

An existing nontunneled catheter is occasionally used instead and often results in a slower infusion rate. To ensure expedient and consistent infusions, we validated and implemented the use of an infusion pump for thawed peripheral blood stem cells” Reich-Slotky et al (2017).

Abstract:

**BACKGROUND:** Direct thaw and administration of previously cryopreserved peripheral blood stem cell products is a commonly used practice and should be performed rapidly to reduce cellular damage caused by dimethyl sulfoxide exposure. Cells are typically thawed at the bedside and infused by gravity through a high-flow-rate central venous catheter. An existing nontunneled catheter is occasionally used instead and often results in a slower infusion rate. To ensure expedient and consistent infusions, we validated and implemented the use of an infusion pump for thawed peripheral blood stem cells.

**STUDY DESIGN AND METHODS:** Validation was performed in two phases: in vitro simulation and in vivo clinical assessment. Total nucleated cell recovery and viability plus progenitor cell viability and potency were compared in vitro between two cryopreserved peripheral blood stem cell units that were either passed through a preset infusion pump or drained by gravity. The infusion rate, adverse events, and engraftment times were retrospectively compared between patients who received infusions by infusion pump (n = 35) and by gravity (n = 38).

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**RESULTS:** No significant differences were observed in vitro between the infusion methods for all measured variables. Overall infusion rates were similar in vivo for both groups but were significantly lower for patients who had nontunneled catheters that delivered the infusion by gravity. The time to neutrophil and platelet engraftment was similar for both groups.

**CONCLUSION:** This is the first study to assess the use of an infusion pump for stem cell transplant. The use of an infusion pump for peripheral blood stem cell infusion is safe, provides a reliable and consistent infusion method, and can mitigate the effect of the type of venous access line used.

Reference:

Reich-Slotky, R., Cushing, M.M., Hsu, Y.S., Ancharski, M., Rojas, J.M., Scrimenti, L.M., Robilio, S., Assalone, D., Roselli, T., Guarneri, D., Vasovic, L.V., Goel, R., Shore, T. and van Besien, K. (2017) Validating and implementing the use of an infusion pump for the administration of thawed hematopoietic progenitor cells-a single-institution experience. *Transfusion*. November 29th. .

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