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Marina Ayres Delgado *

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Short Communication

Conservative Blood Management and Parameters That We Should Take into Account to Avoid Transfusions in A Jehovah's Witness Patient

Marina Ayres Delgado [1]*, Luana Assis Ferreira [2], Lorena Machado Marques Faria [1], Jadson Lardy Lemes [1]

[1]Hospital das Clínicas da Universidade federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

[2]Programa de Pós-Graduação em ciências da Saúde, Santa Casa de Belo Horizonte Ensino e Pesquisa, Belo Horizonte, Minas Gerais, Brazil.

***Corresponding Author:** Marina Ayres Delgado, Hospital das Clínicas da Universidade federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

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Abstract:

Jehovah's witness refusion to blood products is based on the interpretation of the bible as blood transfusion carries itself potential risks and is a special issue in this group of patients this report suggest that blood transfusion should be guided by personal triggers, based on hemodynamic and laboratory indices associated with age and comorbidities.

Keywords: conservative blood management; pharmacologic; blood cells

Introduction

There are many reasons why patients choose not to accept blood components with the majority being due to religious beliefs. There are approximately 8,5 million Jehovah's witnesses in the world and around 150,000 live in Great Britain and Ireland. The position of the Jehovah's witness is that if a patient accepts a blood component transfusion, he may be considered as having chosen to leave the faith [1,2].

A Jehovah's witness patient will not accept a transfusion of whole blood nor the primary components that are red cells, fresh frozen plasma, and platelets. However, some of them permitted to accept products derived by further processing of the primary blood components as cryoprecipitate, fibrinogen concentrate, prothrombin complex concentrate, fibrin glue, and human albumin solution. Currently, several strategies to allow reduction of blood products transfusion are in place, such as preoperative red cell mass increase, prevention of anemia, reduction of intraoperative bleeding, and utilization of recombinant coagulation factors concentrate [1,3].

Pharmacologic agents that reduce blood losses, perioperative blood salvage, and hemodilution techniques can be used for blood conservation. Tanaka et al, showed that increasing red cell mass with erythropoietin and iron therapy to a target hemoglobin level of 12g/dl is associated with a reduction in major adverse events when caring for patients that refuse blood transfusion. One of these blood conservation techniques is Cell Salvage, a strategy in which the blood lost on the surgical field is collected and immediately prepared to be returned to the patient, as needed. Data in the literature concluded that autologous cell salvage is safe and reduces allogeneic transfusions. The preoperative donation, that is, donation of the patients' own blood a few weeks before surgery with the blood being given back to the patient during surgery is not acceptable for the interruption of the connection between the blood and the body [4,5].

Acute normovolaemic haemodilution (ANH) in which blood is taken from the patient into a bag containing anticoagulant before the start of surgery, kept in the operating room, and given back to the patient during surgery may be acceptable since a continuous connection between the patient and the blood bag be maintained. The aims in the perioperative management of a patient who refuses blood components are minimized blood loss, optimizing oxygen delivery and consumption, enhancing preoperative hemoglobin levels, correcting coagulation defects and promoting hemostasis, optimization of clinical and nutritional state [6].

Discussion

During the anesthetic management of a Jehovah's witness, efforts should be made to minimize blood loss, including the adoption of lower transfusion triggers. Blood transfusion could be lifesaving but carries itself risks of infections, immunosuppression, immunoreactions, aside from high costs to the medical system [1].

Studies showed that, during pediatric cardiac surgery, the transfusion was independently associated with increased mortality, prolonged duration of mechanical ventilation, increased need for infusion of vasoactive agents, and increased duration of pediatric intensive care unit. Blood conservative methods consist of techniques that minimize blood loss and improve patients' own supply with better outcomes and it should be the first effort during any surgery, especially in Jehovah's Witness [7].

Iron, vitamin B12, folic acid, and antifibrinolytics can be used to improve patient storage. The adequacy of tissue oxygenation is determined by the balance between the oxygen delivery (DO2) to the tissues and the oxygen consumption (VO2). Central venous oxygen saturation (ScvO2) is a parameter obtained by aspiration of blood from the central venous catheter and is often used as a marker of the balance between DO2 and VO2, indicating the level of venous oxygenation of the brain and upper part of the body. Although one of the most common causes of inadequate DO2 in the perioperative setting is anemia, the Hb level alone should not be the only factor on which the indication of the need for transfusion is based [8].

Additional parameters like clinical signs (confusion, tachycardia, elevation or depression of ST-segment), serum lactate level, and hemodynamic measurements like ScvO2, central venous-to-arterial carbon dioxide difference, oxygen extraction (O2ER) should be analyzed in order to obtain information about the relationship between anemia and the need for blood administration. A prospective observational study showed that ScvO2 is a good indicator of transfusion. The results of an animal study showed that anemia-induced change in oxygen balance during an isovolumic-hemodilution can be monitored bay ScvO2 [8].

Conclusion

We believe that not only the Hb levels but other physiological signs should take into account before using red blood cells to reduce the number of unnecessary transfusions.

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