

Introduction

Geriatric patients undergoing lumbar spine surgery have unique needs due to the physiologic changes of aging. Chronic obstructive pulmonary disease(COPD) is a comorbidity that has shown to impact outcomes across various medical and surgical specialties. However, the effect that COPD has on elderly patients undergoing spine surgery is relatively unknown. The aim of this study is to investigate the impact that COPD has on post-operative complication rates, ambulation, and hospital length of stay for elderly spinal deformity patients following elective spinal fusion(=3-levels).

Methods

The medical records of 559 elderly (=60 years old) deformity patients undergoing elective spinal fusion (=3 levels) at a major academic institution from 2005 to 2015 were reviewed. We identified 60(10.7%) elderly patients with COPD and 499(89.3%) without (COPD:n=60; No-COPD:n=499). Patient demographics, comorbidities, post-operative complication, ambulatory status and readmission rates were collected for each patient. The primary outcome investigated in this study was complication rates and length of hospital stay.

Learning Objectives

- By the conclusion of this session, participants should be able to:
- 1) Describe the importance of COPD on functionality after spine surgery,
- 2) Discuss, in small groups, methods to reduce post-operative complications associated with COPD,
- 3) Identify an effective intervention that may prevent post-operative complications associated with COPD.

Results

Patient demographics and comorbidities were similar between both groups, with a difference in proportion of smokers (COPD: 25.0% vs. No-COPD: 9.6%,p=0.0004). Median [IQR] number of fusion levels(p=0.840), operative time (p=0.842), estimated blood loss (p=0.336), and incidences of durotomy (p=0.258) were similar between both cohorts. The COPD cohort experienced a higher rate of postoperative fever (10.0% vs. 3.0%,p=0.007) and pneumonia (5.0% vs. 0.4%,p=0.0004). There was significant difference in number of feet walked on the first day of ambulation after surgery (COPD: 58.6±78.4 vs. No-COPD: 84.0±102.8,p=0.040). The length of hospital stay was significantly longer in the COPD cohort compared the No-COPD cohort (7.7±6.4 days vs. 6.0±4.0,p=0.0498).

Conclusions

Our study demonstrates that elderly patients with COPD have increased lengths of stay and higher rates of post-operative pneumonia in the post-operative setting after elective spinal fusion. This risk determination identifies a potentially modifiable risk factor for increased utilization of healthcare resources.