



New Paradigms in Patient Blood Management in Surgery[☆]

Nuevos paradigmas en el «patient blood management» en cirugía

Dear Editor:

We have read the study by Feliu¹ with interest, as well as the accompanying editorial by Dr. Sabaté.² We would like to congratulate the former for their elegant article, which once again demonstrates the role of preoperative anemia as the only avoidable predictive factor for perioperative transfusion.³

We would like to clarify, however, some concepts discussed in both texts that are not a true representation of the proper management of blood product resources. In the Editorial, Dr. Sabaté² affirms that, “The indication for blood cross-matching tests and the mandatory ordering of blood products follow historical rules. For many surgical procedures, the sole criterion used for preoperative blood ordering is prevention.” We would like to state that, in contrast with what was written in the article and in accordance with current Spanish legislation⁴ (RD 1088/2005), scientific evidence and national and international recommendations, blood compatibility tests (cross-matching) and universal blood reserves are far from being required and their routine use should be avoided in most hospitals. Such measures consume material resources without improving safety. They also entail immobilizing stock, which consequently leads to the aging and deterioration of blood components as well as the eventual loss of some due to expiration.

The current legal framework in our country⁴ (Addendum) establishes the need for blood compatibility tests before administering any type of red blood cell component, except in cases with urgent requirements.⁴ This requirement should always be ordered in writing by the physician treating the patient. Mandatory recipient blood tests include⁴: ABO blood typing; antigen typing, Rho (D); and, in the case of red blood cell transfusion, anti-erythrocyte antibody study using the indirect antiglobulin test (known as Coombs indirect) or another technique with similar or superior sensitivity. Only when the irregular red blood cell antibody count is positive is it recommended to identify them and do major cross-match testing (which tests recipient serum vs. donor red blood cells). Therefore, neither cross-match testing nor blood reserve are mandatory for surgery as long as there is a guaranteed supply from the Transfusion Center. Furthermore, in cases of patients with

no history of transfusions, transplantations or pregnancies in the previous 3 months, the lab results from the sample are valid for 3 months.

Moreover, we know that the safest and most effective measure to avoid transfusion reactions is correct and complete patient identification, in addition to restricting the use of blood products to the lowest effective dose.⁵ To this end, unequivocal verification is required prior to the administration of blood or component transfusion by the person who is administering it, which includes patient identification data as well as that of the blood unit or blood product.⁴ Verification of the compatibility between the patient and the blood unit should include: (a) comparison of the identity given by the patient with the data from the laboratory compatibility test and (b) verification of the patient's blood type with the blood type indicated on the blood unit label.⁴

Likewise, current regulations require a correctly completed, signed prescription or request for transfusion, as well as patient consent after having been informed of the risks and benefits of this therapy, as well as any possible alternatives⁴ (Addendum). Dr. Sabaté mentions only a few of these in his Editorial. Recently, an update has been published for the “Seville” document of Alternatives to Blood Transfusion, endorsed by 6 Spanish scientific societies.⁶ The first and most effective is administering the transfusion of packed red blood cells with “restrictive” criteria. Transfusion is recommended to maintain hemoglobin (Hb) levels between 70 and 90 g/l in order to reduce the rate of transfusions, with a level of evidence 1A. Controlled studies done in adult and pediatric euvoletic critical patients (both medical and surgical) have demonstrated that most cases tolerate Hb levels as low as 70–80 g/l without negative effects. Said Hb levels are also recommended but the American Association of Blood Banks⁷ and the Cochrane Review.⁸ Patient tolerance to normovolemic anemia is conditioned by the cardiopulmonary reserve, blood loss volume and velocity, and the acute or chronic nature of the anemia. The second pillar for managing anemia and avoiding transfusion is stimulation of erythropoiesis and the active treatment of anemia, fundamentally with ferrotherapy for gastrointestinal diseases.^{6,9,10}

In conclusion, the availability of alternatives to transfusion and the current legal framework have meant that, right now, most Transfusion Departments at second and third-level hospitals in our country employ dynamic resource management. This means that cross-matching and preoperative blood reserves are only used in cases with positive irregular antibodies. This management avoids immobilizing blood products that would later deteriorate, without threatening patient safety.

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Addendum. Articles Extracted from Royal Decree 1088/2005, 16 September, which Establish the Technical Requirements and Minimal Conditions for Blood Donation, Transfusion Centers and Services

Article 15. Administration of blood and components

The administration of blood and components will be ordered with a physician's prescription. Whenever possible, the physician establishing the indication will (after explaining the risks and benefits of the therapy as well as any possible alternatives) obtain informed patient consent, as defined in Law 41/2002, 14 November, which regulates patient autonomy, rights and responsibilities in matters of clinical documentation and information, particularly in articles 5, 8, 9, and 10.

Article 16. Transfusion requests

Requests for total blood or blood component transfusions will include enough information to identify the recipient and the physician who has prescribed it, as well as the medical reasons that are the basis for the indication.

Article 17. Recipient blood samples

Blood samples should be identified unequivocally with the data of the recipient. There should likewise be a mechanism that would be able to identify the person who took the sample and the date on which it was taken.

Article 18. Recipient blood tests

1. Before administering any homologous red blood cells, compatibility tests will be done, except in cases of urgent requirement, defined as those in which a delay in the supply of blood or blood components may endanger the patient's life. The physician treating the patients will justify the urgent need for transfusion in writing. Compatibility tests will include those from Addendum VII and will be done even when the blood or components have already been sent for transfusion.
2. When the recipient has received a transfusion or cell or organ transplantation in the last 3 months, or if the patient is a woman who has been pregnant, the patient sample for compatibility tests will be taken within the 72 h prior to transfusion.

Article 19. Safety measures

1. Prior to the administration of blood or blood product transfusion, the person who is performing the transfusion should unequivocally confirm the patient identification data and the identification data from the blood unit or blood component intended for him/her.
2. The verification of patient/blood unit compatibility will entail:
 - a. Comparison of the identity provided by the patient with the data from the laboratory compatibility test.
 - b. Verification of the patient blood group with the blood type indicated on the label of the blood unit.

3. The expiration date should be checked to confirm that the unit has not expired.
4. The identification number and the type of transfused units will be recorded in the patient's medical file in order to guarantee donor-recipient traceability.
5. Each transfusion center and unit that distributes or administers blood and blood components for transfusion should have a procedure that guarantees proper identification of patients, pre-transfusion samples and blood components administered. Likewise, the final destination of each unit of blood should be traceable.

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