

Influence of ABO Blood Groups on Fibrinogen Levels in Fresh Frozen Plasma: A Retrospective Study

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Background:

The ABO blood group system significantly affects various hemostatic factors, including fibrinogen, a critical protein in clot formation. Previous studies have indicated that non-O blood groups (A, B, AB) have higher fibrinogen levels compared to group O. This study aimed to assess the influence of ABO blood groups on fibrinogen levels in Fresh Frozen Plasma (FFP) and its potential clinical implications for transfusion practices.



Materials and Methods

A retrospective analysis was conducted at Dayanand Medical College and Hospital between 2021 and 2023. FFP units from healthy donors were categorized based on ABO blood group (A, B, AB, O). Fibrinogen levels were measured using standardized coagulation assays, and data were extracted from transfusion records.

Results

A total of 194 FFP units were analyzed. Fibrinogen levels were significantly higher in non-O blood groups (A, B, AB) compared to group O, with group AB exhibiting the highest fibrinogen concentration. On average, fibrinogen levels in non-O groups were 20% higher than those in group O ($p < 0.05$), confirming a statistically significant difference between the groups.



Conclusion

ABO blood groups have a marked influence on fibrinogen levels in FFP, with non-O groups displaying higher concentrations. This finding is clinically relevant, particularly in the selection of FFP for patients requiring optimal coagulation support, such as in massive transfusions or coagulopathy management. Tailoring FFP selection based on ABO blood group and fibrinogen levels may enhance transfusion efficacy. Further research is needed to explore the broader clinical implications of these findings.