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Study of donor characteristics on the yield in single donor plateletpheresis

Parimala Puttaiah, Shubham, Latha J,Vanamala A ,Sitalakshmi S,Shanthala Devi
Department of Transfusion Medicine & Immunohematology
St. John's Medical College ,Bengaluru

INTRODUCTION

Plateletpheresis procedures produce an equivalent of 6-10 units (3-5 × 10^{11} platelets) of random donor platelet concentrates at one time and have now become the main source of platelets. They carry additional benefits of lowered risk of exposure to transfusion transmitted infections, alloimmunization and FNHTR

OBJECTIVES

To assess effect of various donor related factors on the yield of single donor platelets

MATERIAL & METHODS

STUDY DESIGN

Study period 2015-2023
Department of Transfusion Medicine and Immunohematology ,St.Johns Medical College Hospital

SOURCE OF DATA

Donor's demographics from the donor referral form.
Donor's weight,height,hemoglobin,Total leucocyte count,Pre and Post donationplatelet count and Blood Group, Platelet product yeildfrom platelet pheresis register.

INCLUSION CRITERIA

Donor selection was done according to the guidelines laid down by Drugs and Cosmetics Act, Ministry of Health and Family Welfare, GoI.

- Weight not less than 55kg ,•Age between 18 and 60 years
- Hemoglobin ≥12.5 g/dl,•Platelet count >1.5x109/L
- Plasma proteins estimation >6gdl
- Adequate venous access on both the hands
- Absence of any illness
- Negative screening test for human immunodeficiency virus, hepatitis B virus, hepatitis C virus, syphilis, and malaria.

EXCLUSION CRITERIA

Donors on aspirin containing medication 3 days or 72 hrs before the procedure.
Interval between procedures at least 48 hrs & not more than two times in a week or 24 times in a year.
Less than 3months after regular donation

STUDY METHODOLOGY

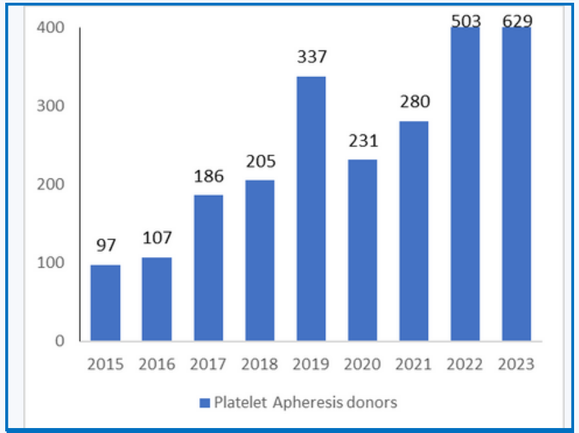
- Procedure explained and informed consent taken
- Oral Calcium (1g) given few minutes before procedure.
- Continuous flow cell separator using closed system kits, single needle procedure.
- The end point was a volume yield of 280-300 ml.
- Two ml. of collected in sample pouch for assessing platelet count of the product using the automated analyzer.
- Platelet yield = Product volume (mL) × Product count (platelets/μL) ×Conversion factor (1000).
- Pre and post donation hematological parameters of the donors analysed using automated analyzer.

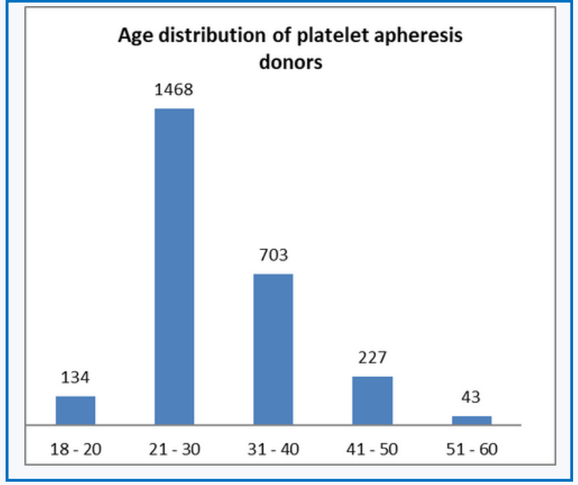
STATISTICAL ANALYSIS

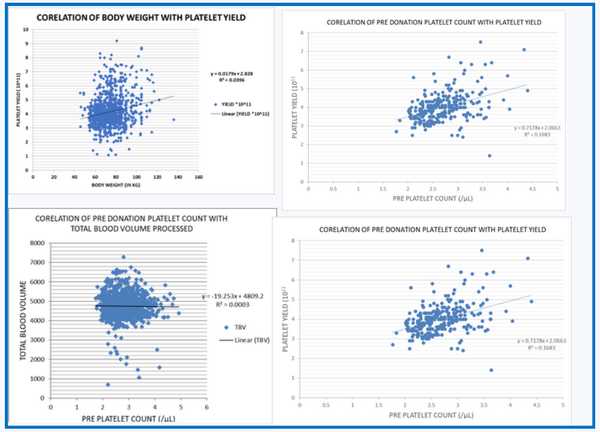
- Data summarized using descriptive statistics and contingency tables .
- Relationship between platelet yield and donor and machine related factors and the strength of relationship studied using stepwise regression method
- Pearson correlation coefficient .P value <0.05 was considered as significant.

RESULTS

- A total of 2575 donors underwent platelet aphaeresis. Procedures increased from 8.3% to 24.42% in the study period







Statistical significant correlation was observed between the yield of platelets and donor variables
weight (r = > 0.13), hemoglobin (r = -0.07), pre-donation platelet count (r = 0.44), processing time (r = 0.15) ,volume of blood processed (r = 0.29), serum protein (r = 0.27), BMI (r = 0.09) and TBV (r = 0.07).

CONCLUSION

- The present study found there is a positive correlation between pre donation platelet count and platelet yield.
- Platelet yield also correlated positively with weight and BMI
- In India economic constraints & limited resources are major concerns for SDP procedures

REFERENCES

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