

## Association Between Pre-Operative Narcotic Use with Surgical Outcomes, Patient Reported Pain Scores and Ambulatory Status After Complex Spinal Fusion ( $\geq 5$ Levels) for Adult Deformity Correction

Aladine A. Elsamadicy MD; Nicolas Drysdale B.S.; Amanda Sergesketter; Syed Adil BS; Lefko Charalambous BS; Theresa Williamson MD; Joaquin Q Camara-Quintana; Muhammad M Abd-El-Barr MD PhD; C. Rory Goodwin MD PhD; Isaac O. Karikari MD

### Introduction

Despite growing investigation into the opioid crisis in the U.S., whether narcotic-use impact surgical outcomes after complex spinal fusion remains relatively understudied. The aim of this study was to evaluate whether there was an association between preoperative narcotic use with surgical outcomes, patient-reported pain scores and ambulatory status after complex spinal fusions.

### Methods

The medical records of 134 adult ( $\geq 18$  years-old) spine deformity patients undergoing elective, primary complex spinal fusion ( $\geq 5$ -levels) for deformity correction a major academic institution from 2005 to 2015 were reviewed. We identified 66(49.3%) patients who were actively taking narcotics prior to surgery and 68(50.7%) who were not. Patient demographics, comorbidities, intraoperative and postoperative complication rates were collected for each patient. Inpatient patient-reported pain scores and ambulatory status were also collected.

### Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of preoperative narcotic-use on perception of health status, 2) Discuss, in small groups, how to incorporate the use of preoperative narcotics on post-operative outcomes, 3) Identify an effective intervention to reduce post-operative narcotic use.

### Results

Patient demographics and comorbidities were similar between both cohorts, except for the Narcotic-User cohort having a greater mean age (57.5 years vs. 50.7 years,  $p=0.045$ ) and prevalence of depression (39.4% vs. 16.2%,  $p=0.003$ ). The median number of fusion levels operated, length of surgery, estimated blood loss, and complication rates were similar between both cohorts. Moreover, the post-operative complication profiles between the cohorts were also similar. The Narcotic-User cohort had significantly higher pain scores at baseline ( $6.7\pm 2.4$  vs.  $4.0\pm 3.4$ ,  $p<0.0001$ ) and at the first post-operative pain score reported ( $6.7\pm 2.8$  vs.  $5.3\pm 2.9$ ,  $p=0.013$ ), but had a significantly greater improvement from baseline to last pain score was (Narcotic-User:  $-2.5\pm 3.9$  vs. Non-User:  $-0.5\pm 4.7$ ,  $p=0.031$ ). While ambulation immediately before discharge was similar in both groups, Narcotic-User cohort had significantly greater ambulation on the first post-operative ambulatory day compared to Non-User cohort ( $103.8\pm 144.4$  vs.  $56.4\pm 84.0$ ,  $p=0.031$ ).

### Conclusions

Our study suggests that the preoperative use of narcotics may impact patient perception of pain and improvement after complex spinal fusions ( $\geq 5$  levels). Consideration of patients' narcotic status pre-operatively may facilitate tailored pain management and physical therapy regimens.