

Preoperative Bleeding Risk Assessment

Daza Villa Tavata Lizbeth¹, Cárdenas Mora Oscar²

^{1,2}Hospital General de zona No.1 IMSS Villa de Álvarez, Colima

ABSTRACT

Perioperative bleeding is a common complication of surgery that can increase patient morbidity and mortality. Careful patient assessment and early identification of risk factors are critical in preoperative management. In addition, the patient's history of blood transfusion, optimization of hemostasis, and discontinuation of anticoagulants and antiplatelets prior to surgery should be considered.

KEYWORDS: perioperative bleeding, surgery, complications

ARTICLE DETAILS

Published On:
24 May 2023

Available on:
<https://ijmscr.org/>

INTRODUCTION

Perioperative bleeding is a common complication of surgery that can increase patient morbidity and mortality. Therefore, proper preoperative management is essential to reduce the risk of bleeding and improve surgical outcomes. In this literature review, risk factors for perioperative bleeding, preoperative patient assessment, and preoperative management strategies to reduce the risk of bleeding will be discussed.

Perioperative bleeding is a common complication of surgery that can occur in any surgical procedure. It is estimated that the incidence of perioperative bleeding ranges from 1-5% in general surgical procedures to 10-20% in major surgical procedures, such as cardiac surgery and vascular surgery. Perioperative bleeding is also a leading cause of mortality and morbidity in patients undergoing surgery.

Perioperative bleeding can have serious consequences for the patient, such as hypovolemia, anemia, organ failure, need for blood transfusion and increased hospital stay. In addition, perioperative bleeding can also increase the risk of infections and postoperative complications, such as thrombus formation and pulmonary embolism.

METHODS

For this literature review, a comprehensive search of the scientific literature in several databases was conducted. Keywords such as "preoperative management", "perioperative bleeding", "preoperative evaluation" and "surgery" were used. We selected relevant studies and extracted relevant data.

Risk factors for perioperative bleeding

Assessment of risk factors for perioperative bleeding is essential in preoperative management. Common risk factors include:

Elderly

Obesity

High blood pressure

Diabetes

Renal and hepatic dysfunction

Use of anticoagulants and antiplatelets

Patients with one or more of these risk factors are at increased risk of perioperative bleeding and should be carefully evaluated prior to surgery.

Preoperative evaluation of the patient

Preoperative evaluation of the patient should include careful assessment of risk factors for perioperative bleeding. In addition, other relevant factors, such as anemia, renal and hepatic function, and the nutritional status of the patient should be evaluated. It is also important to evaluate the use of medications, such as anticoagulants and antiplatelets, as these may increase the risk of perioperative bleeding. If necessary, additional tests, such as coagulation tests and platelet counts, should be performed to assess the risk of perioperative bleeding.

There are several preoperative management strategies that can reduce the risk of perioperative bleeding. Some of these strategies include:

Discontinuation of anticoagulants and antiplatelets: In patients who are taking anticoagulants and antiplatelets, the risk-benefit of continuing these medications before surgery should be carefully evaluated. In some cases, it may be

Preoperative Bleeding Risk Assessment

necessary to stop these medications before surgery to reduce the risk of bleeding.

Hemoglobin optimization: In patients with anemia, hemoglobin should be optimized prior to surgery to reduce the risk of perioperative bleeding. This can be achieved by administering iron and/or blood transfusion.

Control of arterial hypertension: In patients with arterial hypertension, blood pressure should be carefully monitored before surgery to reduce the risk of perioperative bleeding.

Glycemic control: In patients with diabetes, blood glucose should be carefully monitored prior to surgery to reduce the risk of perioperative bleeding.

Evaluation and optimization of renal and hepatic function: In patients with renal and hepatic dysfunction, renal and hepatic function should be carefully evaluated prior to surgery and optimize this function to reduce the risk of perioperative bleeding.

Risk factor	Punctuation
Uncontrolled high blood pressure	1
Impaired kidney function (creatinine >2.6 mg/dL or dialysis)	1
Hepatic impairment (cirrhosis or liver enzymes 3 times above the upper limit of normal)	1
History of hemorrhagic event	1
History of thromboembolic event	1
Age over 65 years	1
Concomitant use of drugs that increase the risk of bleeding (e.g., anticoagulants, antiplatelets, NSAIDs, etc.)	1
Abnormal heart rate (such as atrial fibrillation)	1

The total score is obtained by adding the points corresponding to each risk factor present in the patient. Patients with a score greater than or equal to 3 are at high risk of bleeding and should be carefully evaluated and monitored before and after any invasive procedure.

DISCUSSION

Careful preoperative evaluation is essential to identify and optimize risk factors for perioperative bleeding. Patients should undergo a complete medical history evaluation and physical examination, including a detailed review of current medications and the presence of concomitant diseases. It is important to assess the patient's liver, kidney, and hematologic function, as dysfunction of these systems may increase the risk of perioperative bleeding.

In addition, the use of anticoagulants and antiplatelets should be carefully evaluated in each patient prior to surgery. Patients taking these medications have an increased risk of perioperative bleeding due to inhibition of blood clotting. Therefore, it is essential that these medications are properly discontinued prior to surgery to reduce the risk of perioperative bleeding.

However, discontinuation of anticoagulants and antiplatelets may also increase the risk of thromboembolic events, so the decision to discontinue these medications should be made carefully and in consultation with the attending physician and hematology specialist.

The anticoagulation management strategy varies depending on the type of drug and the surgical procedure. Direct oral anticoagulants (DOACs) have become a popular alternative to traditional blood thinners, such as warfarin, due to their efficacy and safety. However, discontinuation of DOACs is

more difficult to reverse in case of unexpected bleeding, and specific reversal agents have been developed for DOACs. Therefore, careful evaluation of each patient is recommended before deciding to discontinue DOACs prior to surgery.

In some cases, perioperative administration of antifibrinolytics may also be helpful in reducing the risk of perioperative bleeding. Antifibrinolytics prevent the dissolution of blood clots by inhibiting the enzyme plasmin, which breaks down fibrinogen and fibrin in the blood. Perioperative administration of antifibrinolytics has been shown to be effective in reducing bleeding in surgical procedures such as total hip and knee arthroplasty. However, the administration of antifibrinolytics may also increase the risk of thromboembolic events, so their use should be carefully evaluated in each patient.

Importantly, prevention of perioperative bleeding depends not only on preoperative management, but also on careful perioperative management. Surgeons and surgical staff should be trained to promptly identify and manage any perioperative bleeding, and blood transfusion protocols should be strictly followed if necessary. In addition, measures should be taken to minimize the risk of thromboembolic events, such as administration of perioperative anticoagulants and early mobilization after surgery.

Regarding the importance of preoperative management for the risk of bleeding, it is important to highlight that perioperative bleeding is a serious complication that can lead to adverse outcomes, such as the need for blood transfusion, prolongation of hospitalization, the need for intensive care and mortality. Therefore, it is essential to take steps to identify and optimize risk factors for perioperative bleeding in each patient.

Preoperative Bleeding Risk Assessment

CONCLUSION

Careful patient assessment and early identification of risk factors are critical in preoperative management. In addition, the patient's history of blood transfusion, optimization of hemostasis, and discontinuation of anticoagulants and antiplatelets prior to surgery should be considered. More studies are needed to evaluate the effectiveness of different preoperative management strategies and improve surgical outcomes in patients at high risk of perioperative bleeding.

REFERENCES

- I. Susmallian, S., Danoch, R., Raskin, B., Raziel, A., Barnea, R., & Dvora, P. (2020). Assessing bleeding risk in bariatric surgeries: a retrospective analysis study. *Digestive Diseases*, 38(6), 449-457.
- II. Mihalj, M., Carrel, T., Urman, R. D., Stueber, F., & Luedi, M. M. (2020). Recommendations for preoperative assessment and shared decision-making in cardiac surgery. *Current anesthesiology reports*, 10, 185-195.
- III. Ambaglio, C., Zane, F., Russo, M. C., Preti, P. S., Scudeller, L., Klersy, C., ... & Squizzato, A. (2021). Preoperative bleeding risk assessment with ISTH-BAT and laboratory tests in patients undergoing elective surgery: A prospective cohort study. *Haemophilia*, 27(5), 717-723.
- IV. Licameli, G. R., Jones, D. T., Santosuosso, J., Lapp, C., Brugnara, C., & Kenna, M. A. (2008). Use of a preoperative bleeding questionnaire in pediatric patients who undergo adenotonsillectomy. *Otolaryngology—Head and Neck Surgery*, 139(4), 546-550.
- V. Vuylsteke, A., Pagel, C., Gerrard, C., Reddy, B., Nashef, S., Aldam, P., & Utley, M. (2011). The Papworth Bleeding Risk Score: a stratification scheme for identifying cardiac surgery patients at risk of excessive early postoperative bleeding. *European journal of cardio-thoracic surgery*, 39(6), 924-930.
- VI. Chandler, W. L. (2013). Emergency assessment of hemostasis in the bleeding patient. *International journal of laboratory hematology*, 35(3), 339-343.
- VII. Gombotz, H., & Knotzer, H. (2013). Preoperative identification of patients with increased risk for perioperative bleeding. *Current Opinion in Anesthesiology*, 26(1), 82-90.
- VIII. Gombotz, H., & Knotzer, H. (2013). Preoperative identification of patients with increased risk for perioperative bleeding. *Current Opinion in Anesthesiology*, 26(1), 82-90.
- IX. Arnold, D. M., Anderson, J., & Kearon, C. (2009). Preoperative risk assessment for bleeding and thromboembolism. *BMJ*, 339.