Red Cell Immunization in Multiply Transfused Thalassemic and other hematologic Patients in the north of West Bank

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Abstract :

Background:
Red blood cell transfusion has greatly reduced the mortality and morbidity in multiply transfused thalassemia and sickle cell patients. However this can result in red blood cell isoimmunization with autoantibodies and alloantibodies which can lead to serious complications such as delayed hemolytic transfusion reaction and difficulty in finding compatible blood for transfusion which may result in transfusion delay. Thus the frequency, causes, types of alloantibodies were evaluated in this study.

Study design and methods:
clinical and serological data of 131 multiple transfused thalassemia and sickle cell patients who receive their treatment at thalassemia centers in Nablus, Jenin, and Tulkarm were collected and analyzed. Blood samples were subjected to standard blood banking procedures with screening for alloantibodies performed on serum of fresh sample with subsequent alloantibodies identification in samples tested positive in alloantibody screening using a panel of recognized red blood cells antigens.

Results:
Red cell alloantibodies were detected in 20 patients (15.3%) in which indirect Coombs test was positive. Fourteen of them were diagnosed as B thalassemia Major (70%), three were diagnosed as sickle cell anemia (15%), two were diagnosed as thalssemia intermedia (10%) and one was diagnosed as sickle cell thalassemia (5%). Anti Rh (D) was the commonest type, found in nine patients (45%). But the most common alloantibody rather than anti D was found to be anti-Kell (K) in seven patients (35%). The rest of them were two had anti Rh (E), one had anti Rh (C) and one had anti Rh (c). In addition to that we found a significant association between the development of alloantibodies and splenectomy status (P value 0.0156), also we tested the association of alloimmunization with other factors such as age, transfusion center, ABO group, Rhesus system, diagnosis, age at start of transfusion, gender, and number of transfused packed RBCs but it was insignificant.

Conclusion:
Our data showed quite high alloimmunization rate in multiply transfused patients. In our study, anti Rh (D) was the commonest antibody. The second most common was anti-Kell (K). On one hand, there was a significant association with splenectomy status, patients who had not

undergone splenectomy developed alloantibodies more than patients who had undergone splenectomy. On the other hand, no significant association were found with other factors such as age, transfusion center, ABO group, Rhesus system, diagnosis, age at start of transfusion, gender, and number of transfused packed RBCs . We recommend routinely performing screening for Kell (K) antigen in addition to ABO and Rh antigens before starting transfusion to give patients more matched blood