Does Interbody Fusion at L4-L5 and L5-S1 Lead a Lower Rate of Revision Surgery for Pseudarthrosis and Rod Fracture at the Lumbosacral Junction?

Michael Dinizo[1], Karnmanee Srisanguan, Tina Raman[2]
[1]Nyu-Langone, [2]NYU Langone Orthopedic Hospital

INTRODUCTION: Multiple rods spanning the lumbosacral junction and IBF may minimize the risk for pseudarthrosis and instrumentation failure. It remains unclear if IBF at the caudal levels of a long fusion reduces long term complications.

METHODS: 367 ASD patients (Age: 58 ± 16 y; mFI: .6 ± .7; Levels fused: 10.1 ± 4.8) with mean follow-up 68.1 months were divided into 2 groups: PSF only (PSF, n=192), and ALIF or TLIF (IBF, n=175). Outcomes evaluated were the rates of revision surgery for pseudarthrosis or rod fracture at the lumbosacral junction.

RESULTS: There was no significant difference in patient comorbidities. There was significantly greater EBL in the IBF group (2.4 L vs. 1.6 L, $p<0.0001$). Titanium interbody devices were used in 79.2% of cases and 5.5 mm cobalt chrome rods in 86.4%. There were no differences in BMP utilization. At final follow up there was no difference in correction of SVA (PSF, IB) (20.5 mm, 32.2 mm, p=0.13), coronal alignment (5.3 mm, 6.7 mm, p=0.65), or lumbar lordosis (6.9°, 9.9°, p=0.29) compared to preoperative baseline. There was no difference in rates of rod fracture at the lumbosacral junction (13.5%, 17.7%, p=0.27), or revision surgery for L4-L5 or L5-S1 pseudarthrosis (7.3%, 10.9%, p=0.23), sagittal malalignment (3.1%, 0.5%, p=0.07), or PJK (4.2%, 6.3%, p=0.36). There was no difference in the rate of neurologic complications between the two groups (19.8%, 28%, p=0.17), or rate of revision surgery for neurologic complications (3.1%, 4.6%, p=0.47).

DISCUSSION AND CONCLUSION: At long term follow up in a cohort of single institution patients, there were no differences in maintenance of deformity correction, or revision rates for rod fracture, pseudarthrosis, PJK, or neurologic complications when interbody fusion was utilized. The utilization of interbody technique at the lumbosacral junction is not clearly superior to posterior fusion only.