TITLE: Peri-operative management of patients on anticoagulants using Thrombosis Risk Score

AUTHORS

Maria Manaloto-Angeles, MD; David Wong, MD; Philip Peng, MD, FRCPC; Teresa Cordes, RN; Frances Chung, MD, FRCPC.

AFFILIATION

Department of Anesthesia, Toronto Western Hospital, 399 Bathurst St., Edith Cavell 2-046
Toronto, ON M5T 2S8

INTRODUCTION

When patients on coumadin present for surgery, the perioperative management requires a balance between bleeding and clotting. Literatures suggest different management pathways. Based on review of literature and a local consensus panel, a Thrombosis Risk score (TRS) was derived. This study aims to evaluate the feasibility and safety of our management strategy using the TRS.

METHODS

The TRS assigned points to cardiac and non-cardiac factors according to their thromboembolic risk (Table). A final score was determined by adding the individual components. Patients were classified as high-risk (≥ 3) or low-risk (< 3) for thromboembolism. All patients had their coumadin stopped for 5 days preoperatively. High-risk patients were given low-molecular-weight heparin (LMWH) to bridge the gap while the low-risk patients were not. Coumadin was re-started in both groups 24h after the operation if there was no bleeding. In the high-risk group, LMWH was also re-started until the target INR was achieved.

With institutional REB approval, a retrospective chart review was done for patients utilizing this management strategy from January 2002 to December 2004. We recorded two complications: (1) thromboembolism (CVA, TIA, DVT confirmed by tests) and (2) hematoma or bleeding in the surgical site requiring re-exploration or blood transfusion, which occurred within a two-week postoperative period

RESULTS

A total of 104 patients were reviewed. The two most common indications for coumadin are atrial fibrillation (44%) and mechanical heart valve (23%). The mean age was 68 ± 13 years. 43% comprised orthopedics and 28% general surgical procedures. 89 belonged to the high-risk group, 15 to the low-risk group. All high-risk patients were compliant to LMWH therapy.

Bleeding occurred in 1 patient (1.1%) in the high-risk group in the form of hematuria, which required blood transfusion. In the low-risk group, 1 patient had haematoma (6.6%), which was surgically re-explored. There was one incidence of scrotal hematoma and one hemarthrosis in the high-risk group not requiring intervention. There was no incidence of thromboembolism.

DISCUSSION

Over a three-year period, perioperative management strategy utilizing the TRS was found to be feasible with acceptable rates of bleeding complications. Specifically, there were no perioperative thromboembolic complications.

THROMBOSIS RISK SCORE

I. Cardiac Risks	Score
a) Mechanical Heart Valve	3
b) Dilated Cardiomyopathy	3
c) Grade 4 LV Function	3
d) Mitral Stenosis	3
e) Demonstrated Thrombus in Echo	3
f) Large Akinetic Segment in Echo	2
g) Atrial Fibrillation	2
h) Idiopathic Hypertrophic Subaortic Stenosis	1
II. Non-Cardiac Risks	
a) Known Prothrombotic State	3
b) Precarious Cerebral Circulation	3
c) Thromboembolic Event < 30 days	3
d) Thromboembolic Event > 30 days	1
e) Age > 75 years old	1
Thrombosis Risk Score (total of individual point scores)	
<3 = Low-Risk Group: Stop coumadin 5 days preoperatively	
≥3 = High-Risk Group: Stop coumadin 5 days preoperatively and start subcutaneous low molecular weight heparin	

REFERENCES:

1. Douketis, JD et al. Low-Molecular-weight Heparin as Bridging Anticoagulation During Interruption of Warfarin. Arch Intern Med 2004; 64: 1319-1326
2. Watts, SA et al. Outpatient Management of the Chronically Anticoagulated Patient for Elective Surgery. Anaesth Intensive Care 2003; 31: 145-154

*REB, Research Ethics Board; CVA, **Cerebrovascular accident**; TIA, Transient Ischemic attack; DVT, Deep vein thrombosis