

Abstract #1593.doc

Thromboembolic Disease after Cervical Spine Surgery: A review of 5405 surgical procedures and matched cohort analysis.

Introduction

The majority of the literature on venous thromboembolism (VTE) in spine surgery is limited to studies of thoracolumbar surgery. Furthermore, many of these studies involve analysis of high risk patients with spinal deformity, or trauma. Of the studies with broader inclusion criteria, several utilized screening surveillance methods which lead to over reporting. The incidence and risk factors for VTE following cervical spine surgery need to be better defined.

Methods

5405 patients were identified at our institution as having undergone cervical disectomy, laminectomy, corpectomy, laminoplasty, or fusion between 1995 and 2012. 85/5405 (1.57%) suffered either a DVT (55) or PE (51). The frequency of several medical comorbidities was determined. The cases were matched 2:1 to controls based on age, gender, and date of surgery. Data was collected regarding length of stay, indications, comorbid traumatic injuries, surgical approach, number of operated levels, blood loss, paralysis, use of iliac crest autograft, and staged surgery. Univariate and multivariate analysis were performed to determine significant predictors of thromboembolic disease.

Results

Several significant risk factors were identified for postoperative VTE in the 5405 patient cohort. Significant medical comorbidities included chronic venous insufficiency (OR=3.40), atrial fibrillation (OR=2.69), obesity (OR=2.67), and ischemic heart disease (OR=2.18). 82 VTE cases were matched to a cohort of 164 controls. (Table 1) Staged surgery (OR=28.0), paralysis (OR=19.0), combined anterior-posterior approach (OR=7.46), surgery for infection (OR=18.5), surgery for trauma (OR=11.1), comorbid traumatic injuries (OR > 10), oncologic procedures (OR = 5.2), use of iliac crest autograft (OR=4.16), two or more surgical levels (OR=3.48), blood loss greater than 300 cc (OR = 1.66), and length of stay five days or greater (OR=3.47) were all found to be significant risk factors for VTE ($p<0.05$) in a univariate analysis of the matched cohort. (Table 2) Multivariate analysis found staged surgery (OR=35.7), paralysis (OR=7.86), and nonelective surgery (OR=6.29) to be independent risk factors for VTE.

Conclusion

Although the incidence of VTE following cervical spine surgery is fairly low, we have identified several risk factors which are predictive. Of note, patients who underwent staged surgery, nonelective surgery, or suffered paralysis were several times more likely to have had a thromboembolic event in our study. More aggressive approaches to prophylaxis and surveillance in certain patient populations may be warranted.