

RECOMMENDATIONS ON HOW TO REDUCE BLOOD LOSS IN PLASTIC SURGERY AND BLOOD TRANSFUSIONS

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INTRODUCTION

Although bleeding complications represent a small subset of intraoperative and postoperative complications in plastic surgery, the effects of these complications are substantial. Unanticipated surgical bleeding has been associated with increased operative time, unplanned return to the operating room, and significantly increased healthcare costs¹. The estimated incidence of bleeding in plastic surgery is 2%. The main morbidity associated with bleeding was hypertension (that required medication), longer total operative time (median, 335 minutes versus 115 minutes), 7.3%, and previously diagnosed bleeding disorder.

WHAT WE KNOW BASED ON EVIDENCE

Guidelines from our colleagues in hematology and anesthesiology^{2,3,4} show that prevention is the main tool to avoid blood loss or minimize its effects. The main facts (Level Evidence 1) are:

- Preoperative anemia in adults is a strong predictor for perioperative blood loss.
- Patients at risk of bleeding are assessed for anemia well before surgery to permit time for anemia correction if needed.
- In cancer-free patients with preoperative anemia scheduled for elective major surgery, we recommend postponing surgery until the anemia has been corrected.
- If preoperative anemia is present, we recommend identifying the cause (iron deficiency, renal insufficiency, or inflammation).
- Use of intravenous iron is preferred over oral iron.
- In case of antithrombotic drugs or coagulation diseases (Von Willebrand, Hemophilia), always consult with the Department of Hematology/Hemostasis.

SPECIFIC RECOMMENDATIONS FOR PLASTIC SURGEON

Body contouring is the main area where blood loss prevention and management is mandatory. A publication by Bayer and Cols⁵ recommends the following:

Preoperative

- Hb >12 g/dl
- Erythropoietin 20,000 IU
- Iron 200 mg
- Avoid hypothermia by preheating the patient for one hour; 45°C to 47°C
- Suspend anticoagulant drugs

Intraoperative

- Tranexamic acid 1 g IV
- Heat up infiltration liquids at 37°C
- Room temperature at 23°C
- Normovolemic hemodilution Hb between 12 and 13 g/dl
- Least possible time in the prone position
- Total lipoaspirate less than five liters

Postoperative

- Transfusion IF Hb <9 g/dl and symptoms or Hb <7 g/dl
- Continue temperature control to prevent hypothermia

THE USE OF TRANEXAMIC ACID (TXA)

At the actual state of the art (Level of Evidence 1), the use of TXA is accepted as a first-line drug to reduce blood loss^{2,3,4}. The recommended dose is Intravenous 10 mg/kg 30 minutes before starting the surgery.

In plastic surgery, several meta-analysis have shown that blood loss is reduced using TXA^{6,7} with no side effects or complications. Preoperative dosage can be repeated 30 min after surgery⁸.

Local use of TXA could be superior to IV in preventing blood loss of liposuction⁹ but further studies with larger cohorts are needed. There is no evidence of the superiority of IV + Local TXA over IV TXA.

RECOMMENDATIONS FOR BLOOD TRANSFUSION

Despite any preventive measures, there is always the possibility of needing a blood transfusion during or after the procedure. Hematologists and anesthesiologists recommend^{2,3,4}:

- Try to consult with the Department of Hematology/Hemostasis.
- Indicated with Hb < 9 g/dl and clinical symptoms or Hb < 7 mg/dl.
- Blood should be transfused through a warming device to minimize the development of hypothermia.
- Laboratory assessment of Hb may be performed as early as 15 minutes following blood transfusion.
- Fresh frozen plasma: In the absence of any tests of coagulation, low ratios of empirical RBC to FFP (defined pragmatically as >2:1), with a marked excess of RBC units, should be avoided in significant bleeding. Transfusion of FFP is not indicated if PT, INR, and a PTT are normal.
- FFP does not correct hypofibrinogenemia.
- A fibrinogen concentration of less than 1.5 is considered hypofibrinogenemia in acquired coagulopathy and is associated with increased bleeding risk, requiring treatment with fibrinogen (not fresh frozen plasma).

SAFETY INFORMATION FOR PATIENTS

- Blood loss is a potential complication for any plastic surgery procedure.
- Prevention is paramount, and blood tests are mandatory to assess the presence of anemia.
- Report to your surgeon any medication, supplements, herbs, or conditions such as renal or vascular problems as well as heavy menstruation.
- Report as well personal or religious constraints against blood transfusion,
- Iron treatment could be necessary to correct anemia preoperatively, and eventually, the procedure could be postponed.

ISAPS Patient Safety Committee

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