

Low Molecular Weight Heparin Prophylaxis 24-36 Hours After Degenerative Spine Surgery: Risk Of Hemorrhage And Venous Thromboembolism

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Introduction

Venous thromboembolism (VTE) is a potentially fatal surgical complication best averted with dual mechanical/pharmacologic prophylaxis. While the necessity of pharmacologic prophylaxis is recognized in spinal cord injury patients, there is no consensus on its role in degenerative spine surgery, particularly after laminectomy with the attendant risk of epidural hematoma. The literature suggests a small but potentially devastating hemorrhage risk when pharmacologic prophylaxis is begun within 24 hours of spine surgery. The goal of this study is to assess the safety and efficacy of prophylactic low molecular weight heparin (LMWH) started 24-36 hours after routine spine surgery.

Methods

All cervical and lumbar laminectomy cases by the senior author were reviewed from 2007 to 2011. Single-level decompressions without fusion were excluded. Baseline and operative details were recorded. Sequential compression devices were used throughout admission and prophylactic LMWH was started postoperative day 1 at 10 pm. All cases of postoperative hemorrhage (epidural hematoma, superficial hematoma, persistent wound drainage), deep venous thrombosis, and pulmonary embolism were noted.

Results

401 patients underwent multilevel laminectomy or laminectomy with fusion (256 lumbar, 145 cervical). VTE risk factors (age > 60, smoking, obesity) were common (Table 1). 92% of the operations were for degenerative disease. No patients receiving LMWH 24-36 hours after surgery developed a hemorrhagic complication. Nearly half the patients had lower extremity ultrasound or chest CT, and VTE was diagnosed in 14 (3.5% of study population). **Conclusions:** Prophylactic LMWH carries a trivial hemorrhage risk 24-36 hours after spine surgery, and should be considered in all hospitalized spine patients. Even with aggressive prophylaxis, patients undergoing fusion or multilevel laminectomy are at significant risk for VTE.

 Table 1. Baseline characteristics and rates of hemorrhage

 and venous thromboembolism

n (%)Medical historyMean age63Male gender225 (56%)Tobacco use43 (11%)Obesity113 (28%)Presenting pathologyDegenerative367 (92%)Traumatic11 (3%)Infectious4 (1%)Neoplastic19 (5%)Operative detailsLumbar256 (64%)Cervical145 (36%)Revision surgery83 (21%)Mean # levels3.8Instrumentation311 (78%)Postoperative studies162 (40%)Lower extremity ultrasound162 (40%)Chest CT31 (8%)Complications0 (0%)PE4 (1%)VTE (aDVT or PE)14 (3.5%)	10 1	401 patients n (%)
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VTE (aDVT or PE) 14 (3.5%)	PE	4 (1%)
	VTE (aDVT or PE)	14 (3.5%)

Learning Objectives

By the conclusion of this session, participants should be able to: (1) Discuss the hemorrhage risk from LMWH started 24-36 hours after spine surgery (2) Discuss VTE risk factors common in the degenerative spine population (3) Appreciate the significant VTE risk in degenerative spine patients even with early dual prophylaxis.

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