Platelets, also called thrombocytes, are small anucleate cell fragments that play a crucial role in coagulation. In response to injury, platelets are activated to stop bleeding. Currently, platelets are stored at room-temperature with constant agitation for only 7 days in Canada. Such short shelf life leads to significant platelet wastage amounting to 5 million dollars per year. In this study, cold stored platelets are investigated in hope to extend platelet storage shelf life. In addition, mechanical forces in cold stored platelets may also prevent the decrease in platelet count during storage.

Platelets from healthy donors were stored at either 22°C with agitation or 4°C with or without agitation. The platelets were monitored periodically throughout 14 days with regard to their platelet count, blood gas analytes, surface marker expression and aggregation response. The results from the in vitro analyses confirmed that 4°C platelets possess better hemostatic properties than RT platelets. However, they possess lower platelet counts and slower metabolisms compared to RT platelets. Additionally, it was determined that there were no statistical differences between 4S and 4NS platelets. These results suggest that as agitation plays no significant role in maintaining cold-stored platelet quality, the need for an agitator for cold-stored platelets can be eliminated. From these results, we believe that cold stored platelets can be a superior product for actively bleeding patients.

Themes:

Check (highlight) the most applicable theme according to the abstract.

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<th>Innovation and Technology</th>
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Comments:

Clear and well constructed.