Comparing Usable Shelf-Life of Pathogen Reduced Platelets vs LVDS Screened Platelets

Alicia Bellido Prichard, Horacio Requena, Kristi Medina, Cathy Pollei and Frieda Bright
OneBlood, St. Petersburg, FL

Background

Inventory management for platelet components (PC) can be challenging given the short shelf-life; PC availability is essential as shortages can adversely impact patients including delays in treatments and surgeries. Our blood center supplied over 150,000 PC to more than 250 hospitals in 2021; we evaluated the impact that different bacterial mitigation strategies per FDA guidance have on PC availability in terms of time to release, usable shelf-life, and time to transfusion, from blood center and hospital transfusion services perspectives. The strategies assessed were large volume delayed sampling at 36 and 48 hours (LVDS 36hr, LVDS 48hr) and pathogen reduction using the INTERCEPT Blood System (PR).

Aims

To assess the usable shelf-life and availability of pathogen reduced and large volume delayed sampled platelets.

Methods

PC data, including product description, collection, labeling, and shipment times and dates, were obtained and analyzed from collections spanning a seven month timeframe to determine PC age and usable shelf-life at release. Usable shelf-life was calculated based on absolute shelf-life (7 days for LVDS 48hr and 5 days for LVDS 36hr and PR) and distribution time. PC data, including time of receipt and time at transfusion, from January through July 2022, was also obtained from a large Central Florida hospital where we are the sole blood provider. Remaining shelf-life at the hospital and PC age at transfusion were determined and compared between LVDS 36hr, LVDS 48hr, and PR.

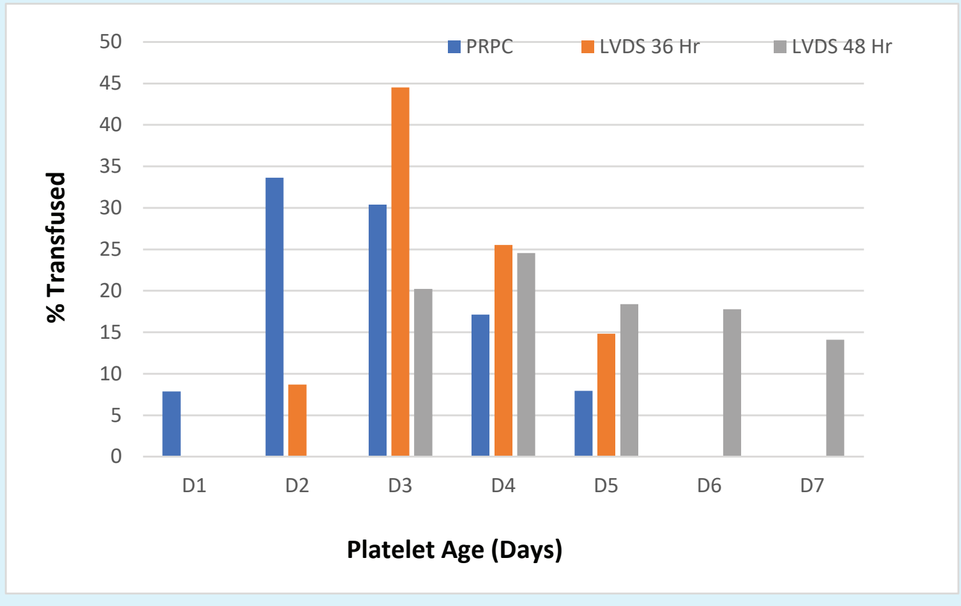
Results

We manufactured a total of 32,891 PC during the study period; 64%, 25%, and 11% were PR, LVDS 36hr, and LVDS 48hr PC, respectively. Approximately 3,616 units were received at the hospital; 69%, 27% and 5% were PR, LVDS 36hr and LVDS 48hr PC, respectively. Analysis of collection and distribution data demonstrated that PR PC were released 25 hours earlier than LVDS 36hr PC and 45 hours earlier than LVDS 48hr PC. Usable shelf-life at our blood center and at the hospital were least for LVDS 36hr PC and approximately equivalent between PR and LVDS 48hr PC. The difference in mean age was 2 days younger for PR PC vs LVDS 48hr at the time of transfusion.

Table 1: PC Age and Usable Shelf-Life at the Blood Center and Hospital

Blood Center				Hospital		
PC Type	Total # PC Manufactured	Average Age at Distribution (Hr)	Usable Shelf-Life at Distribution (Hr)	Total # PC Received	Usable Shelf-Life at Hospital (Hr)	Average Age at Transfusion (Days)
PR	21120	41.3	104.7	2483	91.0	2
LVDS 36Hr	8068	66.2	76.9	949	64.4	3
LVDS 48Hr	3703	86.2	113.6	163	89.1	4

Figure 1: Distribution of Platelet Age at the Time of Transfusion



Conclusions

We demonstrated that earlier release of PR PC translates to sooner availability, equivalent or better shelf-life, and transfusion of fresher PC for patients vs LVDS.

AABB 2022 Poster #: P-IV-2