

Patient Blood Management: what specialized nursing intervention in the patient undergoing cardiac surgery?

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Abstract

A mathematical model was applied to the hematopoietic reconstitution study of a group of thirteen patients with Hodgkin and Non-Hodgkin Lymphoma after having undergone Autologous Transplantation of Hematopoietic Progenitors in the Hematology Service of the Surgical Clinical University Hospital "Arnaldo Malian". Based on the model, the recovery process dynamics were computationally simulated, and the hematopoietic recovery times of each patient collected in the clinical data were compared with the times predicted by the simulations. Despite the simplicity of the mathematical model, it is surprising how well the reconstitution curves coincide with the clinical data collected, in such a manner that the model is able to predict with acceptable accuracy when hematopoietic recovery occurs. Model forecasts can be used to estimate the average duration of the pre-implant transplant and the next, which, in turn, will increase the number of patients benefited by this procedure.

Keywords: patient blood management, nursing care, cardiac surgery

Background

Patient Blood Management (PBM) is a multidisciplinary, patient-centered program that promotes the application of evidence-based medical and surgical concepts to optimize

healthcare in order to preserve the patient's own blood, minimizing blood loss and bleeding. Based on the promotion and dissemination of a culture of continuous quality improvement through the dissemination of good practices as a guarantee of patient safety.

Objectives

To raise nurses' awareness of the importance of their interventions in PBM. To

facilitate nursing teams learning about PBM and support clinical practice with the formulation and implementation of standards and procedures for practice in PBM.

Methodology

Based on bibliographic research and on consultation with several protocols, an awareness-raising

intervention was designed for nurses at various moments during the internship in the emergency department and in the multipurpose intensive care unit.

Results

A review of the literature by Helmer et al (2022) reinforces that 98% of patients in intensive care have anemia, as well as, morbidity and mortality rates. On the other hand, the inappropriate use of blood may have a negative impact on health outcomes in terms of increased mortality, length of stay, rate of hospital readmissions, and occurrence of adverse effects.

Discussion

Through the awareness-raising action, it was possible to alert nurses to the early detection and treatment of anemia, showing the importance of developing good practice procedures on anemia and coagulation management, as well as

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minimizing iatrogenic blood loss.

Conclusion

The PBM is a paradigm shift in culture and a multidisciplinary approach regarding

the handling of blood components, supported by solid evidence that has demonstrated important gains in

clinical and economic terms, in which the specialist nurse plays a key role as a care manager who optimizes

the care process at the decision-making level, using a facilitating learning methodology in his/her area of expertise.

Introduction

Patients undergoing cardiac surgery present, due to their surgical complexity, a high bleeding risk, an important need for anticoagulation, exposure to CEC, and, consequently, a high transfusion risk⁴. Therefore, programs such as Patient Blood Management (PBM) are fundamental in the promotion and dissemination of a culture of continuous quality improvement in which nurses play a key role in the dissemination of PBM good practices, as a guarantee of patient safety in the pre, intra and postoperative periods of cardiac surgery [1].

PBM is a multidisciplinary, patient-centered program that promotes the application of evidence-based medical and surgical concepts to optimize care in order to preserve their own blood, minimize blood loss and bleeding and optimize coagulation [2].

It is a program in growing evolution in health institutions in Portugal, with great emphasis on cardiac surgery. The role of the nurse specialist in this area is primordial in identifying strategies and needs for its efficient, safe, and effective implementation with a view to patient safety in the pre, intra and postoperative periods of cardiac surgery.

It is extremely important to raise nurses' awareness of the importance of their interventions in PBM in the setting of the cardiovascular patient. Facilitate the learning of nursing teams on PBM and support clinical practice with the formulation and implementation of standards and procedures for PBM practice.

Evidence shows that 98% of patients in intensive care after cardiac surgery have anemia, of whom 40%-50% have hemoglobin <9 g/dl, increasing the administration of blood products and the rate of morbidity and mortality [3,4]. Furthermore, inappropriate use of blood can have a negative impact on health outcomes, with increased mortality and length of stay, hospital readmissions, and adverse events [5,6].

Alerting nurses caring for the cardiovascular patient to the early detection and treatment of anemia, showing the importance of developing best practice procedures in the context of cardiac surgery on the management of anemia and coagulation, as well as minimizing iatrogenic blood loss, is a primary role of nurses specializing in the critically ill.

The development of best practice procedures on the use of blood products and antithrombotic therapy to optimize coagulation, as well as blood sampling, acute transfusion reactions and intravenous iron administration, allows for minimizing blood loss

during hospitalization, using patient blood conservation strategies and evidence-based best practice methods. Reduce phlebotomy-associated blood loss: encourage medical staff to order only relevant laboratory studies postoperatively; eliminate extra tube collection; collect the minimum volume of blood needed for tubes; reduce the volume of blood wasted when collected via radial or central venous catheter and reinfuse it aseptically; use closed blood systems; reduce collections for blood gas in intensive care units; and advocate non-invasive hemoglobin measurement.

During and after cardiac surgery, it is essential to manage coagulation by monitoring temperature, pH and calcium levels, and always by monitoring the blood pressure.

Conducting follow-up nursing visits after discharge to assess the hematological response of patients with iron deficiency anemia and adjusting nursing teaching where necessary is an important pathway for nurses to take towards implementing PBM beyond the hospital setting, but also in primary health care.

PBM is a paradigm shift in the culture and multidisciplinary approach to the handling of blood components, supported by solid evidence that has demonstrated important gains in clinical and economic terms, in which the specialist nurse has a fundamental role as a care manager who optimizes the care process at the decision-making level, using a methodology that facilitates learning in their area of expertise [1]. It is a program based on the promotion and dissemination of a culture of continuous quality improvement through the dissemination of good practices as a guarantee of patient safety [1].

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