Study of red blood cell alloimmunization risk factors in multiply transfused thalassemia patients: role in improving thalassemia transfusion practice in Fayoum, Egypt

Abeer Mohamed Abdelrazik,[1] Shahira Morsy Elshafie,[1] Manal Niazi El Said,[1] Ghada M. Ezzat Ahmed,[1] Al-Kassem Ahmed Al-Gamil,[2] Mona Gamal Mostafa El Nahhas,[1] and Ahmed Ali Badie Sady[1]

BACKGROUND: b-Thalassemia is considered the most common chronic hemolytic anemia in Egypt.
Alloimmunization can lead to serious clinical complications in transfusion-dependent patients.
The objective of this study was to determine the frequency and types of alloantibodies, and, in addition, to study the risk factors that might influence alloimmunization in multiply transfused thalassemia patients in Fayoum, Egypt, with the goal that this study could help minimize some of the transfusion-associated risks in those patients.
STUDY DESIGN AND METHODS: A total of 188 multiply transfused thalassemia patients attending Fayoum University Hospital were analyzed. Alloantibody identification was performed by DiaMed-ID microtyping system.
RESULTS: Alloimmunization prevalence was 7.98%. The most common alloantibody was D-related; anti-D was the most frequent alloantibody found in eight of the 188 patients (4.25 %), followed by anti-C in two patients (1.1%), anti- E in two (1.1 %), anti-c in two (1.1 %), anti- Fya in two (1.1%), anti-K in one (0.53 %), and an unknown antibody in one patient (0.53%). Higher rates of alloimmunization were found in female patients, in patients with b thalassemia intermedia, in splenectomized patients, in D– patients, and in patients who started blood transfusion after 3 years of age.
CONCLUSION: The study reemphasizes the need for cost-effective strategy for thalassemia transfusion practice in developing countries. Red blood cell antigen typing before transfusion and issue of antigen-matched or antigen-negative blood can be made available to alloimmunized multiply transfused patients. Early institution of transfusion therapy after diagnosis is another means of decreasing alloimmunization.