

ABSTRACT

BACKGROUND AND AIM

The DAT is widely used in Immunohematological laboratory test because it is simple, quick and inexpensive test. It should be performed when the presence of haemolysis has been established and is one of the most important diagnostic tests for determining Immune Hemolytic Anemias. In view of this, it is very essential to identify the patients with DAT positive and having hemolysis to aid in the treatment and management accordingly to the specific cause of DAT positivity. With this background this study was conducted, to evaluate the DAT positive cases and to characterise them into AIHA, HDFN, HTR and/or other causes along with the various factors, antibody classes, severity and finally to perform elution studies to specify the antibody coated onto the red cells.

MATERIALS AND METHODS

57 DAT positive cases with clinical and laboratory evidence of hemolysis were evaluated in this study. The assessment of hemolysis is done by using parameters such as HGB, Bilirubin, LDH and Reticulocyte count. Further the polyspecific DAT, Monospecific DAT and subtype of IgG class done. Then elution study was performed on the samples and specificity was identified. Among the samples thermal amplitude and titration of the cold agglutinins also done accordingly.

RESULTS

Among the 57 DAT positive cases with clinical and laboratory evidence of hemolysis The Distribution of the cases were AIHA 34, HDFN 21, DHTR 2. Our study suggests a significant association between the strength of DAT, the IgG class and subclass (IgG 1 & IgG 3) of Immunoglobulins either alone or in combination with other classes of immunoglobulins and/or complements.

The specificity of auto and alloantibodies were identified by adsorption and elution techniques, which revealed exclusively anti-e in 6 cases of WAIHA and 4 cases with previous history of transfusion had panagglutinating autoantibodies along with the presence of clinically significant alloantibodies.

Glycine Acid Elution is most useful among HDFN and DHTR for identification of clinically significant antibodies. Glycine Acid EDTA elution in DAT positive immune haemolytic anemia cases provided uncoated RBCs for exact phenotyping and autoadsorbed serum for cross match compatibility and provide appropriate transfusion support for the needy patients.

CONCLUSION

In our study on evaluation of DAT positive cases by elution study revealed a strong association between DAT strength and the severity of hemolysis. Further, we observed that the presence of IgG immunoglobulins in combination with IgM, IgA and complements elicit severe hemolysis in AIHA cases in comparison to exclusive presence of only IgG. However, in cases of HDFN the pathogenesis of hemolysis was exclusively due to the presence of IgG.

This study further reiterates the importance of acid elution in DAT positive of HDFN and DHTR cases in identification of the specific alloantibody. This study also reinstates a schematic approach in dealing with DAT positive immune haemolytic anemia cases by designing institutional based algorithm for efficient patient management.

KEYWORDS

DAT, Monospecific DAT, Sub Type of IgG, ELUTION and Autoadsorption.