

Platelet Transfusion Thresholds for Pediatrics; A Retrospective Study

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Abstract : Introduction: Platelet threshold of $10 \times 10^9 /L$ is recommended for clinically stable thrombocytopenic pediatric patients. Transfusions at a higher level (given the absence of research evidence, as determined by clinical circumstances, generally at threshold of $40 \times 10^9 /L$) may be required for patients with signs of bleeding, high fever, hyper-leukocytosis, rapid fall in platelet count, concomitant coagulation abnormality, critically ill patients, and those with impaired platelet function (including drug induced). Transfusions at a higher level may be also required for patients undergoing invasive procedures. Method: This study is a retrospective observational analysis of platelet transfusion thresholds in a single secondary pediatric hospital in Riyadh. From the blood bank database, the list of the patients who received platelet transfusions in the second half of 2018 was retrieved. Patients were divided into two groups; group A, those belong to the category of high platelet level for transfusion (such as those with bleeding, high fever, rapid fall in platelet count, impaired platelet function or undergoing invasive procedures) and group B, those who were not. Then we looked at the pre and post transfusion platelet levels for each group. The data was analyzed using GraphPad software and the data expressed as Mean \pm SD. Result: A total of 112 of transfusion episodes in 61 patients (38% female) were analyzed. The age ranged from 24 days to 8 years. The distribution of platelet transfusion episodes was 64% (n=72) for group A and 36% (n= 40) for group B. The mean pre-transfusion platelet count was $46 \times 10^3 \pm (11 \times 10^3)$ for group A and $28 \times 10^3 \pm (6 \times 10^3)$ for group B. the post-transfusion mean platelet count was $61 \times 10^3 \pm (14 \times 10^3)$ and $60 \times 10^3 \pm (24 \times 10^3)$ for group A and B respectively. Among the groups the rise in the mean platelet count after transfusion was significant among stable patients (group B) compared to unstable patients (group A) ($P < 0.001$). Conclusion: The platelet count threshold for transfusion varied with the clinical condition and is higher among unstable patients' group which is expected. For stable patients the threshold was higher than what it should be which means that the clinicians don't follow the guidelines in this regard. The rise of platelet count after transfusion was higher among stable patients.

Keywords : platelet, transfusion, threshold, pediatric

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