

Preoperative Anemia Management: Optimizing Patient Outcomes

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DESCRIPTION

Anemia is a common condition encountered in patients undergoing surgery, with a prevalence ranging from 20% to 40%, depending on the patient population and the type of surgery. Preoperative anemia is a significant concern because it is associated with increased perioperative morbidity, mortality and the need for blood transfusions, which carry their own risks. Effective preoperative anemia management is important for optimizing patient outcomes and improving surgical success. Anemia is defined as a decrease in the number of Red Blood Cells (RBCs) or hemoglobin concentration, leading to reduced oxygen-carrying capacity of the blood.

In the context of surgery, anemia can be caused by various factors, including chronic diseases (such as chronic kidney disease or cancer), nutritional deficiencies (iron, vitamin B12, folate), blood loss or bone marrow disorders. Preoperative anemia can negatively impact the patient's ability to tolerate surgical stress. The decreased oxygen delivery to tissues can lead to hypoxia, affecting wound healing and increasing the risk of complications such as infections, cardiovascular events and prolonged hospital stays. Additionally, anemic patients are more likely to require blood transfusions during or after surgery, which can further increase the risk of adverse outcomes, including immunosuppression, transfusion reactions and transmission of infections.

Treatment strategies for preoperative anemia

The treatment of preoperative anemia depends on its underlying cause and the time available before surgery. The following are key strategies for managing preoperative anemia:

Iron supplementation: Iron deficiency is the most common cause of anemia worldwide and is often the primary focus in preoperative anemia management. Oral iron supplementation is the first-line treatment for iron deficiency anemia, particularly in cases where surgery is scheduled weeks to months ahead. Oral iron is effective, but its absorption can be limited by gastrointestinal factors and it may take several weeks to improve hemoglobin levels.

For patients with severe anemia or when surgery is near, Intravenous (IV) iron supplementation is preferred. Intravenous iron is more rapidly absorbed and can significantly increase hemoglobin levels within a short period, making it suitable for patients who require urgent correction of anemia.

Erythropoiesis-Stimulating Agents (ESAs): In cases where anemia is due to chronic disease or other non-iron deficiency causes, Erythropoiesis-Stimulating Agents (ESAs) may be used. ESAs stimulate the production of RBCs in the bone marrow and are often combined with iron supplementation to enhance their effectiveness. They are particularly useful in patients with chronic kidney disease or cancer-related anemia. However, the use of ESAs must be carefully monitored, as they can increase the risk of thromboembolic events.

Vitamin B12 and folate supplementation: For patients with anemia due to vitamin B12 or folate deficiency, appropriate supplementation is necessary. Vitamin B12 deficiency is often treated with intramuscular injections, while folate deficiency can be managed with oral folic acid. These treatments are typically straightforward and can effectively restore normal hemoglobin levels when the deficiency is the primary cause of anemia.

Optimization of chronic conditions: Patients with chronic conditions such as kidney disease, inflammatory diseases or malignancies may have anemia related to their underlying disease. Managing these conditions and optimizing their treatment is important for improving anemia. For example, patients with chronic kidney disease may require more aggressive management of their renal function and anemia, including the use of ESAs and IV iron.

Blood conservation techniques: In addition to correcting anemia, strategies to minimize blood loss during surgery are important. These include blood conservation techniques such as preoperative autologous blood donation, intraoperative cell salvage, and the use of antifibrinolytic agents to reduce bleeding. These techniques can help reduce the need for allogeneic blood transfusions and their associated risks.

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CONCLUSION

Preoperative anemia management is a key component of perioperative care, with significant implications for patient outcomes. By identifying and treating anemia before surgery, healthcare providers can reduce the risk of complications, decrease the need for blood transfusions and improve overall surgical success. A multidisciplinary approach, timely intervention

and careful monitoring are key to achieving the best possible outcomes for patients with preoperative anemia. Monitoring the patient's response to anemia treatment is also essential. Follow-up blood tests should be performed to assess hemoglobin levels and ensure that the treatment is effective. Adjustments to the treatment plan may be needed based on the patient's response and the presence of the surgery.