

## Introduction

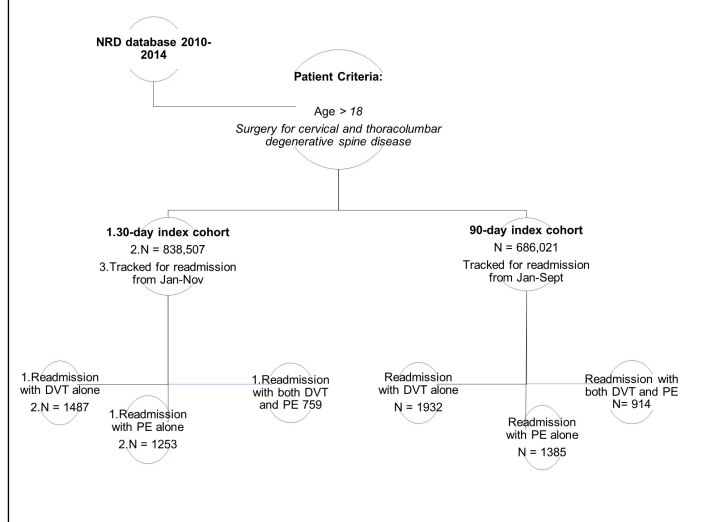
Patients who undergo spine surgery often experience extended postoperative immobility, placing them at risk for venous thromboembolic events (VTEs).

Readmissions for postoperative VTEs contribute to patient morbidity, demanding significant resources. The authors of this study aimed to determine the incidence and variables associated with readmission for VTE complications following spine surgery for degenerative disease. Multiple factors, recently associated with VTE development, including steroid use, were included in analysis.

## Methods

The authors of this study queried the Nationwide Readmission Database (NRD) from 2010 to 2014 for rates of VTE complications and associated complications in 30- and 90- day readmissions following elective spine surgery for degenerative disease. In addition in multivariate survey-adjusted logistic regression, we assessed demographic, hospital-related, and clinical variables associated with readmission for VTEs.

## Flow chart detailing inclusion and exclusion criteria for patient selection.



## Results

838, 507 degenerative spine cases were identified. Of these cases, the cumulative incidence of VTE-associated readmissions was 3499 (0.4%) at 30-days and 4231 (0.6%) at 90-days after index admission. 515,077 (61.4%) underwent surgery for thoracolumbar pathology while 323,430 patients had cervical pathology. Steroid use was associated increased VTE development at both 30 days (OR 1.58,  $p < 0.001$ ) and 90 days (1.97,  $p < 0.001$ ). Additionally, the following variables were predictive for VTE development at both 30- and 90- days on multivariate analysis: older age, male gender, presence of medical or neurological complications, thoracolumbar spine procedures, longer length of hospital stay, and discharge to an intermediate-care facility ( $p < 0.01$ ).

## Conclusions

Despite the low incidence of VTEs after degenerative spine surgery, their associated morbidity calls for judicious prophylaxis in high risk cohorts. The potential benefits of steroid use should also be carefully weighed against their potential for thromboembolic complications.

## Learning Objectives

1. Patients discharged to intermediate-care facilities were at higher risk for the development of VTEs. Vigilance should be maintained for these high-risk patients as they transition from inpatient hospital care to longer term nursing or rehabilitation facilities.
2. We found a significant relationship between steroid use and VTE development. While steroids are widely prescribed for their anti-inflammatory effects, these benefits must be balanced against thromboembolic complications.
3. Rates of readmission for VTE increased with each additional day of hospital stay on index admission, suggesting that robust rehabilitation and expeditious return to pre-morbid functional status is vital in improving patient outcomes.