



Beyond “Dangerous O”: Anti-A and anti-B titers in A, B and O whole blood donors

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Background and Objectives

- Component preparation and Cross-matching have reduced Hemolytic transfusion reactions.
- Apheresis-derived platelets can cause hemolytic responses in ABO-incompatible patients due to High-titer anti-A/-B antibodies in donor plasma.
- **Aim:**
 - (1) Determine the prevalence of high anti-A and anti-B titers among A, B, and O blood group donors.
 - (2) Explore factors associated with high antibody titers.

Methods

- **Study Design:** Cross-Sectional observational study Conducted over 18 months.
- **Sample size:** Enrolled 978 participants from a tertiary care hospital in Western India.
- **Titer Measurement:** Using Serial 2-fold doubling Dilutions via the Conventional Tube Technique (CTT).
- **High Titer Definition:** IgM Titers ≥ 64 and IgG titers ≥ 128
- **Analysis:** Statistical Methods used to assess Correlations between high titers And demographic factors.

Results

- 98.8% donors were males
- Age range: 18-60 years (mean: 28.9 years).
- Blood group distribution:
 - ✓ **A:**26.1%, **B:**39%, **O:**34.9%
- 90.6%: RhD positive.
- High antibody titers:
 - ✓ 3.52% in **A group**.
 - ✓ 10.5% in **B group**.
 - ✓ 14.1% “**Dangerous O**”
- Anti-A antibodies:
 - ✓ High IgM titer: 12.2%.
 - ✓ High IgG titer: 2.5%.
- Anti-B antibodies:
 - ✓ High IgM titer: 2.3%.
 - ✓ High IgG titer: 0.2%.

- High IgM titer correlation:
 - ✓ Younger age.
 - ✓ Female gender.
 - ✓ Vegetarian diet.
- High IgG titer correlation
 - ✓ Female gender.
 - ✓ Vegetarian diet.
 - ✓ O RhD-positive donors

Conclusions

- Understanding these factors is important for:
 - ✓ Optimizing transfusion safety protocols.
 - ✓ Selective screening of platelet units.
 - ✓ Tailoring transfusion strategies based on donor characteristics.