

BACKGROUND

- Intravascular hemolysis caused by passively transferred antibodies, often through complement activation, is a serious concern in ABO-incompatible RDP transfusions.
- Western countries have established critical titer thresholds for incompatible transfusions, there is growing interest in identifying similar thresholds in Eastern India due to regional differences in blood group distribution and transfusion practices.

AIMS & OBJECTIVE

- To estimate the prevalence of critical IgM and IgG ABO antibody titers among healthy male blood donors.
- To assess potential factors influencing elevated ABO titers

METHODOLOGY

Study Design: Cross-sectional study.

Period of Study: Jan- June 2024

Place of study: KIMS & Manipal Hospital, Bhubaneswar

Study Population: Blood donors.

Inclusion Criteria:

Male Donors

Exclusion Criteria:

Donors with AB blood group

Data Collection:

Demographic data was extracted from donor questionnaire

Sampling: Daily collection systematic randomization

Antibody Titration: (anti-A & anti-B)

IgM: Double dilution technique by CTT

IgG: DTT treated serum

Critical Titers:

IgM anti-A and anti-B: 1:64 or higher

IgG anti-A and anti-B: 1:256 or higher

RESULTS

Total Donors: 200

AGE DISTRIBUTION: 62.2% being middle-aged adults (26–44 years) and a mean age of 23.7 years.

Frequency of critical titres

IgM: 56% IgG: 1.8%

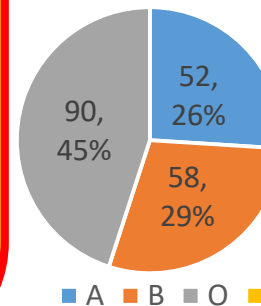
Median anti-A and anti-B: 64 in A and B

Median anti-A and anti-B: 64 and 32 in O

There was no significant association between critical titers and factors such as donor age, BMI, or infectious diseases (e.g., malaria, worm infestation).

Four O blood donors reported high IgG titers (>256), but none in A or B groups. Critical IgM titer did not correspond with high IgG

Blood group distribution



34.3% of A group Donors had IgG component

27.0% of B group Donors had IgG component

76.5% of O group Donors had IgG component

Significant IgG component (p=0.000) was observed in O group as compared to A,B group similar to other studies.

Studies have shown high agglutinin titers above a critical value of 64 results in hemolysis. With ongoing practice of transfusing across the group platelets, clinical implication of transfusing these products needs further evaluation.

CONCLUSION

More than half of the donors in our region demonstrated critical antibody titers, including an IgG component across all blood groups. Additional research is necessary to clarify the implications of transfusing these blood products.