EXPEDIENCE OF PLATELET TRANSFUSION IN TRAUMATIC BRAIN INJURY DOES NOT IMPROVE INHIBITION

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Introduction

Secondary injury in traumatic brain injury (TBI) must be prevented to improve outcomes. Progression of TBI can result in devastating consequences. In TBI patients, platelet inhibition in known to occur and transfusion of platelets may improve inhibition and decrease bleed progression. We hypothesized that earlier transfusion of platelets after diagnosis of TBI with platelet inhibition would lead to improvement in the percent of inhibition and decrease the rate of bleed progression.

Methods

All adult patients presenting to a level 1 trauma center with TBI received a thromboelastography with platelet mapping (TEG-PM) assay from December 2019 to July 2020. Patients found to exhibit platelet inhibition were transfused a single unit of platelets. Time to transfusion, response measured by TEG, and bleed progression were recorded and reviewed retrospectively.

Table 1: Correlation between Time of Receiving Platelets (min) and %AA, %ADP, MA response.[a]

		Time	
	Total	P value	Correlation
Before/ After %AA	101	.718	-0.036
Before/ After %ADP	101	.632	0.048
Before/ After MA	103	.133	0.149

Abbreviations: AA, Arachidonic acid; ADP, Adenosine diphosphate; AIS, Abbreviated Injury Scale; MA, Maximum Amplitude

Table 1: Association between Time of Receiving Platelets (min) and Bleed Progression.

	Decreased Bleed Progression		
	P value	OR	95% CI
Time of Receiving Platelets (min)	.916	1.000	0.999 – 1.001

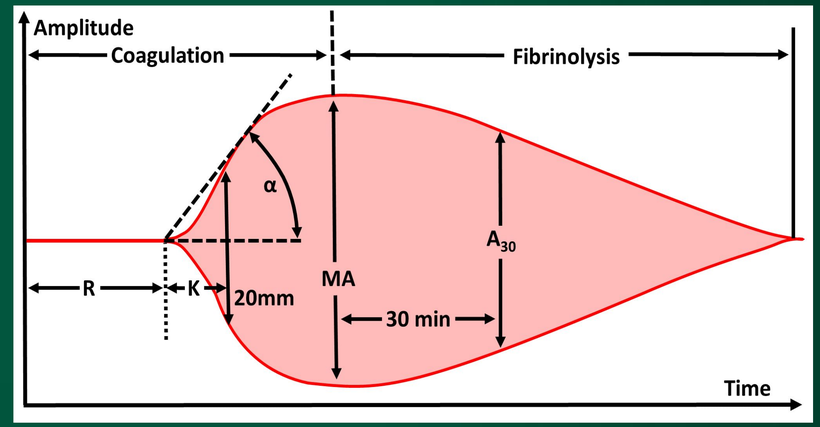
Abbreviations: OR, Odds Ratio; 95% CI, 95% Confidence Inteval

Results

No correlation between time to receiving platelets (minutes) and response to platelet transfusion in terms of percent adenosine diphosphate inhibition (p=0.632), percent arachidonic acid inhibition (p=0.718), nor max amplitude (p=0.133) was noted. The logistic regression model was not statistically significant, $\chi 21 = 0.01$, p=0.916. Time to receiving platelets (p=0.916) was not associated with decreased bleed progression.

Conclusion

Although platelet transfusion has been shown improve platelet inhibition, as measured by the TEG-PM assay, and bleed progression in TBI, time from diagnosis to platelet administration does not appear to impact these variables.



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