Introduction

Contamination of stem cell products is uncommon, occurring in roughly 1.6 – 4.5% of infusates per the literature.

- Coagulase-negative staphylococci are the most commonly cultured contaminants, but water-borne organisms are also identified.
- Surprisingly, patients infused with culture-positive stem cells are rarely symptomatic.

**Burkholderia cepacia** is a nonfermenting gram negative bacterium linked to nosocomial infection. Here, we describe 2 cases of *Burkholderia* bacteremia in a bone marrow unit associated with contaminated equipment.

Cases

Patient A was a 63 year old woman with IgA lambda multiple myeloma (MM).

- Underwent Melphalan-induced autologous stem cell transplant on hospital day “0” without initial complication.
- On hospital day 3, she had a fever of 100.9 F.
- Blood cultures were drawn. She was started empirically on cefepime.
- Infectious Diseases was consulted when blood cultures grew *Burkholderia cepacia*.
- Her indwelling tunneled central venous catheter was removed and the tip grew > 15 colonies of *Burkholderia cepacia*.

Patient B was a 70 year old woman with kappa lambda multiple myeloma (MM).

- Underwent Melphalan-induced autologous stem cell transplant on hospital day “0”.
- She had a temperature on hospital day 3 of 102.2 F. and blood cultures were drawn.
- She was started on vancomycin, meropenem, and tpm-smx by the BMT team.
- Infectious Diseases was consulted for neutropenic fever.
- Blood cultures grew *Burkholderia cepacia*. Culture of the catheter tip of a tunneled indwelling central venous catheter was negative.

Results

**Figure 3. Environmental Culture Results.**

- **Cooling Freezer**
- **Storage Cassette**
- **Permanent Freezer**
- **Cryoshipper**
- **Deionized Water Sink**
- **Water Transport Jug**
- **Thawing Water Bath**
- **Freezer Bag**

**Figure 4. Pulse Gel Field Electrophoresis Results.**

- **S373** B. cepacia from deionized water taken from transport jug.
- **S6549** B. cepacia from blood culture; patient A.
- **S385** B. cepacia from deionized water taken from water bath.

Results (cont.)

We identified an instance of gross contamination which led to two bacteremias. *B. cepacia* appeared to contaminate a multi-use plastic water jug which transported indwelling water from a sink to the water bath used for stem cell thawing. The jug was not routinely cleaned. The water in the jug contaminated the water bath.

- Environmental cultures revealed growth of *B. cepacia* from the transport jug and water bath.
- *B. cepacia* samples from the environmental cultures and patient A were sent for molecular typing via repetitive sequence-based PCR amplification and pulse field gel electrophoresis.
- These samples were molecularly indistinguishable.

Conclusions

The actual incidence of stem cell contamination varies by institution reflecting differing practice styles.

- In general, contamination does not result in clinical infection.
- Routine surveillance cultures of stem cell products are sometimes performed in an attempt to reduce risk, but the cost-effectiveness of this practice is not well understood.
- Only closed sterile systems should be used in the collection and processing of stem cells.
- Furthermore, single use devices and device sterilization (or high level disinfection) are superior to multisite devices for the transport and manipulation of sterile stem cells; as shown in the outbreak described, multisite devices are unacceptable prone to contamination.

References


S373, S6549, S385. B. cepacia from blood culture; patient A. S385 B. cepacia from deionized water taken from water bath.