

Transforaminal Versus Anterior Lumbar Interbody Fusion at L5-S1 in MIS Treatment of ASD Effect on Spinopelvic Parameters and Outcomes in Degenerative Scoliosis

E. Varley; G. Mundis; J. Uribe; P. Park; S. Tran; P. Nunley; A. Kanter; N. Anand; P. Mummaneni; K. Than; D. Okonkwo; R. Fessler; K.M. Fu; M. Wang; D. Chou; R. Eastlack; International Spine Study Group

Introduction

Two approaches to arthrodesis at the lumbosacral junction have demonstrated high rates of fusion with satisfactory outcome: anterior lumbar interbody fusion (ALIF) and transforaminal lumbar interbody fusion (TLIF). There are advantages and disadvantages regarding approach, sagittal alignment, and neural decompression.

Methods

Retrospective ASD multicenter study with inclusion criteria: >18 years of age, a component of MIS surgery (posterior percutaneous screws and/or MIS interbody fusions), and at least PT>20, SVA>5cm, PI-LL>10, or scoliosis>20 was queried. Patients with TLIF or ALIF at L5-S1 and minimum 2 year follow-up were included. Radiographic, clinical and surgical parameters were compared.

Results

82 pts were identified. No differences in preop spinopelvic sagittal parameters, EBL, OR Time or clinical outcome measures. Multivariate analysis resulted in greater LL with ALIF than TLIF (49.7? vs 40?, p=0.015), but no differences in other spinopelvic parameters or HRQOL measures (see table).. Major complications (COMP) occurred with similar rates after ALIF (16.7%) and TLIF (28.8%; p=0.166), but minor COMP occurred more frequently after TLIF than ALIF (53.8% v. 30%; p=0.037). Infection was more common after TLIF (15.4% v. 0%, p=0.024) as were implant COMPs (26.9% v 3.3%, p=0.008). 1 ALIF patient had rod fracture and screw loosening. TLIF had 3 rod fractures, 8 interbody migration, 1 subsidence, 3 screw breakage, and 1 screw malposition. Reoperation rate was similar (10% ALIF v. 26.9% TLIF; p=0.069). TLIF required 11 reops for implant COMPs and 1 implant related revision for ALIF (p=0.028).

Conclusions

ALIF and TLIF at L5-S1 resulted in similar HRQoL, OR time and EBL. ALIF resulted in fewer minor COMP than TLIF when performing MIS correction of ASD. ALIF at the lumbosacral junction was also associated with fewer implant-related COMP and reoperations when compared to TLIF.

Learning Objectives

By the conclusion of this session, participants should be able to describe the importance of using ALIF vs TLIF. Participants can discuss their experience and identify and effective interbody treatments for specific patient populations.