

# Preemptive PRBC transfusion or, pre operative blood transfusion clinical opinion

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## Opinion

### Introduction

Bleeding during surgical procedures varies depending on the type of operation, surgical time and also on accompanying bleeding disorders. Intraoperative massive bleeding could eventually develop dramatically with possible serious complications; hypotension, compromised oxygen transport, massive blood transfusion (with a list of accompanying risks), loss of coagulation factors with resulting increased blood loss, etc.

Moreover, cross-matching of blood during surgery might be delayed for up to several hours when antibodies are detected by patient or blood unit. This could be a very crucial time in case of heavy bleeding. This article represents the opinion that for selected patients and operations, giving Packed Red Blood Cells (PRBC'S) before surgery is in favour of patient's safety. Anaemia is a well-known medical condition that is accompanied by postoperative complications with serious impact on long-term morbidity and even mortality.

In an article in the Journal of gastric cancer published on December 2010, the author concluded that there is a direct negative relation between preoperative transfusion and long-term prognosis in patients receiving gastric cancer surgery. The author mentioned in this study that patients in the transfusion group took aspirin or clopidogrel, were at more advanced tumor stages and advanced nodal metastasis compared to the non-transfusion group.<sup>1</sup>

In a cohort study published in anaesthesiology in March 2009, it was concluded that anaemia is a common condition in surgical patients and independently associated with increased mortality. Anaemia was defined as a haemoglobin concentration less than 12.0 g/dl for women and less than 13.0 g/dl for men.<sup>2</sup> A drop of haemoglobin to 5-7 g/dl is associated with clinical changes even by otherwise healthy patients such as: minor reversible cognitive changes, impaired immediate and delayed memory, fatigue, and reversible ST-segment changes suggestive of myocardial ischemia.<sup>3</sup>

Medical preoperative treatment of anaemia's used, whenever possible, to decrease possible complications and as a result to improve the outcome. There is currently a lack of evidence-based guidelines that set clear target levels for blood transfusion. Moreover, definitions for a restrictive liberal strategy for blood transfusion vary in the literature, although haemoglobin criteria for transfusion less than 8 g/dl and hematocrit value less than 25% are typically reported as restricted, according to the updated report by ASA in 2015.<sup>4</sup>

Through the many plastic surgeries now a days, including patients with excessive weight loss following bariatric surgeries, the demand for the so named "combo plastic operations" has increased enormously. Most of the patients are females, some of them with mild to moderate anaemia: haemoglobin concentration between 10 and 11 g/dl.

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Combo operations might include two or more of major individual plastic operations such as: abdominoplasty, mastopexy, reduction mammoplasty, liposuction of multiple areas with or without fat transfer, etc. Surgical time lies usually between 4-6 hours. Patients who undergo such surgeries usually lose considerable amounts of blood during the operation, despite blood conserving measurements such as: excellent haemostasis, mild hypotension, and local infiltration with adrenaline containing fluid.

Theme mechanism of significant blood loss is mostly related to a diffusion "oozing" from vast areas of the body, overall long period of surgical time, and sometimes extends to the postoperative period, rather than heavy arterial or venous bleeding. Dividing these operations for two or more sessions cannot practically always be done. Some anaemic patients don't adhere to the treatment given to them before, and refuse to postpone their operation once more until medical treatment is finished and the haemoglobin value is elevated up to 12.5 g/gram or more.

For patients with good haemoglobin values, 12.5 g/gram and above, the need for intra-or post-operative blood transfusion under normal circumstances is low. On the contrary, the group of patients with mild to moderate anaemia will most probably need red cell transfusion (packed RBC's), either intraoperative or immediately postoperatively.

Patients are generally young aged with either Nil or controlled comorbidities such as: obesity, diabetes mellitus or hypertension. Giving blood preoperatively (one day before surgery) under stable condition and close observation is a safe practice when dealing with such type of procedures where remarkable blood loss and blood transfusion are anticipated.

Patients should be informed about the risks and benefits, and should also be informed about possible alternatives including medical treatment and postponing the surgery. In practice, patients who received blood before surgery are expected to be more stable haemodynamically during surgery and in the postoperative phase.

This might positively affect the outcome in the short postoperative period.

Further controlled randomised studies are needed to determine the best haemoglobin threshold for blood transfusion in the preoperative period and to point out significant differences on the long run as well. The identification of independent factors, shared with blood transfusion that might lead to long term complications must also be determined (respiratory, circulatory, critically, etc.).

## Conclusion

Although blood transfusion should be avoided whenever possible, it is probably better to make the transfusion under fully controlled conditions, with the ability to react promptly to any possible consequence, rather than waiting until significant amounts of blood are lost resulting in a rush for cross-matching. The decision of preoperative blood transfusion should be taken individually based on patient's condition and operation. The transfusion is recommended in this article by anaemic, otherwise healthy patients or with mild controlled medical diseases (HTN, DM etc.) one day before surgery. This recommendation does not apply for patients with severe medical status (recent ischemia, myocardial infarction etc.) or critically. Those cases should be individually evaluated.

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## Conflicts of interest

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