Blood Transfusion in Patients with Immunohaematological Problem

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Abstract

The blood transfusion therapy is an essential in the management of hematologic/oncologic disorders. Although transfusions are not risk free. In fact, this patient may develop alloimmune or autoimmune process during the transfusion support. Alloimmunization is a significant risk of transfusions and is the second leading cause of transfusion-associated death. In fact, the transfused individuals with hematologic/oncologic disorders may develop red blood cell alloantibodies, which can complicate pretransfusion testing, delay blood product availability, and lead to transfusion reactions. The autoimmune haemolytic anaemia may be produced by cold and warm autoantibodies and may mediate intravascular or extravascular autoimmune haemolysis in haematology/oncology patients. Many immunohematology tests performed by blood banks, including antibody screening, direct antiglobulin tests, eluates, and minor antigen phenotyping, are used in the assessment of haematology/oncology patients who require transfusion care, or in whom an alloimmune or autoimmune process is suspected. The tests that form the basis for transfusion compatibility and antibody identification are not always well understood, nor are their interpretations always straightforward. A better understanding of testing realized in the immunohematology laboratory will allow haematology/oncology providers to make informed decisions on the risk/benefit ratio of transfusion for their individual patients. Further, this understanding will allow improved communication between haematology/oncology providers and the transfusion Service in instances of transfusion histories, new antibody formation, and unexpected adverse transfusion sequelae.

Introduction

Cancer patients often have hematological disorders, and can affect erythrocytes, platelets, leukocytes or blood proteins [1]. Of these alterations, anemia is the most frequent (50% of oncological patients will have it at some point in their illness). Being their highest frequency in patients with hematologic neoplasms (30-40% in lymphomas; 70% in myeloma and myelodysplastic syndromes [2].

The cause of anemia is often multifactorial, and can be caused by nutritional disorders, hemorrhage, autoimmune hemolysis, erythroid aplasia, chronic disorders, or chemotherapy and radiotherapy [3].

Therefore, transfusion therapy is essential in the treatment of hematological/oncological disorders.

Keywords: Blood Transfusion, Autoimmune Haemolytic Anaemia, Autoantibodies, Antiglobulin test

Transfusion risk

Without a doubt, blood transfusion has never been as safe as it is now, however, there is a belief in the medical community that it is a simple and safe procedure [6]. Transfusion is a tissue graft (the most common of medical practice) and, like all medical intervention, involves risks inherent to the procedure and the biological origin of the component. Blood transfusion is not riskfree [7]. Indeed, the prevalence of adverse reactions is:

1. Mild: 1:100
2. Serious: 1:370
3. Fatal: 1:117.000

Compared to other medical practices, for example: The risk of death by medical error is 1:1,000 by anesthesia 1:185.000 and obstetric cause is 1:7.653 [8-11].

Analysis of this data also arises that administrative errors are an important category of reactions; being the bedside of the patient is the weakest link that involves the health system [12].

Many reactions are inevitable, the immune cause is 1.000 a 10,000 greater than the risk of transfusion transmissible infections [13].