



Positives!! Ain 't No Good!! A Quasi-experimental Study To Determine The Efficacy of Crossmatched Platelets In Hemato-oncology Patients with Suspected Alloimmune Platelet Refractoriness

Daljit Kaur¹, Gita Negi¹, Vaidehi Prasanth¹, Dixa Kumari¹, Priyanka Rathod¹, OPS Negi¹, Ashish Jain¹, Gaurav Dhingra², Uttam Kumar Nath²

¹Department of Transfusion Medicine, ² Department of Medical Oncology Hematology

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Introduction

- Platelet transfusion therapy is an important aspect of supportive transfusion therapy for haemato-oncology patients.
- Lack of adequate response is the significant challenge that complicates the platelet transfusion support in such patients.
- Less than expected posttransfusion increment occurs for 20-70% of the multiply transfused thrombocytopenic patients owing to immune or non-immune causes.



Aim / Objectives

- To determine the prevalence of platelet refractoriness in hemato-oncology patients on platelet transfusion therapy.
- To evaluate the effectiveness of transfusion of crossmatched platelets in refractory patients.

Study Population

- Patients from Haemato-oncology
- Receiving single donor apheresis platelet transfusions
- Multitransfused (> two episodes)

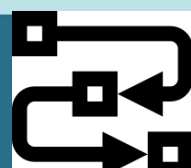
Study Design

Quasi-experimental study

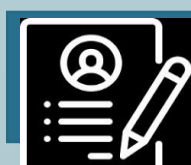
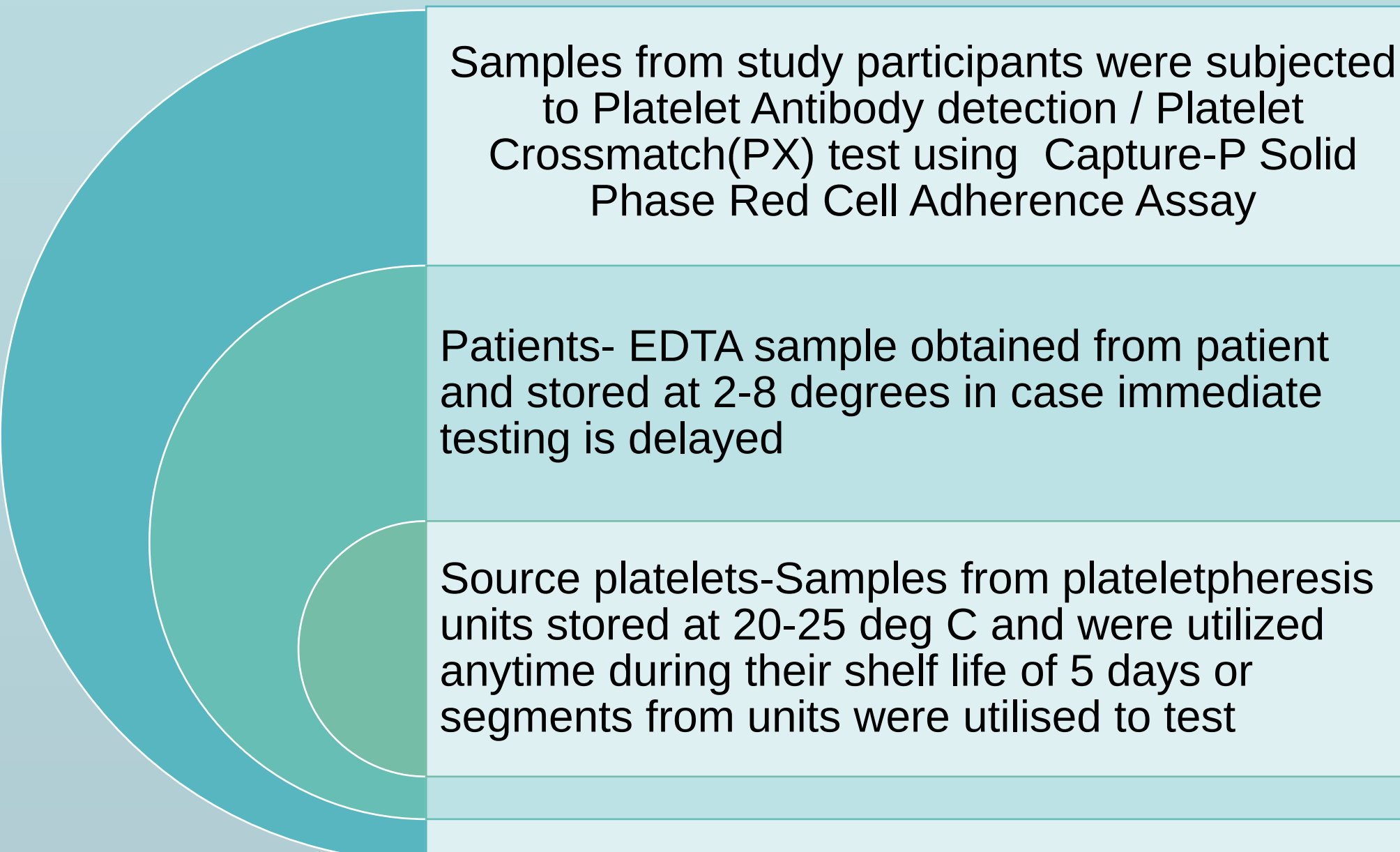
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Calculated Sample size = 77

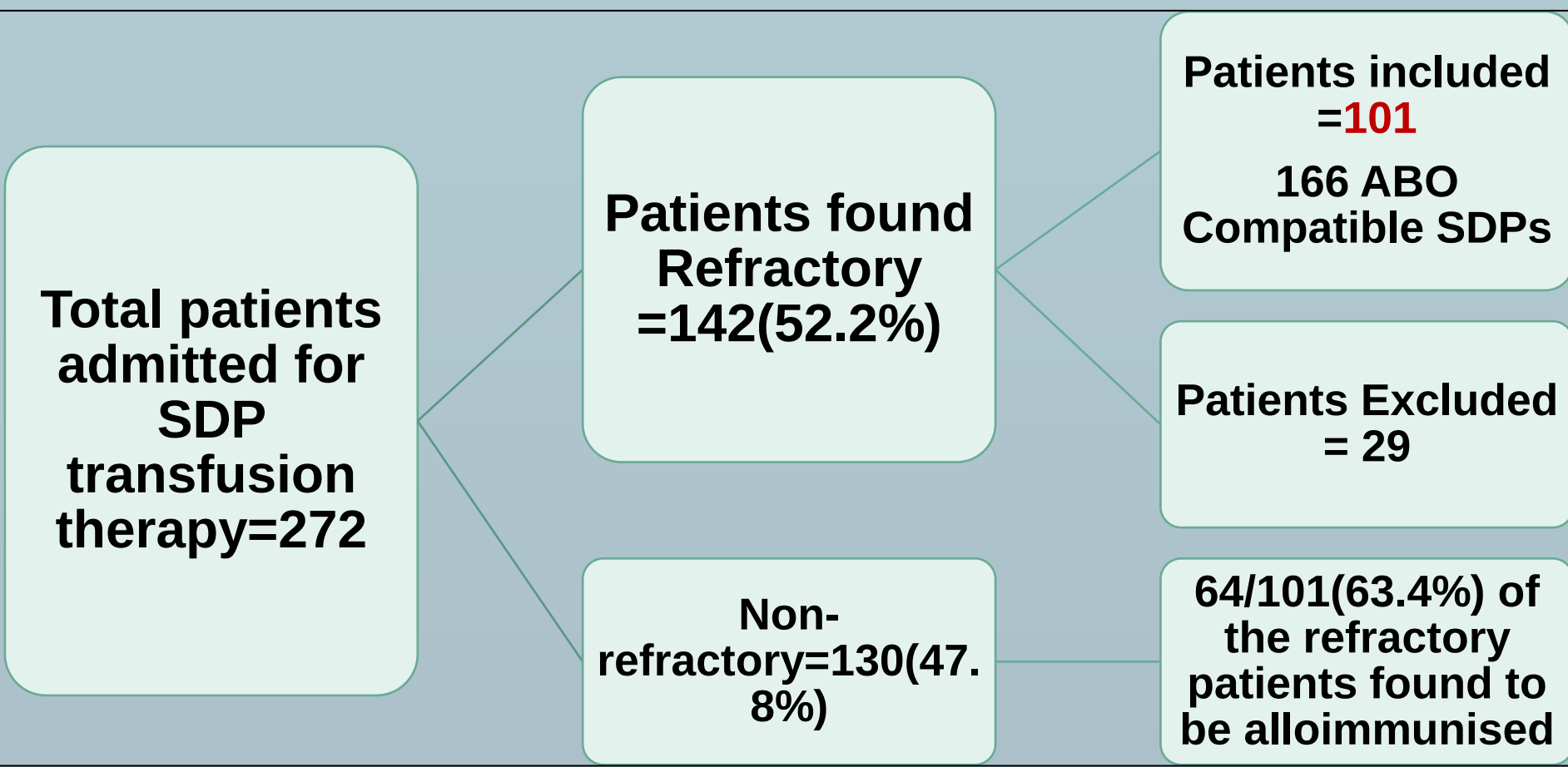
Study period: 2 years



Methodology



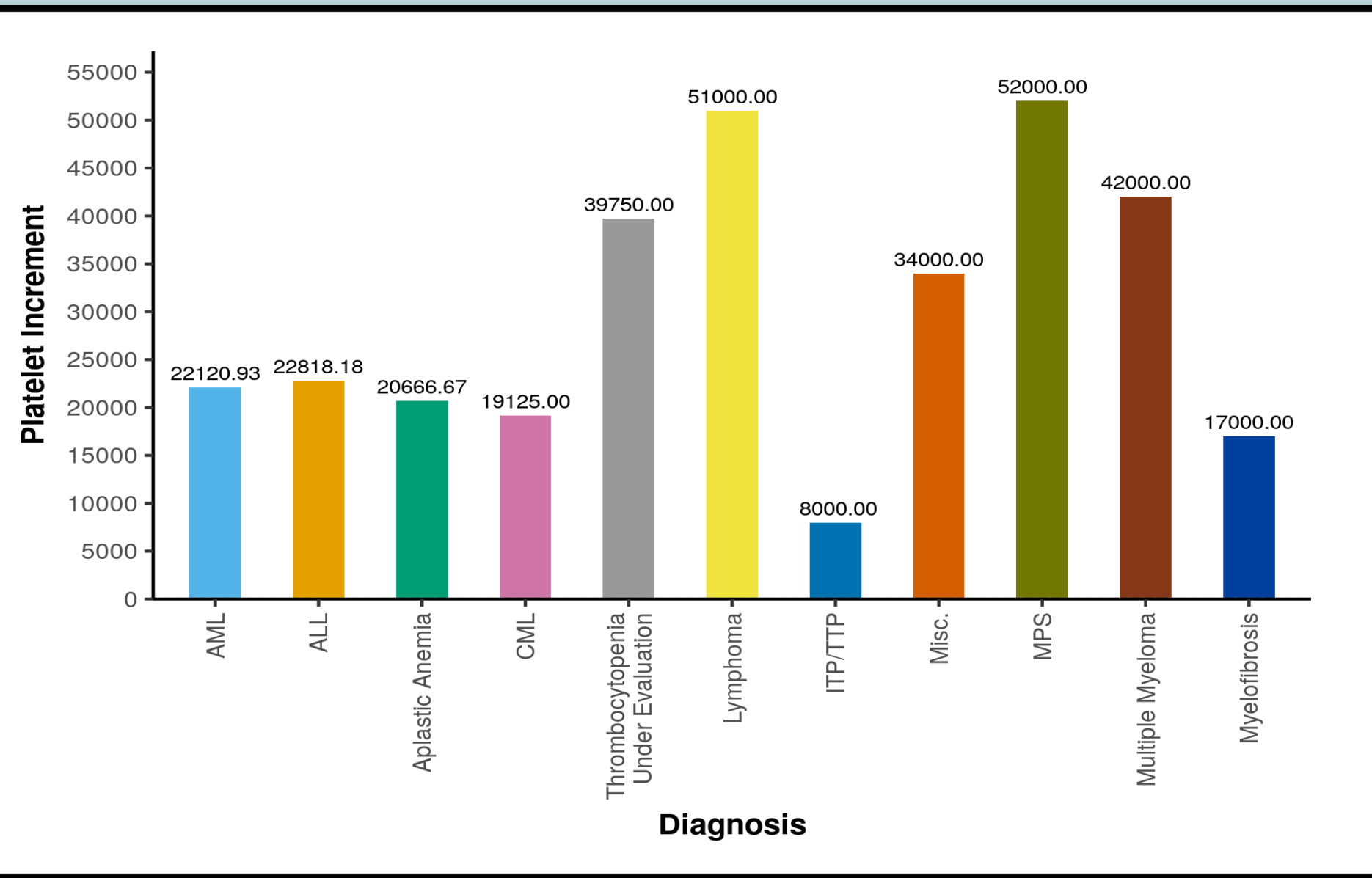
Results



- A **significant difference** was found between the 2 PX groups in terms of CCI ($p = 0.001$)
- A **statistically significant difference** between adequate and inadequate CCI response for crossmatch compatible and incompatible SDP transfusions ($p < 0.05$) [**chi-square =9.743;p=0.0018**].

Table. 1 Association Between Platelet Crossmatch and Objective outcomes- CCI and PPR

CCI	PX		Wilcoxon-Mann-Whitney U Test	
	Compatible	Incompatible	W	p value
Mean(SD)	17788.02 (10828.74)	11913.54 (8844.73)	1637.500	0.001
PPR	PX		Wilcoxon-Mann-Whitney U Test	
	Compatible	Incompatible	W	p value
Mean(SD)	44.81 (28.02)	28.70 (21.83)	1648.000	<0.001



- A **significant difference** between the 11 diagnoses groups in terms of Platelet Increment ($\chi^2 = 19.172, p = 0.038$)
- Median Platelet Increment being highest in the patients with Lymphomas as Diagnosis
- A weak positive correlation between Age (Years) and CCI Correlation was statistically significant ($\rho = 0.2, p = 0.043$)

Discussion

Authors	Year	Study Population	No.	Testing Method	Alloimmunisation	Refractoriness
Salama et al	2014	Hemato-Oncology	40	SPRCA	40%	61%(of Alloimm.)
Chavan et al	2014	Hemato-Oncology	38	SPRCA	87.5%	55.8%
Desai et al	2017	Hemato-Oncology	50	SPRCA	Compatible platelets ↔ higher CCI	
Present Study	2022 to 2023	Hemato-Oncology	101	SPRCA	63.4%	52.2%



Conclusions

- About 52.2% of the transfused patients were observed to be refractory to platelet therapy and 63.4% of them were found to be alloimmunized.
- Incompatible platelet transfusions accounted for 84.8% of the inadequate responses to platelet therapy.
- Transfusion of crossmatched platelets to refractory patients **ensured better post-transfusion platelet increment and platelet recovery.**

Future Directions

- Routine utilization of platelet crossmatch testing for the hemato-oncological patients with thrombocytopenia on supportive platelet therapy.

References

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3. Desai P, Sontakke P, Rajadhyaksha S, Navkudkar A. Correlation of platelet crossmatch results by Solid Phase Red Cell Adherence Assay (SPRCA) with post-transfusion platelet count increment in adult hemato-oncology patients of a tertiary care oncology centre in India. Transfus Apher Sci. 2020.

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Correspondence

Dr. Daljit Kaur

Associate Professor, Dept. of Transfusion Medicine AIIMS Rishikesh
doc.daljit@gmail.com

