

IMPACT OF ABO SUBGROUP VARIATIONS ON BLOOD GROUP DISCREPANCIES: A RETROSPECTIVE ANALYSIS

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INTRODUCTION

- The ABO blood group system is vital for safe transfusions and organ transplants, with subgroups like A1, A2, and weaker variants (A3, Ax, Am) influencing transfusion compatibility due to variations in antigen expression.
- A1 and A2 are distinguished by their reactivity to “Dolichos biflorus” lectin, while weaker subgroups show reduced agglutination with anti-A sera.
- Though B subgroups lack equivalents like B2, they remain essential for precise typing.
- Advanced techniques, such as glycosyltransferase studies and PCR, are crucial for identifying these subgroups, ensuring compatibility and preventing transfusion reactions, particularly in the presence of naturally occurring antibodies like anti-A and anti-B.

AIMS AND OBJECTIVES

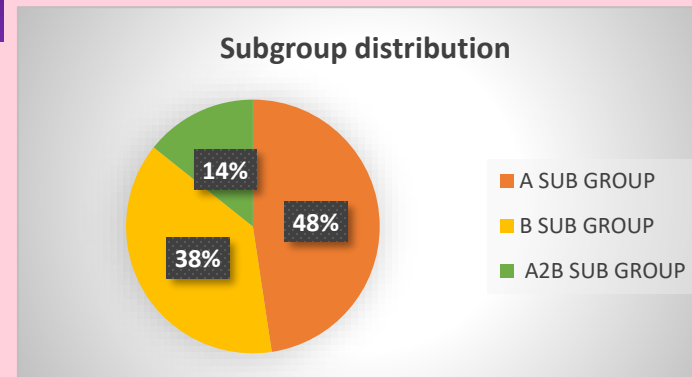
- The aim of this study is to enhance blood transfusion safety by analyzing ABO subgroups and their distribution in routine blood typing.
- To promote subgroup testing to improve blood supply management and transfusion outcomes.

MATERIALS AND METHODS

- Present study included all the samples sent for routine blood grouping and antibody screening to department of transfusion medicine from October 2020 to September 2024.
- 3ml of sample sent in ethylene diamine tetra acetic acid (EDTA) vial is used for forward grouping and reverse grouping.
- Blood grouping discrepancies were evaluated.
- **INCLUSION AND EXCLUSION CRITERIA:** This study specifically included ABO discrepancies resulting from ABO subgroups, excluding other factors causing ABO discrepancy.

RESULTS

Total no of cases- 21
Age range- 5 to 67 years



SUBGROUPS OF A

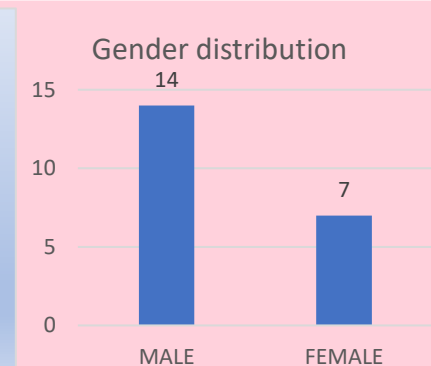
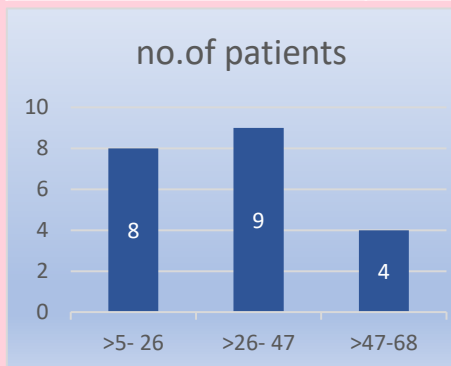
Among 10 patients, 9 of them showed traces to 2+ reaction in forward grouping with Anti-A

SUBGROUPS OF B

Among 9 patients, 8 of them showed a negative reaction in forward grouping with Anti-B.

SUBGROUPS OF AB

All 3 patients demonstrated the presence of Anti-A1 antibody.



CONCLUSION

- Detailed subgroup analysis should be performed to accurately identify variants like A1, A2, and other weaker subgroups.
- This study highlights the importance of identifying subgroups to prevent potential transfusion reactions.
- Conducting a detailed subgroup analysis allows for more accurate reporting, providing valuable information that supports the patients medical management throughout their lifetime