Patients on Long-Term Warfarin Undergo Gynecological Surgeries: A 10-Year Review of Peri-Operative Anticoagulation

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Abstract

Objective: The aim of this study was to review our experience with patients having gynaecological surgeries while on long-term anticoagulation and to postulate a better guide for their perioperative management.

Material and Methods: A retrospective review of all women on long-term warfarin who underwent gynaecological surgeries from January 2003 to December 2012. Data from medical records including operation reports and inpatient and outpatient charts were reviewed and analyzed.

Results: Sixty-seven cases from 58 patients were identified. Twenty and 38 patients underwent major and minor gynaecological surgeries, respectively. The incidence of postoperative bleeding was higher after major surgery (4 cases, 20%) than after minor surgery (1 case, 2.1%; $P = 0.025$). All bleeding complications occurred between postoperative day 3 and day 10. Three patients, who had resumption of warfarin at a lower dose and slowly stepped up, had no bleeding complications. None of our patients developed venous thromboembolic complications. There was one mortality due to septic shock.

Conclusion: Patients on long-term anticoagulation have a trend of increased bleeding complications after major gynaecological surgeries than in minor gynaecological surgeries. We suggest that delaying resumption of warfarin at a lower dose may have a role in reducing the risk of postoperative bleeding without increasing the risk of venous thromboembolism.

Résumé

Objectif : Cette étude avait pour but d'analyser le traitement de patientes ayant subi une chirurgie gynécologique alors qu'elles étaient sous anticoagulothérapie à long terme et de proposer une meilleure méthode de prise en charge périopératoire.

Matériaux et Méthodologie : Nous avons mené une étude rétrospective portant sur des femmes prenant de la warfarine à long terme et ayant subi une chirurgie gynécologique entre janvier 2003 et décembre 2012. Nous avons examiné et analysé les données se trouvant dans leurs dossiers médicaux, y compris celles venant des rapports de chirurgie, des dossiers d'hospitalisation et des dossiers de la clinique externe.

Résultats : Nous avons retenu 67 cas de chirurgies, réalisées sur 58 patientes. Vingt patientes ont subi une chirurgie gynécologique majeure, tandis que les 38 autres ont subi une chirurgie mineure. L'incidence de saignements en période postopératoire était plus élevée après une chirurgie majeure (quatre cas; 20 %) qu'après une chirurgie mineure (un cas; 2,1 %; $P = 0.025$). Toutes les complications hémorragiques sont survenues entre le troisième et le dixième jour suivant la chirurgie. Trois patientes ont repris leur traitement de warfarine à une dose plus faible qu'avant l'intervention, puis augmenté celle-ci graduellement; elles n'ont connu aucune complication hémorragique. Aucune patiente n'a eu de thromboembolie veineuse. Une patiente est décédée d'un choc septique.

Conclusion : Les patientes sous anticoagothérapie à long terme ont tendance à présenter un risque plus élevé de complications hémorragiques après une chirurgie gynécologique majeure qu'après une chirurgie mineure. Nous croyons qu'attendre avant de reprendre le traitement de warfarine et commencer avec une dose plus faible qu'avant l'intervention pourrait réduire le risque de saignements postopératoires, sans augmenter le risque de thromboembolie veineuse.

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Key Words: Warfarin, gynaecologic surgery, haemorrhage, postoperative complications

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INTRODUCTION

Patients on long-term anticoagulation such as warfarin undergoing operations are often a concern and challenge to surgeons. Despite good haemostasis, these patients are more prone to bleeding complications intraoperatively and postoperatively. Careful perioperative management by withholding and timely restarting warfarin may minimize bleeding complications. Balancing between the risk of bleeding complication and venous thromboembolism is often difficult but crucial in this group of patients.

In patients on long-term anticoagulation with warfarin, the risk of bleeding complication is reported to range from 0.7% to

20% in major surgeries.[1–4] Clearly, the extent of surgery affects the risk of bleeding, and thus the management of perioperative anticoagulation has to be tailored to different types of surgery. The Prospective Peri-operative Enoxaparin Cohort Trial (PROSPECT), a prospective cohort study, showed a significant difference in bleeding risk between minor and major surgery—0% and 20%, respectively—despite perioperative bridging therapy with low molecular weight heparin.[3] On the other hand, a meta-analysis of patients on warfarin undergoing dental surgery[5] and another prospective study on hand surgery[6] showed low, insignificant risk of bleeding complications in patients on warfarin and concluded that discontinuing warfarin is unnecessary in these procedures. Previous studies have shown increased risk of mortality due to venous thromboembolism in patients discontinuing warfarin or altering their anticoagulation therapy.[7,8] Currently, there is lack of guidelines or evidence on the optimal timing of perioperative adjustments of warfarin in patients undergoing gynaecological surgeries. Moreover, data available are heterogeneous, which poses a great challenge in guiding the surgeon's management. The aim of this study was to review our experience with patients having gynaecological surgeries while on long-term anticoagulation and to postulate a better guide to their perioperative management.

MATERIAL AND METHODS

This retrospective review was carried out at the Department of Obstetrics and Gynecology at Queen Mary Hospital, a hospital affiliated with the University of Hong Kong. The study was approved by the Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster. Informed consent was not required, as this was a retrospective analysis. Patients admitted to the general gynaecology ward who were prescribed warfarin during the perioperative period between January 2003 and December 2012 were identified from the pharmacy database. The medical records were reviewed for collection of data. Inclusion criteria include patients who were on warfarin for at least 3 months prior to operation and had gynaecological operations in the Queen Mary Hospital. Patients who did not have surgery during admission, were on an anticoagulant other than warfarin, had other risk factors for bleeding such as congenital bleeding disorders and thrombocytopenia, or were diagnosed to have malignancies were excluded from the study.

Patients were divided into two groups based on the extent of the operation: major and minor. Operations with expected operation time of <1 hour were classified as major operations, such as hysterectomies, ovarian cystectomies, and salpingo-oophorectomies irrespective of the routes of surgery. All other surgeries, with expected operation time of 1 hour or more, such as diagnostic and operative hysteroscopies, vaginal myomectomies, and suction evacuations were grouped under minor operation. The classification of operative extent was based on the recommendation from the National Institute for Health and Care Excellence Guidelines on reducing the risk of venous thromboembolisms in patients admitted to the hospital, where they suggest thromboprophylaxis for patients undergoing pelvic surgery that lasts for 1 hour or more as the cutoff.[9]

The primary outcome was postoperative bleeding complication, which was defined by the development of haematoma or haemoperitoneum, identified on physical examination or imaging, or required blood transfusion or re-operation. Secondary outcomes included intraoperative bleeding, other postoperative morbidity and mortality, such as infection, venous thromboembolic events, and postoperative fever. Types of bridging therapy and indications for long-term anticoagulation were also reviewed. Subgroup analysis was performed when comparing different groups with complications and different indications of long-term warfarin therapy.

Data were analyzed by SPSS version jn20. Categorical data of more than two categories were compared using the one-way ANOVA test. Continuous data were assessed by the Student *t* test where appropriate. Nominal data were assessed by the chi-square test or Fisher's Exact Test where appropriate. Statistical significance was set at $P < 0.05$.

RESULTS

Throughout the 10-year period, 67 cases from 58 patients who met the criteria for study were identified. The mean age was 51.3 ± 15.1 years. There were 20 and 47 major and minor operations, respectively. Table 1 shows the indications and dosages for preoperative oral anticoagulation, and the different strategies for anticoagulation management in the perioperative period. The incidence of postoperative bleeding complications was significantly higher following major (20.0%) than following minor surgeries (2.1%, $P = 0.025$). Major surgeries had longer operative time and more intraoperative blood loss than that of minor surgeries, as shown in Table 1.

MAJOR SURGERY

Twenty patients had major surgery. The types of operation performed in this group included total abdominal hysterectomy in 8 patients (40%), vaginal hysterectomy with or without laparoscopic assistance in 5 patients (25%), laparoscopic ovarian cystectomy or salpingo-oophorectomy in

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