TITLE-SEROLOGICAL CHARACTERIZATION OF AUTOANTIBODIES IN AUTOIMMUNE HEMOLYTIC ANEMIA AND ITS CLINICAL IMPLICATIONS-A STUDY FROM ATERTIARY CARE CENTER IN SOUTH INDIA

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Objective:

Autoimmune hemolytic anaemia (AIHA) has a wide range of clinical presentation from mild to fulminant life threatening anaemia. Immunoglobulin class, subclass, titre, ability to activate complement, thermal amplitude and strength of direct antiglobulin test (DAT) have been implicated as factors affecting severity. This study was undertaken to analyze factors which influence the severity of AIHA in Indian population.

Methodology-In this crosssectional study,all patients with evidence of haemolysis and who were also positive for polyspecific DAT were included.DAT positive patient samples were further evaluated by monospecific DAT(column agglutination technique) to identify presence of IgG, IgM, IgA class and complement. If monospecific IgG was present, further subtyping was undertaken to identify the presence IgG1 and IgG3. Correlations were drawn between the severity of AIHA and Immunoglobulin class, strength of direct antiglobulintest (DAT,) IgG subtype and the titre of the latter.

Results and Conclusion:

Among 94 patients included in the analysis, the median age was 35.2(Range1-77 years), with a male: female ratio of 1:1.9. Primary AIHA was identified in 54.3% and secondary AIHA in 45.7%. Spread of autoantibodies identified included, 28.7% with solitary IgG followed by complement alone in 8.5% as opposed to 62.8% of patients who had a combination of autoantibodies. Severe haemolysis was greater in patients with primary AIHA (71.2%) as compared to patients with secondary AIHA(28.7%, $p<0.001$).

Severe haemolysis was also seen in 89.1%, of patients who had a combination of autoantibodies as compared to 10.9% patients, with solitary IgG($p<0.001$). IgG subtyping revealed the most common subtype to be IgG1(58.1%) followed by combination of IgG1 & IgG3 (11.6%).The remaining 30.2% were negative for IgG1or IgG3. Presence of IgG1 and IgG3 in combination, or IgG1alone showed statistically significant association with severity of haemolysis($p=0.04$ and 0.012respectively). Correlating strength of DAT revealed that severe haemolysis occurred in 80.8% patients with DAT strength of 4+ ($p =0.006$). This association was consistent even in the IgG subgroups where IgG1 and IgG3 were not detected However there was an association with complement fixation in this group. ($p=0.04$).

Identifying patients with AIHA at risk of severe haemolysis is critical for prognostication, appropriate intervention and follow up planning. This association in our study of DAT strength, IgG1 and IgG3 positivity, and complement fixation on severity of haemolysis suggest that an algorithm of following up DAT positivity, in patients with AIHA, with a monospecific DAT and IgG subtype analysis will allow for identification of this critical subgroup of patients in whom more intense clinical intervention and close follow up might be indicated.