IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

ANALYSIS OF PLATELET COUNT AND PLATELET TRANSFUSION IN PATIENTS UNDERGOING ELECTIVE ON-PUMP CORONARY ARTERY BYPASS GRAFTING SURGERY

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Abstract : This Study was done to know the platelet count and platelet transfusion requirement after the elective on pump CABG surgeries. In the study pre-operative platelet count and post-operative first 24hrs and 72hrs of platelet count has been observed including CPB time Cross clamp time, hypothermia level for the study in KLE Prabhakar Kore Hospital and Research Centre Belagavi.Data was taken from May 2021 – May 2022.

INTRODUCTION

Coronary artery bypass grafting is the most common cardiac surgical procedure. Thousands of CABG surgeries conducting by so many hospitals annually worldwide, due to improved surgical techniques and myocardial protection[1]. Cardiopulmonary bypass affects so many physiological conditions of patients intraoperative and post-operatively.

A decrease in platelet count is one of the major physiological conditions which can cause bleeding postoperatively. Platelets transfusion is administered in cardiac surgery to prevent and treat bleeding. The role of platelets has come under significant checking in various disease processes as they are increasingly recognized as important regulators of tissue inflammation. Some studies reported that in critically ill patients' postoperative low platelet count is associated with acute kidney injury and increased risk for mortality after Coronary artery bypass surgery[2]

Patients undergoing cardiac surgery will be at high risk of excessive bleeding and other complications. Platelets are small blood cells that help to form clots to stop bleeding. Normal platelet count and function are essential for proper coagulation function. Bleeding often leads to the transfusion of blood and blood components. Approximately 25-30% of CABG patients suffer from abnormal bleeding, with low platelet count and abnormal platelet function, and it is the most common cause of internal bleeding. Platelets are administered after CABG surgery if the patient's platelet count decreases below 50000, for the prevention and treatment of bleeding [3]. There is a strong relationship between perioperative platelet transfusion and increased postoperative mortality [4].

Postoperative bleeding and low platelet count due to physiological changes remain common risk factors after CABG surgery. This affects approximately 2-4% of patients and carries a higher risk for postoperative mortality. As increasing numbers of older patients with more comorbidities are undergoing CABG surgery, and as more patients are surviving after the surgery, the prediction, management, and prevention of bleeding after CABG surgery are the healthcare priorities of increasing concern. Cardiopulmonary bypass impairs platelet function and counts irrespective of the time of cessation. In addition, the use of heparin further contributes to impaired platelet function and platelet count. The etiology of low platelet count and bleeding after on-pump CABG surgery is complex and multifactorial with important differences between early 24hrs and delayed >24hrs. Most early bleeding and reduction in platelet count arise from hypothermia and longer bypass time during surgery, intraoperative hemodynamic status[5].

Abnormal or low platelet count is often considered to be one of the most important factors leading to postoperative bleeding and patients often require platelet transfusion because of reduced platelet count and function.[6]

Many studies have been conducted on platelet transfusion and physiological changes in platelet count after CABG surgery, but some of those studies conclude that further studies are required to analyze the platelet transfusion and platelet count in patients undergoing CABG[7]. This study concludes with changes in platelet count and platelet transfusion requirements after 24hrs and 72hrs of on-pump CABG surgery.

NEED OF THE STUDY.

Cardiopulmonary bypass surgery adversely affects platelet count on intraoperative and postoperative days. Patients will be at high risk of bleeding after cardiac surgery. Platelets are important blood components to prevent bleeding and forming a clot. This study is needed to evaluate and investigate postoperative platelet count and blood loss and the need for transfusion of platelets in patients undergoing CABG.

RESEARCH METHODOLOGY

1.1Population and Sample

The study was conducted in the department of cardiovascular and thoracic surgery at KLE UNIVERSITY Prabhakar Kore Hospital & MRC Belgavi. 105 participants were recruited between the age group of 18 to 80 years coming for CABG surgery requiring cardiopulmonary bypass (CPB) and fulfilling the inclusion criteria. Informed written consent was obtained from the participants. Data was collected postoperatively at 24 hours and 72 hours of surgery.

1.2 Data and Sources of Data

Data was collected using a heart-lung machine, a Hemotherm machine, and a post-operative patient's blood report chart. Preoperative platelet count, Intraoperative platelet transfusion, Postoperative platelet transfusion, Postoperative platelet count after 24 hours and 72 hours of surgery, Aortic cross-clamp time, Total Cardiopulmonary bypass time, Degree of hypothermia during cardiopulmonary bypass was taken for the study in Prabhakar Kore Hospital & MRC Belgavi.

1.3 Theoretical framework

Platelets are often observed for hematological stability of patient after any cardiac surgery. Platelet plays important role in coagulopathy effects. Pre and post-surgery platelet count was observed for the study. Elective On pump CABG surgery patients, Age group between 18-80 patients, Male &Female patients, Patients with Preoperative normal platelets count was included and History of previous cardiac surgery, Emergency patients, above 80-year-old patients, Patient's history of abnormal renal and liver function, Patients on antiplatelet drugs till the day of surgery excluded in this study

1.4Statistical tools

Data were entered in MS Excel and analyzed using SPSS version 22 software for statistical measures such as averages and proportions and **a** Post Hoc Test was applied to observe postoperative platelet count at 24 hours and 72 hours of surgery. $P<0.05$ was considered statistically significant and those which are less than 0.01 were considered highly significant.

2.1 Results of Descriptive Statics of Study Variables

Table 1: Descriptive Statics

Table 1: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Age	105	47	35	82	60.14	8.885
Preop Platelet Count (Lac/Thousand)	105	2.78	1.51	4.29	2.8120	0.67017
Postop 24 Hours later Platelet Count (Lac/Thousand)	105	2.85	0.93	3.78	2.2893	0.63998
Postop 72 hours Later Platelet Count (Lac/Thousand)	105	3.10	0.56	3.66	2.0654	0.65962
Total CPB Time (min)	105	144	57	201	111.68	23.684
Total Cross Clamp Time (min)	105	112	34	146	69.59	18.234
Degree Of Hypothermia ('C)	105	4	28	32	30.94	1.082

Table 1 indicates descriptive static of Age, preop platelet count, and postop platelet counts after 24 hrs and 72 hrs of surgery, total CPB Time, total cross-clamp time, and degree of hypothermia. Out of 105 participants, the minimum age of participants was 35 years and the maximum age of participants was 82 years with a mean of 60.14 at a stander deviation of 8. 885. Preop platelet count range was 2.78Lac, the minimum platelet count of participants is 1.51Lac and the maximum platelet count was 4.29 Lac with a mean of 2.8120 at a standard deviation of 0.67017. Postop 24 hours later platelet count range was 2.85 Lac, the minimum platelet count of participants is 0.93 Lac and the maximum Platelet count of participants was 3.78Lac with a mean of 2.2893 at a stander deviation of 0.63998. Postop 72 hours later platelet count range was 3.10Lac, the minimum platelet count of participants was 0.56Lac and the maximum Platelet count of participants was 3.66Lac with a mean of 2.0654 at a stander deviation of 0.65962. For all 105 participants total CPB time range was 144 min minimum CPB time of surgery was 57min, maximum CPB time of surgery was 201min with a mean of 111.68 at a standard deviation of 23.684. The total cross-clamp time range was 112 min, the minimum cross-clamp time was 34min, and the maximum cross-clamp time was 146 min with a mean of 69.59 at a standard deviation of 18.234. The total degree of hypothermia range was 4'C, the minimum degree of hypothermia was 28'C, and the maximum degree of hypothermia was 32'C with a mean of 30.94 at a stander deviation of 1.082.

Table 2: Cross tabulation between Preoperative Platelet Count and Postop 24 Hours later Platelet Count Cross tabulation

Preoperative Platelet Count * Postop 24 Hours later Platelet Count Cross tabulation							
			Postop 24 Hours later Platelet Count (Lac/Thousand)			Total	P-value
			less than 1.5	between 1.5 to 3.5	more than 3.5		
Preop Platelet Count (Lac/Thousand)	between 1.5 to 3.5	Count	13	76	0	89	0.001
		% within Pre op Platelet Count (Lac/Thousand)	14.6%	85.4%	0.0%	100.0%	
	between 3.5 to 4.5	Count	0	12	4	16	
		% within Pre op Platelet Count (Lac/Thousand)	0.0%	75.0%	25.0%	100.0%	
Total		Count	13	88	4	105	
		% within Pre op Platelet Count (Lac/Thousand)	12.4%	83.8%	3.8%	100.0%	

Table 2 indicates the cross tabulation between preoperative and postoperative 24 hrs later platelet count. Out of 89 participants, 13 (14.6%) participants' Preop platelet count dropped to less than 1.5Lac postoperative, meanwhile 76 (85.4%) participants' postoperative platelet count was roughly constant between 1.5Lac to 3.5 Lac. Not even one participant's platelet count was improved above 3.5 Lac in 24 hours evaluation. For participants who were having preop platelet count between 3.5-4.5Lac, no one had a platelet count less than 1.5 Lac meanwhile 12 (75.0%) participant's platelet count was roughly constant between 1.5-3.5 Lac, followed by 16 (100.0%) platelet count was more than 3.5 Lac. overall 13(12.4%) participant's platelet count was less than 1.5Lac, 88(83.8%) participants' platelet count was between 1.5-3.5Lac, and 4(3.8%) participants' platelet count was more than 3.5 Lac in postoperative after 24hrs of surgery.

Table 3: Cross tabulation Between Preop Platelet Count and Postop 72 hours Later Platelet Count Cross tabulation

			Postop 72 hours Later Platelet Count (Lac/Thousand)			Total	P-value
			less than 1.5	between 1.5 to 3.5	more than 3.5		
Preop Platelet Count (Lac/Thousand)	between 1.5 to 3.5	Count	22	67	0	89	0.039
		% Within Preop Platelet Count (Lac/Thousand)	24.7%	75.3%	0.0%	100.0%	
	between 3.5 to 4.5	Count	2	13	1	16	
		% Within Preop Platelet Count (Lac/Thousand)	12.5%	81.3%	6.3%	100.0%	
Total		Count	24	80	1	105	
		% Within Preop Platelet Count (Lac/Thousand)	22.9%	76.2%	1.0%	100.0%	

Table 3: Indicates the cross tabulation between preoperative and postoperative 72 hrs later platelet count. Out of 89 participants, 22 (24.7%) participants' Preop platelet count dropped to less than 1.5Lac in postoperative, meanwhile, 67 (75.3%) participants' postoperative 72hrs later platelet count was roughly constant between 1.5Lac to 3.5 Lac. Not even one participant's platelet count was improved above 3.5 Lac in 72 hours of evaluation. For participants who were having preop platelet count between 3.5-4.5Lac, 2(12.5%) participants had a platelet count less than 1.5 Lac meanwhile 13 (81.3%) participant's platelet count was roughly constant between 1.5-3.5 Lac, followed by 01 (6.3%) participants platelet count was more than 3.5 Lac. overall 24(22.9%) participant's platelet count was less than 1.5Lac, 80(76.2%) participants' platelet count was between 1.5-3.5Lac, and 1(1.0%) participants' platelet count was more than 3.5 Lac in postoperative after 72 hrs of surgery.

Table 4: Descriptive

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Preop Platelet Count (Lac/Thousand)	105	2.81200	0.670174	0.065402	2.68230	2.94170	1.510	4.290
Postop 24 Hours later Platelet Count (Lac/Thousand)	105	2.28933	0.639979	0.062456	2.16548	2.41319	0.930	3.780
Postop 72 hours Later Platelet Count (Lac/Thousand)	105	2.06543	0.659620	0.064372	1.93778	2.19308	0.560	3.660
Total	315	2.38892	0.725732	0.040890	2.30847	2.46937	0.560	4.290

Table 4. The descriptive table provides some very useful descriptive statistics about platelet count including the mean, standard deviation, and 95% confidence intervals for the dependent variable for each separate group (preop platelet count, postop platelet count after 24hrs and 72hrs of surgery.

Table 5: ANOVA

Value					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.824	2	15.412	35.736	0.0001
Within Groups	134.556	312	0.431		
Total	165.380	314			

Table 5. This is the table that shows the output of the ANOVA analysis and whether there is a statistically significant difference between group {Preop, Postop 24 later, Postop72hrs.} means. We can see that the significance value is 0.0001 (p = 0.001), which is below 0.05. And, therefore, there is a statistically significant difference in the mean platelet count between Preop, Postop 24 later, and Postop72hrs.

Post Hoc Tests

Table 6: Multiple Comparisons

Tukey HSD

(I) group		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Preop Platelet Count (Lac/Thousand)	Postop 24 Hours later Platelet Count (Lac/Thousand)	.522667*	0.090635	0.000	0.30923	0.73611
	Postop 72 hours Later Platelet Count (Lac/Thousand)	.746571*	0.090635	0.0001	0.53313	0.96001
	Preop Platelet Count (Lac/Thousand)	-.522667*	0.090635	0.0001	-0.73611	-0.30923

Postop 24 Hours later Platelet Count (Lac/Thousand)	Postop 72 hours Later Platelet Count (Lac/Thousand)	.223905*	0.090635	0.037	0.01046	0.43735
Postop 72 hours Later Platelet Count (Lac/Thousand)	Preop Platelet Count (Lac/Thousand)	-.746571*	0.090635	0.0001	-0.96001	-0.53313
	Postop 24 Hours later Platelet Count (Lac/Thousand)	-.223905*	0.090635	0.037	-0.43735	-0.01046

Table 6. The table Multiple Comparisons shows which groups differed from each other. The Tukey post hoc test is generally the preferred test for conducting post hoc tests on a one-way ANOVA. We can see from the above table that there is a statistically significant difference in value to complete the problem between the group that took the preop platelet count and postop 24hrs later platelet count (p = 0.0001), as well as between the preop platelet count and postop 72hrs later platelet count (p = 0.037). However, there were no differences between the groups that took the postop24hrs later platelet count and postop 72hrs later platelet count (p = 0.037).

Table 7: Cross tabulation of Post-Operative Platelet Transfusion Based on Postop 24 Hours later Platelet Count

			Postop 24 Hours later Platelet Count (Lac/Thousand)			Total
			less than 1.5	between 1.5 to 3.5	more than 3.5	
Post-Operative Platelet Transfusion (ml)	Yes	Count	6	7	0	13
		% Within Post-Operative Platelet Transfusion (ml)	46.2%	53.8%	0.0%	100.0%
	No	Count	7	81	4	92
		% Within Post-Operative Platelet Transfusion (ml)	7.6%	88.0%	4.3%	100.0%
Total		Count	13	88	4	105
		% Within Post-Operative Platelet Transfusion (ml)	12.4%	83.8%	3.8%	100.0%

Table 7 indicates the statically analysis of platelet transfusion in post-operative after 24hrs of surgery. Out of 105 patients, only 13 (100.0%) patients received platelet transfusion. Out of 13 patients 6(46.2%) patients platelet count were below 1.5Lac, 7(53.8%) patients platelet count were between 1.5-3.5Lac.

Table 8: Cross tabulation of Post-Operative Platelet Transfusion Based on Postop 72 hours Later Platelet Count

.			Postop 72 hours Later Platelet Count (Lac/Thousand)			Total
			less than 1.5	between 1.5 to 3.5	more than 3.5	
Post-Operative Platelet Transfusion (ml)	Yes	Count	9	4	0	13
		% within Post-Operative Platelet Transfusion (ml)	69.2%	30.8%	0.0%	100.0%
	No	Count	15	76	1	92
		% within Post-Operative Platelet Transfusion (ml)	16.3%	82.6%	1.1%	100.0%
Total		Count	24	80	1	105
		%	22.9%	76.2%	1.0%	100.0%

Table 8 indicates the statically analysis of platelet transfusion in post-operative after 72hrs of surgery. Out of 105 patients, only 13 (100.0%) patients received platelet transfusion. Out of 13 patients 9(69.2%) patients platelet count were below 1.5Lac, 4(30.8%) patients platelet count were between 1.5-3.5Lac.

Table 9: Correlation between Age and Postop 24 Hours later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed)
Age	60.14	8.885	105	0.054	0.582
Postop 24 Hours later Platelet Count (Lac/Thousand)	2.2893	0.63998	105		

Table 10: Correlation between Age and Postop 72 Hours later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed)
Age	60.14	8.885	105	0.086	0.382
Postop 72 Hours later Platelet Count (Lac/Thousand)	2.0654	0.65962	105		

Figure 1: Correlation between Age and Postop 24 Hours later Platelet Count

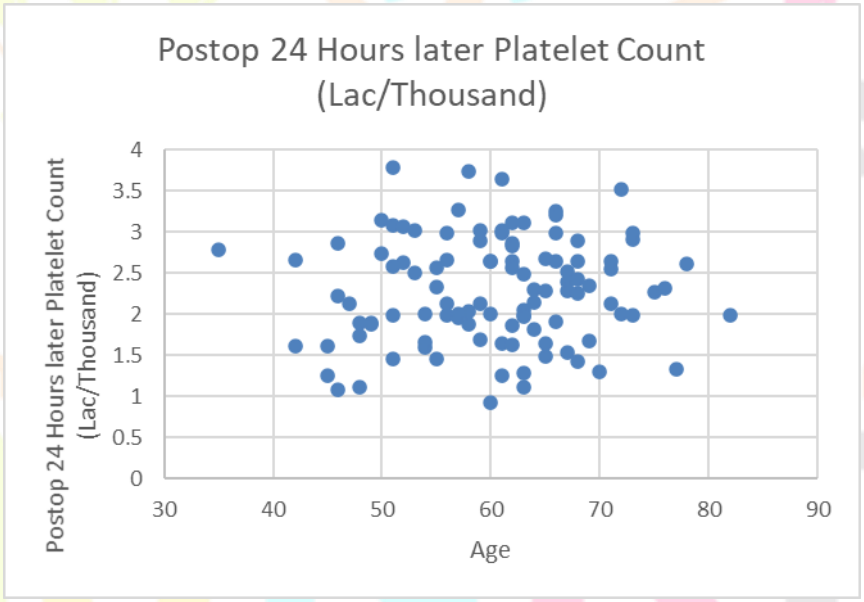

Table 9 and Figure 1 show the Correlation between Age and Postop 24 Hours later Platelet Count.

Figure 2: Correlation between Age and Postop 72 Hours later Platelet Count

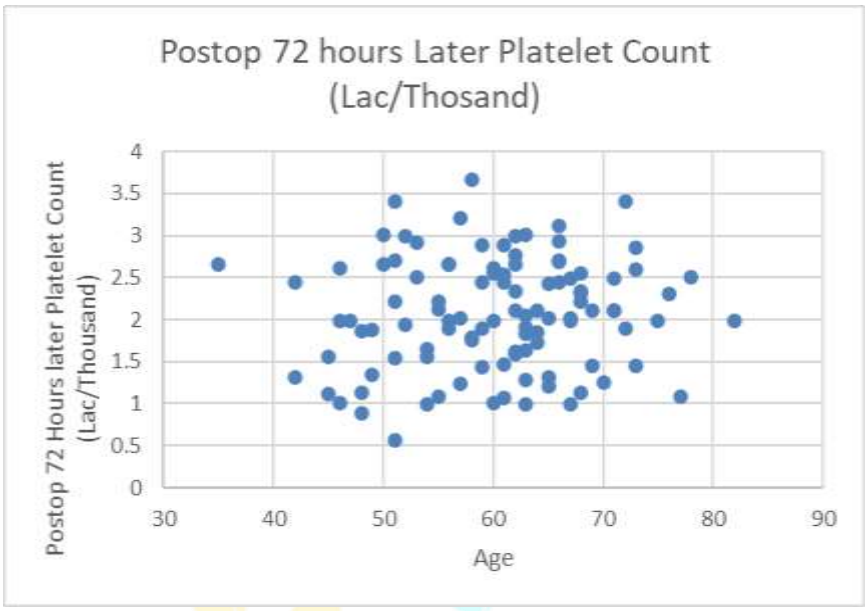

Table 10 and Figure 2 shows the Correlation between Age and Postop 72 Hours later Platelet Count.

Table 11: Correlation between Total CPB Time and Postop 24 Hours later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed) / Pvalue
Total CPB Time (min)	111.68	23.684	105	-.225*	0.021
Postop 24 Hours later Platelet Count (Lac/Thousand)	2.2893	0.63998	105		

Figure 3: Correlation between Total CPB Time and Postop 24 Hours later Platelet Count

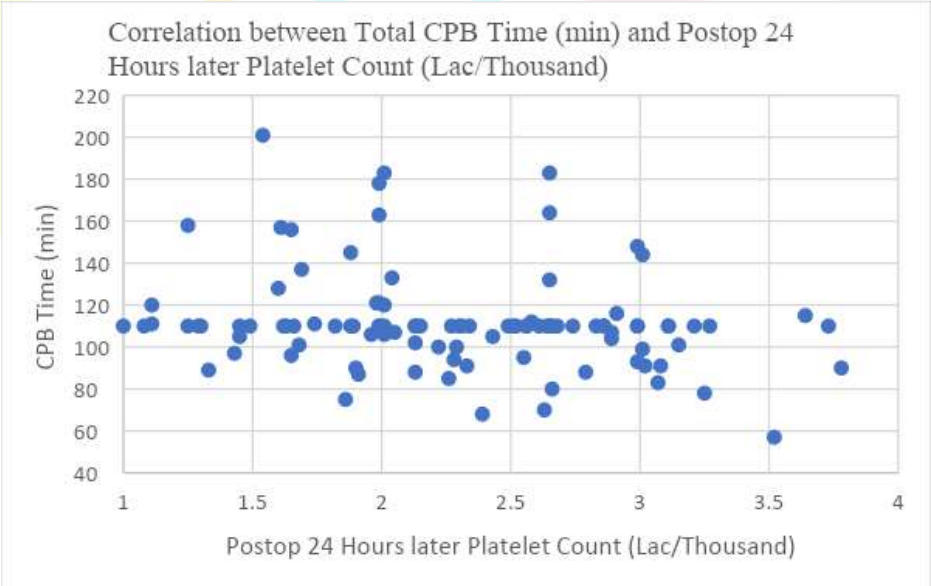

Table 11 and Figure 3 shows a Correlation between Total CPB Time and Postop 24 Hours later Platelet Count.

Table 12: Correlation between Total CPB Time and Postop 72 Hours later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed) / Pvalue
Total CPB Time (min)	111.68	23.684	105	-0.260**	0.008
Postop 72 Hours later Platelet Count (Lac/Thousand)	2.0654	0.65962	105		

Figure 4: **Correlation between Total CPB Time and Postop 72 Hours later Platelet Count**

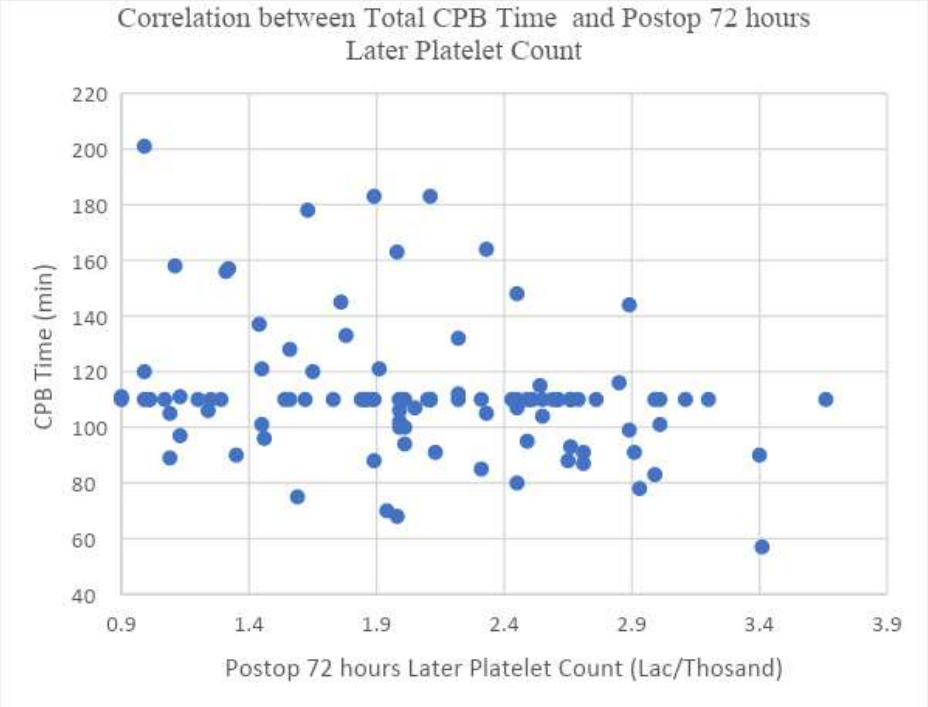

Table 12 and Figure 4 shows a Correlation between Total CPB Time and Postop 72 Hours later Platelet Count.

Table 13: Correlation between Total Cross Clamp Time and Postop 24 Hours later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed) / Pvalue
Total Cross Clamp Time (min)	69.59	18.234	105	-.344**	0.001
Postop 24 Hours later Platelet Count (Lac/Thousand)	2.2893	0.63998	105	0	

Figure 5: Correlation between Total Cross Clamp Time and Postop 24 hours Later Platelet Count

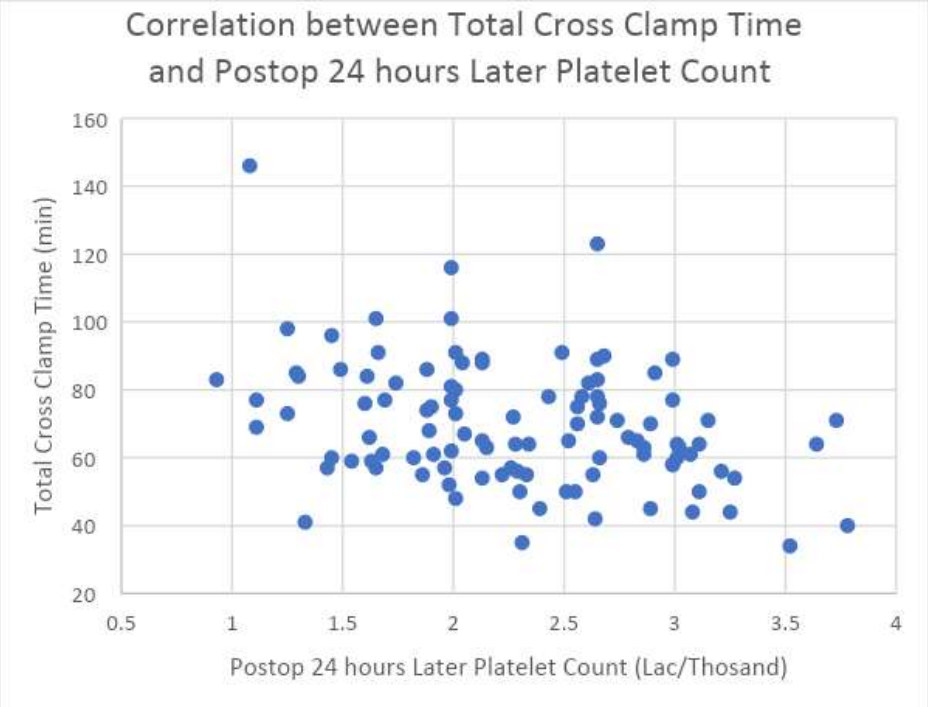

Table 13 and Figure 5 shows a Correlation between Total Cross Clamp Time and Postop 24 hours Later Platelet Count.

Table 14: Correlation between Total Cross Clamp Time and Postop 72 hours Later Platelet Count.

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed) / Pvalue
Total Cross Clamp Time (min)	69.59	18.234	105	-.371**	0.000
Postop 72 hours Later Platelet Count (Lac/Thosand)	2.0654	0.65962	105		

Figure 6: Correlation between total cross-clamp time and Postop 72 hours later Platelet Count

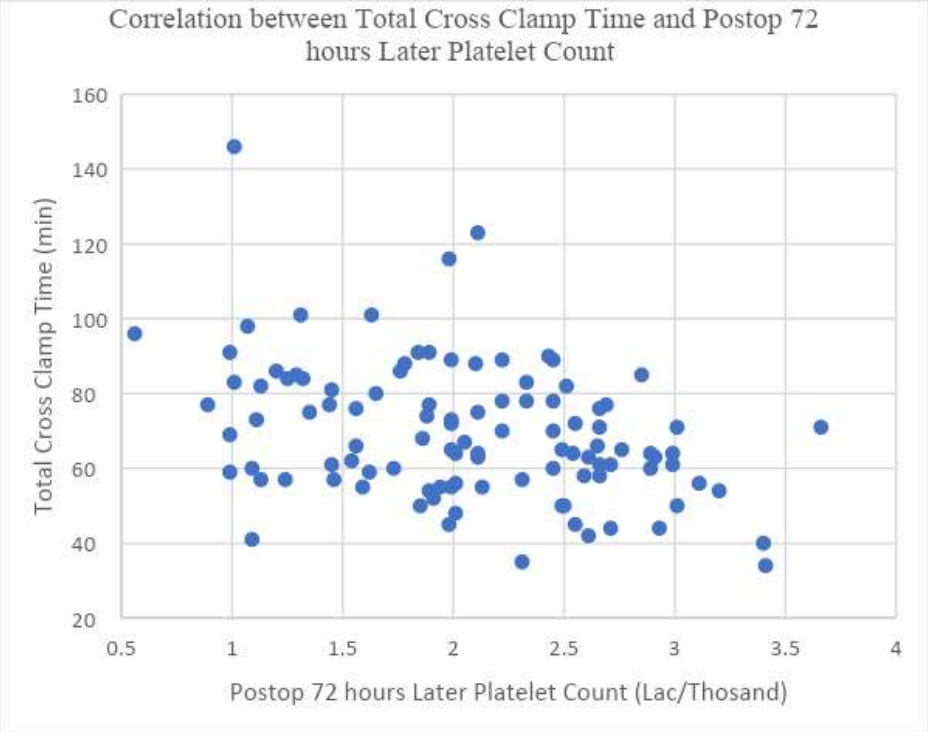

Table 14 and Figure 6 represent the Correlation between the Degree of Hypothermia and Postop 24 Hours later Platelet Count**.**

Table 15: Correlation between Degree of Hypothermia and Postop 24 Hours later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed) / Pvalue
Degree Of Hypothermia ('C)	30.94	1.082	105	.240*	0.014
Postop 24 Hours later Platelet Count (Lac/Thousand)	2.2893	0.63998	105		

Figure 7: Correlation between Degree of Hypothermia and Postop 24 Hours later Platelet Count

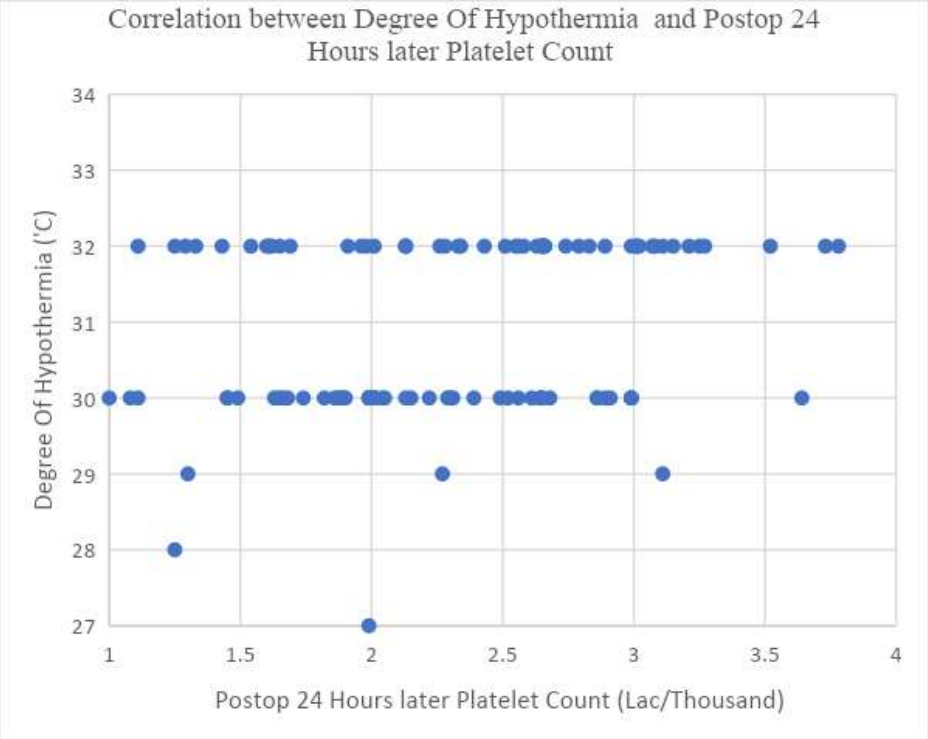

Table 15 and Figure 7 represent the Correlation between the Degree of Hypothermia and Postop 24 Hours later Platelet Count.

Table 16: Correlation between Degree of Hypothermia and Postop 72 hours Later Platelet Count

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed) / Pvalue
Degree Of Hypothermia ('C)	30.94	1.082	105	.290**	0.003
Postop 72 hours Later Platelet Count (Lac/Thosand)	2.0654	0.65962	105		

Figure 8: Correlation between Degree of Hypothermia and Postop 72 hours Later Platelet Count

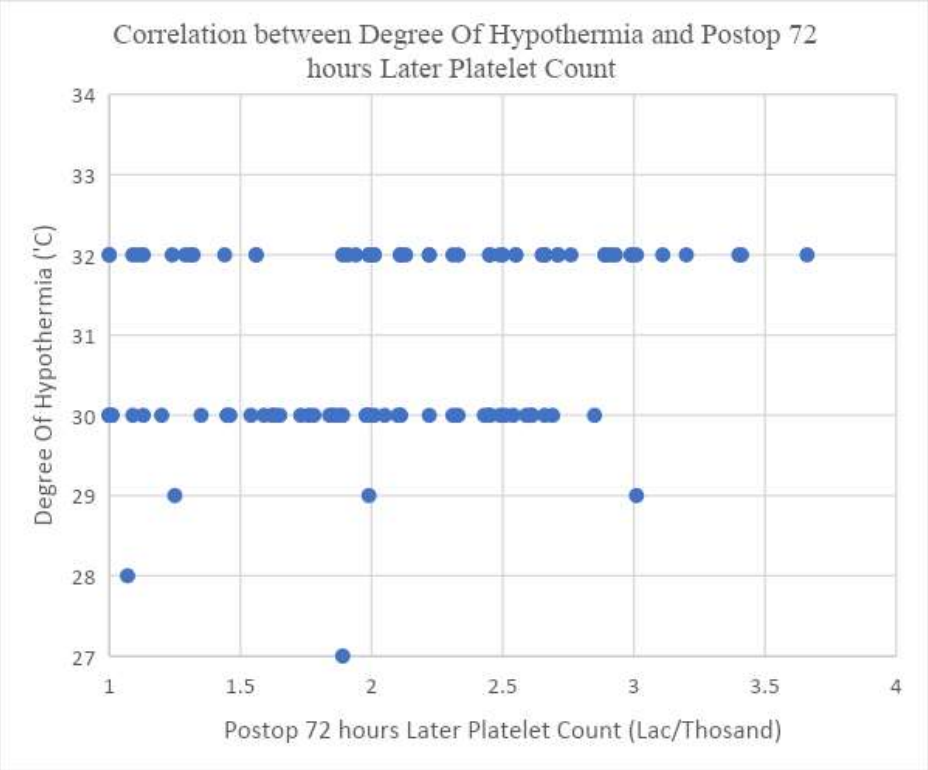

Table 16 and Figure 8 shows a Correlation between the Degree of Hypothermia and Postop 72 hours Later Platelet Count

Table 17: Gender Cross tabulation based on preop platelet count

		Gender		Total
		Male	Female	
Peop Platelet Count (Lac/Thousand)	between 1.5 to 3.5	75	14	89
	between 3.5 to 4.5	6	10	16
Total		81	24	105

Graph 1: Gender Cross tabulation Based on Preop Platelet Count

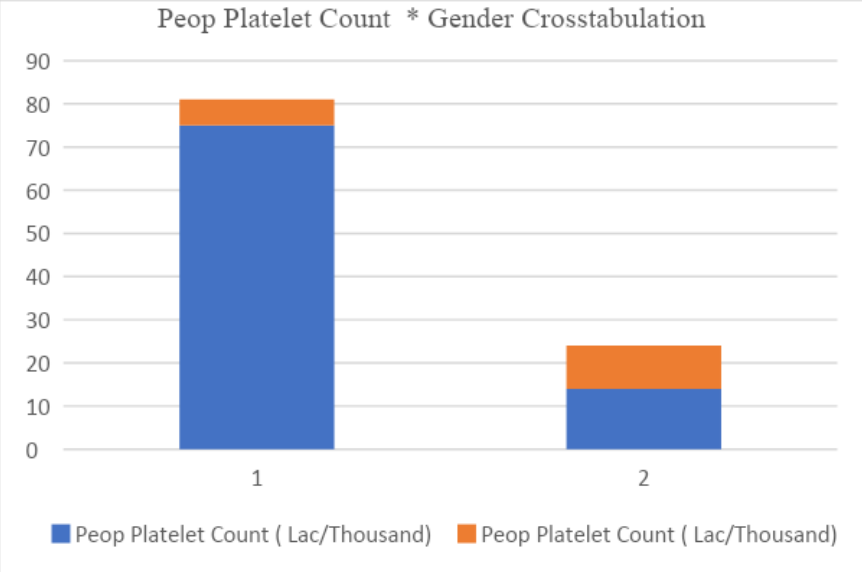

Table 17 and Graph **1** shows Gender cross tabulation based on prop platelet count. out of 105 patients,75 male and 14 female, a total of 89 patients' platelet counts were between 1.5-3.5Lac followed by 6 male patients and 10 female, a total of 16 patients' platelet count was between 3.5-4.5Lac before the surgery (Preop). A total of 81 male and 24 female patients' platelet count was taken before the surgery (Preop) for the study

Table 18: Gender Cross tabulation Based Postop 24 Hours Later Platelet Count

		Gender		Total
		Male	Female	
Postop 24 Hours later Platelet Count (Lac/Thousand)	less than 1.5	12	1	13
	between 1.5 to 3.5	68	20	88
	more than 3.5	1	3	4
Total		81	24	105

Graph 2: Gender Cross tabulation Based Postop 24 Hours Later Platelet Count

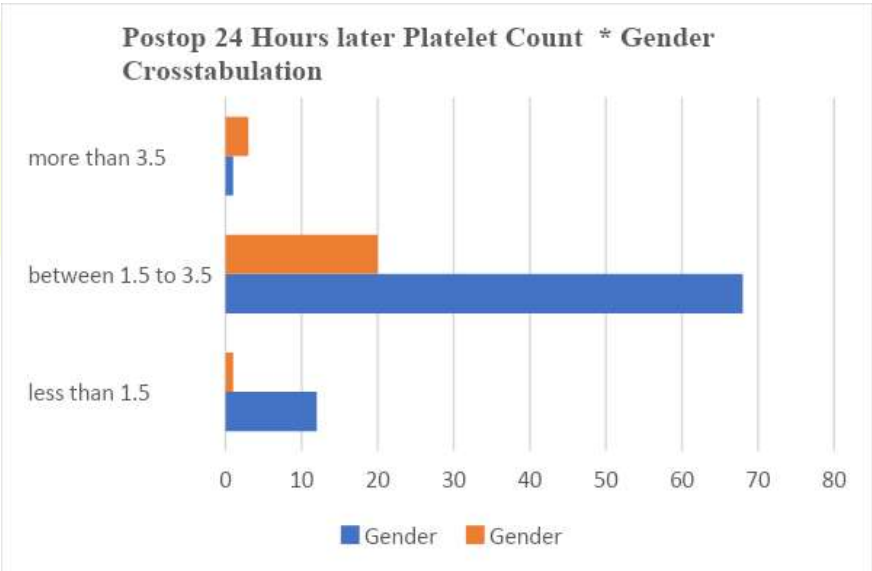

Table 18 and Graph 2 shows Gender cross tabulation based on postop 24hrs later platelet count. out of 105 patients,12 male and 1 female, a total of 13 patients' platelet counts were between 1.5-3.5Lac followed by 68 male patients and 20 females, a total of 88 patients' platelet count was between 1.5-3.5Lac,1 male and 3 female, total 4 patients post-op 24hrs later platelet count was more than 3.5Lac. A total of 81 male and 24 female patients' platelet count was taken postop after 24hrs of the surgery for the study.

Table 19: Gender Cross tabulation based on Postop 72 hours Later Platelet Count

		Gender		Total
		Male	Female	
Postop 72 hours Later Platelet Count (Lac/Thousand)	less than 1.5	23	1	24
	between 1.5 to 3.5	57	23	80
	more than 3.5	1	0	1
Total		81	24	105

Graph 3: Gender Cross tabulation based on Postop 72 hours Later Platelet Count

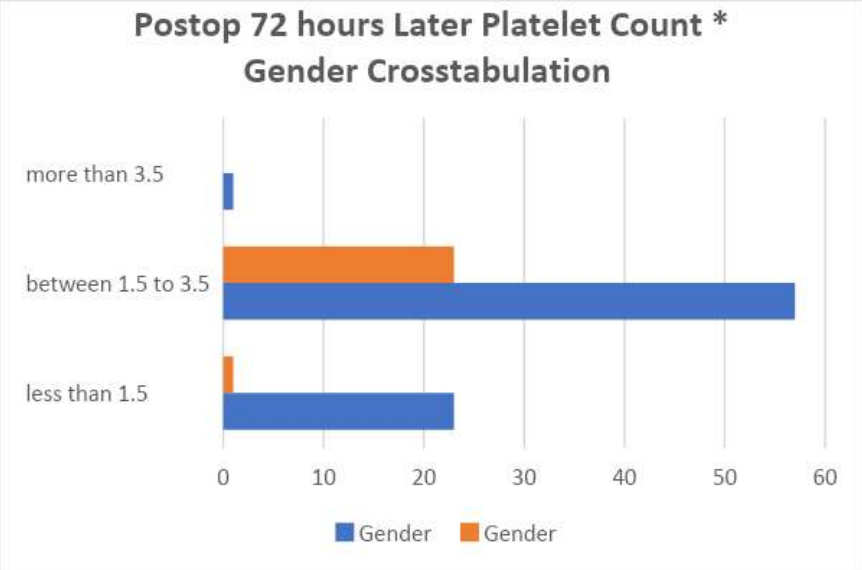

Table 19 and Graph 3 show Gender cross tabulation based on postop 72hrs later platelet count. out of 105 patients,23 male and 1 female, a total of 24 patients' platelet counts were between 1.5-3.5Lac followed by 57 male patients and 23 female, a total of 80 patients' platelet counts was between 1.5-3.5Lac, only 1 male patients post-op 72hrs later platelet count was more than 3.5Lac. A total of 81 male and 24 female patients' platelet count was taken in postop after 72hrs of surgery for the study.

Table 20: Gender Cross tabulation Based on Total CPB Time

		Gender		Total
		Male	Female	
Total CPB Time (min)	Below 120	65	22	87
	Above 120min	16	2	18
Total		81	24	105

Graph 4: Gender Cross tabulation Based on Total CPB Time

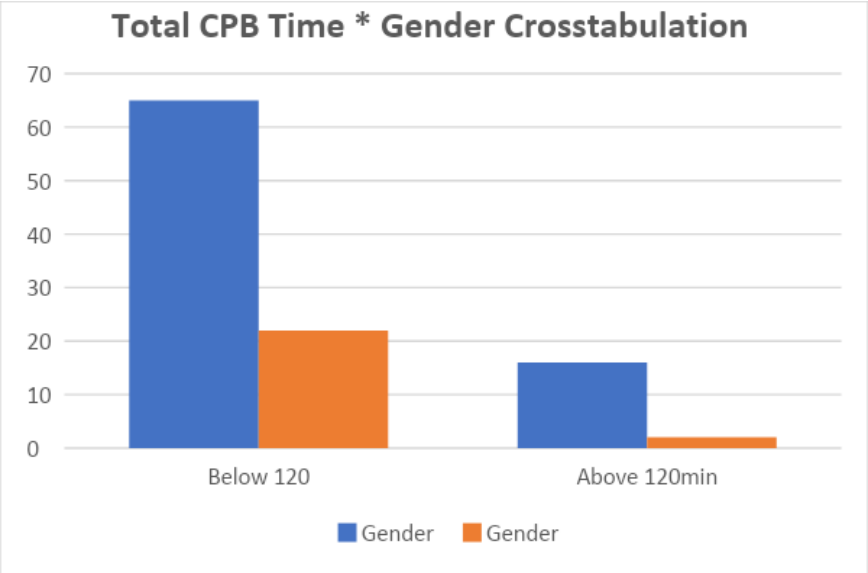

Table 20 and Graph 4 shows Gender Cross tabulation based on Total CPB Time. Out of 105 patients, 65 male and 22 female, a total of 87 patients' CPB time was below 120min followed by 16 male and 2 female, a total of 18 patients' CPB time was more than 120min. A total of 81 male and 24 female patients' CPB time was taken intraoperative for the study

Table 21: Gender Cross tabulation Based on Total Cross Clamp Time

		Gender		Total
		Male	Female	
Total Cross Clamp Time (min)	Below 100min	76	24	100
	Above 100min	5	0	5
Total		81	24	105

Graph 5 Gender Cross tabulation Based on Total Cross Clamp Time

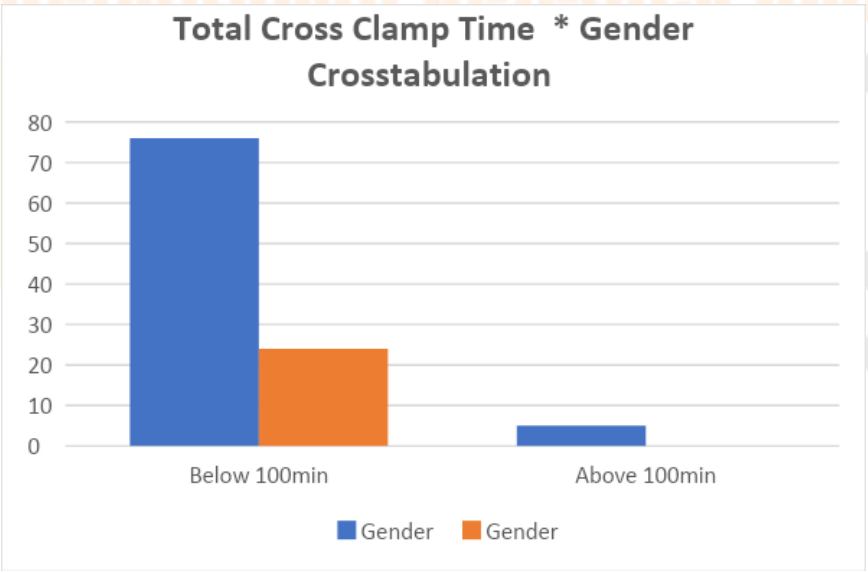

Table 21 and Graph 5 shows Gender Cross tabulation based on Total Cross Clamp Time. Out of 105 patients, 76 male and 24 female, a total of 100 patients' Cross Clamp Time was below 100min followed by only 5 male patients' Cross Clamp Time was more than 100min. A total of 81 male and 24 female patients Cross Clamp Time was taken intraoperative for the study.

2.2 DISCUSSION

A decrease in platelet count is one of the major physiological conditions which can cause bleeding postoperatively. Platelets transfusion is administered in cardiac surgery to prevent and treat bleeding. The role of platelets has come under significant checking in various disease processes as they are increasingly recognized as important regulators of tissue inflammation. Some studies reported that in critically ill patients' postoperative low platelet count is associated with acute kidney injury and increased risk for mortality after Coronary artery bypass surgery.

This study was conducted in the department of cardiovascular and thoracic surgery at Shri B.M Patil Superspeciality Hospital Vijayapura. 105 participants were recruited between the age group of 18 to 80 years coming for CABG surgery requiring cardiopulmonary bypass (CPB). Data was collected postoperatively at 24 hours and 72 hours of surgery. Intraoperative platelet transfusion, postoperative platelet transfusion, postoperative platelet count after 24 hours and 72 hours of surgery, aortic cross-clamp time, total Cardiopulmonary bypass time, degree of hypothermia during cardiopulmonary bypass These Data were Collected Post and preoperatively to Perform Study. The objective of this study was to evaluate the Platelets, count Pre and Postoperatively, and the requirement of platelet transfusion in patients undergoing elective on-pump CABG surgery and to study the impact of cardiopulmonary bypass on platelets to total cardiopulmonary bypass time, cross-clamp time, and degree of hypothermia used during cardiopulmonary bypass. Data were analyzed using SPSS version 22 software for statistical measures such as averages and proportions and Post Hoc Test was applied to observe postoperative platelet count at 24 hours and 72 hours of surgery. $P<0.05$ was considered statistically significant.

Results of our study shows that out of 105 participants, the minimum age of participants was 35 years and the maximum age of participants was 82 years. Preop platelet count range was 2.78Lac, the minimum platelet count of participants is 1.51Lac and the maximum platelet count was 4.29 Lac. Postop 24 hours later platelet count range was 2.85Lac, the minimum platelet count of participants is 0.93Lac and the maximum Platelet count of participants was 3.78Lac. Postop 72 hours later platelet count range was 3.10Lac, the minimum platelet count of participants was 0.56Lac and the maximum Platelet count of participants was 3.66Lac. For all 105 participants total CPB time range was 144min minimum CPB time of surgery was 57min, maximum CPB time of surgery was 201min. The total cross-clamp time range was 112min, minimum cross-clamp time was 34min, and maximum cross-clamp time was 146 min. The total degree of hypothermia range was 4'C, the minimum degree of hypothermia was 28'C, and the maximum degree of hypothermia was 32'C. .out of 105 participants 13 (14.6%) participants platelet count dropped to less than 1.5Lac, 88 (83.8%) participants platelet count dropped to 1.5-3.5Lac, only 4 (1.0%) participants platelet count maintained more than 3.5Lac at postop 24hrs after the surgery. Followed by out of 105 participants 24 (22.9%) participants platelet count dropped to less than 1.5Lac followed by 80 (76.2%) participants platelet count dropped to 1.5-3.5Lac, only 1 (1.0%) participants platelet count maintained more than 3.5Lac at postop 72hrs after the surgery. All participants platelet counts in postop24 hrs and 72hrs later remained within the normal range, but few patients' platelet counts were less than the normal range.

Out of 105 patients,75 male and 14 female, a total of 89 patients' platelet count were between 1.5-3.5Lac followed by 6 male patients and 10 females, a total of 16 patients' platelet count was between 3.5-4.5Lac before the surgery (Preop). A total of 81 male and 24 female patients' platelet count was taken before the surgery (Preop) for the study. On postoperative days after 24hrs of surgery 75 males and 14 females, a total of 89 patients' platelet count was between 1.5-3.5Lac followed by 6 male patients and 10 females, a total of 16 patients' platelet count was between 3.5-4.5Lac before the surgery (Preop). On a postoperative day after 72hrs of surgery,23 male and 1 female, a total of 24 patients' platelet count were between 1.5-3.5Lac followed by 57 male patients and 23 female, a total of 80 patients' platelet count was between 1.5-3.5Lac, only 1 male patient post-op 72hrs later platelet count was more than 3.5Lac.

In our study out of 105 patients, 65 male and 22 female, a total of 87 patients' CPB time were below 120min followed by 16 male and 2 female, a total of 18 patients' CPB time was more than 120min and 76 male and 24 female, total 100 patients Cross Clamp Time was below 100min followed by only 5 male patients Cross Clamp Time was more than 100min. Total of 81 male and 24 female patients CPB time Cross Clamp Time was taken intraoperative for the study.

2.3 CONCLUSION

- The study results statically showed no significant decreases in the platelets count in the postoperative period after 24hrs and 72hrs after CABG surgery.
- Platelet counts remained in the normal range after the surgery.
- Reduction in the platelet count was observed which clinically did not required platelet transmission.
- Higher CPB time and higher level of hypothermia resulted in decreased count of platelet which was still in the normal range and transfusion was not required.

I. ACKNOWLEDGMENT

At the outset, I wish to thank my Almighty GOD for his guidance and blessings in every step of my life.

My sincere gratitude and thanks to ALL PERFUSIONISTS for helping in the study.

It gives me immense pleasure to dedicate my research work to the feet of my adorable and affectionate parents without their blessings and vision. This would not have been possible.

I thank my colleagues for their cooperation and support.

Last but not the least, this acknowledgment is incomplete if I fail in my duty to thank all my study subjects who have wholeheartedly participated in the study and have made the study complete.

Finally, I would like to thank all those who have directly and indirectly supported and helped me to complete my reseach
.

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