National Trends in the Surgical Management of Lumbar Spinal Stenosis in Adult Spinal Deformity Patients
Introduction

• This study examines national trends in the surgical management of lumbar spinal stenosis (LSS) in patients with and without coexisting scoliosis between 2010 and 2014. The study also examines revision rates for LSS procedures.

• There is wide variability in the surgical management of patients with LSS, with and without coexisting spinal deformity.
Methods

- Data were obtained from the Healthcare Cost and Utilization Project’s NIS Database. International Classification of Diseases 9th revision (ICD-9-CM) codes were used to identify all patients with a primary diagnosis of lumbar spinal stenosis. These patients were divided into two groups: 1) LSS alone and 2) LSS with coexisting scoliosis. The two groups were examined for one of three surgical outcomes: 1) decompression alone (discectomy, laminectomy), 2) simple fusion and 3) complex fusion (>3 vertebrae or 3600 fusion). The groups were then further examined for revision operations. National Inpatient Sample discharge weights were applied where relevant.
Results

- In 2014 national estimates of discharged patients indicated 76,275 patients with a primary diagnosis of LSS (population rate, 23.9; in the elderly (65+) the age-adjusted population rate was 95.4). Of these patients, 88.5% were managed through primary surgery (34.6% decompression, 47.2% simple fusion, 5.7% complex fusion). Between 2010 and 2014, the percent of decompression decreased from 47.5% to 34.6%, the percent of simple fusion increased from 35.3% to 47.2%, and the percent of complex fusion increased from 5.7% to 7.1% (P < 0.01). In patients with coexisting scoliosis, lumbar spinal stenosis was predominantly managed by simple fusion and complex fusion (15.5% decompression, 51.9% simple fusion, 27.3% complex fusion, in 2014). Revision rates were highest among patients without scoliosis managed with complex fusion (15.8% in 2014) compared to patients with scoliosis (8.8% in 2014). Patients with scoliosis who underwent decompression only had revision rates of 1.7% and 0.62% in 2010 and 2014, respectively.
Conclusion

• We observed a leveling-off of the rate of operation for patients with a primary diagnosis of LSS at around 88%. There was an increase in the rate of fusion and a decrease in the rate of decompression across all patient groups. We report no difference in revision rates between patients with and without scoliosis, except in those undergoing a complex fusion.