

## The Association Between Baseline Cognitive Impairment and Post-Operative Delirium in Elderly Patients Undergoing Surgery for Adult Spinal Deformity

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### Introduction

Post-operative delirium is common in elderly patients undergoing spine surgery and is associated with a longer and more costly hospital course and functional decline. Pre-operative cognitive impairment may be a risk factor for development of post-operative delirium. The aim of this study is to investigate the relationship between baseline cognitive impairment(CI) and post-operative delirium in geriatric patients undergoing surgery for degenerative scoliosis.

### Methods

Elderly subjects 65 years and older undergoing a planned elective spinal surgery for correction of adult degenerative scoliosis were enrolled in this study. Pre-operative cognition was assessed using the validated Saint Louis Mental Status (SLUMS) test. SLUMS is made up of 11 questions, which can give a maximum of 30 points. Mild cognitive impairment was defined as a SLUMS score between 21 and 26 points, while severe cognitive impairment was defined as a SLUMS score of = 20 points. Normal cognition was defined as a SLUMS score of = 27 points. Delirium was assessed daily using the Confusion Assessment Method (CAM) and was rated as absent or present on the basis of the CAM. The incidence of delirium was compared in patients with and without baseline cognitive impairment.

### Results

Twenty-two participants(18%) developed delirium post-operatively. Baseline demographics including age, gender, co-morbidities, and peri-operative variables were similar in patients with and without delirium. The length of in-hospital stays and 30-day hospital readmission rates were similar between both cohorts (5.33 days vs. 5.48 days) and (12.28% vs. 12%), respectively. Patients with pre-operative cognitive impairment had a higher incidence of post-operative delirium. One- and two-year patient reported outcomes scores were similar in patients with and without delirium.

### Learning Objectives

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

- 1) Describe the importance of cognitive impairment on surgical outcomes.
- 2) Discuss, in small groups, other the implications cognitive impairment has on postoperative delirium.
- 3) Identify an effective treatment that may reduce postoperative delirium.

### Conclusions

Cognitive impairment is a risk factor for development of post-operative delirium. Post-operative delirium may be associated with decreased pre-operative cognitive reserve. CI assessments should be considered in the pre-operative evaluations of elderly patients prior to surgery.