin, Geoffrey N. (2010) *The relationship between deformity correction and clinical outcomes after thoracoscopic scoliosis surgery : a prospective series of 100 patients*. In: Annual Scientific Meeting of the Spine Society of Australia , 9-11 April 2010, Christchurch Convention Centre, Christchurch.

Copyright 2010 [please consult the authors]

# THE RELATIONSHIP BETWEEN DEFORMITY CORRECTION AND CLINICAL OUTCOMES AFTER THORACOSCOPIC SCOLIOSIS SURGERY: A PROSPECTIVE SERIES OF 100 PATIENTS

Assoc Prof Clayton Adam, Mrs Maree Izatt, Dr Robert Labrom, Dr Geoffrey Askin  
Queensland University of Technology and Mater Health Services Brisbane.

QUT/Mater Paediatric Spine Research Group

## Introduction

Surgical treatment of scoliosis is quantitatively assessed in the clinic using radiographic measures of deformity correction, as well as the rib hump, but it is important to understand the extent to which these quantitative measures correlate with self-reported improvements in patients' quality of life following surgery. The objective of this study was to evaluate the relationship between clinical outcomes of thoracoscopic anterior scoliosis surgery and deformity correction using the Scoliosis Research Society (SRS) outcomes instrument (1-3).

## Methods

A prospective series of 100 consecutive adolescent idiopathic scoliosis patients received a single anterior rod via a thoracoscopic approach at the Mater Children's Hospital, Brisbane, Australia. Patients completed SRS outcomes questionnaires pre-operatively and at 24 months post-operatively. Multiple regression and t-tests were used to investigate the relationship between SRS scores and deformity correction achieved (radiographic measurements and rib hump) after surgery.

## Results

There were 94 females and 6 males with a mean age of 16.1 years. The mean Cobb angle improved from 52° pre-operatively to 21° for the instrumented levels post-operatively (instrumented correction rate of 59%) and the mean rib hump improved from 16° to 8° (51%). The mean total SRS score for the cohort was 99.4/120. None of the deformity related parameters in the multiple regression were significant. However, the twenty patients with the lowest post-operative major Cobb angles reported significantly higher SRS scores than the twenty patients with the highest post-operative Cobb angles, but there was no difference on the basis of rib hump correction. There were no significant differences between patients with either rod fractures or screw-related complications compared to those without complications.

## Discussion

Patients undergoing thoracoscopic anterior scoliosis correction report good SRS scores which are comparable to those in previous studies. We suggest that the absence of any statistically significant difference in SRS scores between patients with and without rod or screw-related complications is because these complications are not associated with any clinically significant loss of correction in our patient cohort. Post-operative major Cobb angle was the only significant predictor of patient satisfaction when comparing subgroups of patients with the highest and lowest post-operative Cobb angles. The reason for rib hump correction not being a predictor of patient satisfaction is unknown and warrants further investigation.

## References

1. Haher, T.R. and Gorup, J.M. and Shin, T.M. et al. Results of the Scoliosis Research Society instrument for evaluation of surgical outcome in adolescent idiopathic scoliosis. *Spine*, 24:1435-40, 1999.
2. Asher, M.A. and Lai, S.M. and Burton, D.C. Further development and validation of the scoliosis research society (SRS) outcomes instrument. *Spine*, 25:2381-6, 2000.
3. Asher, M.A. and Lai, S.M. and Burton, D.C. et al. The reliability and concurrent validity of the scoliosis research society-22 patient questionnaire for idiopathic scoliosis. *Spine*, 28:63-9, 2003.