

What We Were Taught From The Clot

The Problem

The Stem Cell Processing Laboratory and Flow Cytometry Laboratory staff noticed that samples from a TC, Apheresis product for TC-T Cell infusion were clotting. If the representative samples from the product were clotting could the whole product be clotting, rendering an irretrievable product useless and compromising patient safety?

Aim/Goal

TC, Apheresis products are sometimes obtained through the National Marrow Donor Program at collection facilities around the world. Different collection methods and extended transportation time may result in unexpected problems with these products. Immediate solutions are required to ensure patient safety.

The Team

Richard Haspel, MD., PhD Director of Stem Cell Laboratory
Robin Joyce, M.D., Heme/Onc, Bone Marrow Transplant
Deborah Lamontagne M.T. (A.S.C.P.), Pathology Team Leader
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Rani Sadek, M.T.
Denise Cummings R.N., Bone Marrow Transplant Nurse Coordinator
Roz Coss, R.N., Bone Marrow Transplant Nurse Coordinator

The Interventions

The Stem Cell Laboratory staff, Medical Director of Stem Cell Laboratory working in conjunction with the attending Bone Marrow Transplant physician and nurses:

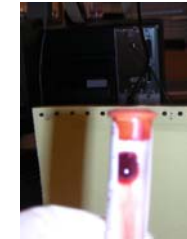
- Laboratory observed and confirmed clotting problem with samples but not product, and notified the Medical Director of Stem Cell Laboratory. Laboratory filtered the product & repeated sampling. Observed clotting in filtered samples but not the product.
- The Medical Director of Stem Cell Laboratory and the BMT Nurse Coordinator were notified of the problem and infusion delay.
- Stem Cell Tech Leader called neighboring Harvard institutions. No similar problem recorded or observed with samples clotting but not product.
- Medical Director of Stem Cell Laboratory emailed colleagues nationwide inquiring if similar problem had been encountered. University of Washington led to a contact at Columbia University. Columbia provided a procedure for the addition of additional ACD-A to product supplied.
- Director of Stem Cell Laboratory, BMT Attending Physician, BMT Nurse Coordinators and Pathology Team Leader audioconferenced plan of action to add additional anticoagulant to product and resample.

- Additional ACD-A added at 1:8 ratio resulting in resolution of clotting of samples, and accurate counts performed. Product infused with no complications.

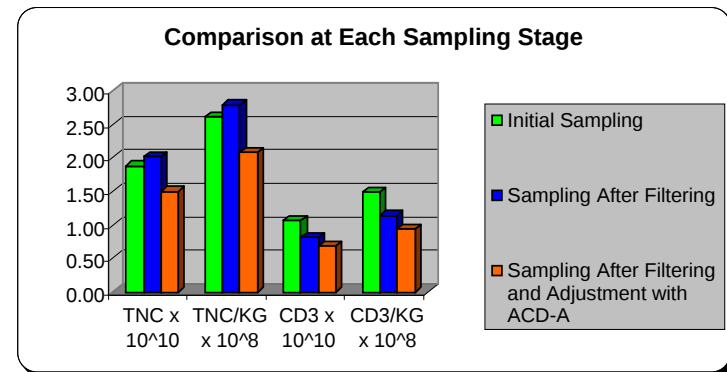
The Results/Progress to Date



Unfiltered Specimen Clotted



Filtered Specimen Clotted



Lessons Learned

- Expect the unexpected when receiving products from outside collection facilities.
- Networking and team work can provide solutions for problems that need immediate resolution.

Next Steps/What Should Happen Next

- The Standard Operating Procedure for Processing Un-manipulated Products was updated to include addition of additional ACD-A to products in the troubleshooting section.
- Medical Director of Stem Cell Laboratory in contact with National Marrow Donor Program to identify cause and notify collection facility of problem.
- Proposed paper to be sent for publication in ISCT Telegraph: Tech Talk.

Key: TC, Apheresis – Therapeutic cells collected by an apheresis procedure.



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