

Complications Profile in Patients with Chronic Kidney Disease Undergoing Lumbar Spine Decompression and Fusion

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Introduction

Chronic Kidney Disease (CKD) has been shown to have significant implications on patient care and overall surgical outcomes. However, little is known about the impact that CKD has on patients undergoing spine surgery. The aim of this study is to determine if there is a difference in intra- and post-operative complication rates between spine deformity patients undergoing lumbar spine decompression and fusion with and without CKD.

Methods

The medical records of 293 adult (=18 years old) spine deformity patients undergoing elective lumbar spine decompression and fusion at a major academic institution from 2006 to 2015 were reviewed. We identified 18 (6.1%) who had a clinical diagnosis of CKD (CKD: n=18; No-CKD: n=275). Patient demographics, comorbidities, intra- and post-operative complication rates were collected for each patient. The primary outcome investigated in this study was the rate of post-operative complications.

Results

Patient demographics and comorbidities were mostly similar between both cohorts. The CKD cohort had a significantly higher prevalence of hypertension, hyperlipidemia, and anemia compared to the No-CKD cohort. The median number of fusion and laminectomy levels operated, length of surgery and estimated blood loss were similar between both cohorts. Postoperative complication profile was significantly different between both cohorts, with the CKD cohort having significantly higher proportion of patients transferred to the ICU (52.9% vs. 29.3%, $p<0.001$), experiencing episodes of delirium (27.8% vs. 8.4%, $p=0.007$), UTI (27.8% vs. 6.9%, $p=0.0002$), and DVT (5.6% vs. 0.4%, $p=0.01$). Although not significant, the CKD cohort had a 2-fold higher rate of 30-day readmissions compared to the non-CKD cohort (CKD:27.8% vs. No-CKD:12.7% $p=0.07$).

Conclusions

Our study suggests that patients undergoing spinal decompression and fusion with CKD may experience higher complication rates than patients without CKD. Further studies are necessary to understand the impact CKD has on patients undergoing elective lumbar spine surgery in order to better overall patient care and reduce healthcare resources.

Learning Objectives

By the conclusion of this session participants should be able to:

- 1) Describe the implications that CKD has on post-surgical outcomes.
- 2 Discuss, in small groups, the impact CKD has on other aspects of patient care.
- 3) Identify an effective method to reduce post-operative complications in patients with CKD.