Welcome to eSessions

Presented by CaridianBCT
Platelet Depletion Procedures

COBE Spectra® Apheresis System
Presentation Objectives

• Identify the indications for a platelet depletion procedure.

• Discuss management of fluid balance during a platelet depletion using the COBE Spectra® Apheresis System.

• Discuss options for which tubing set and filler to use for a platelet depletion.

• List four changes that you must make when programming a platelet depletion on a Spectra system with software version 6.1 or version 7.0.

• Demonstrate how to calculate the appropriate collect flow rate for a platelet depletion.
Platelet depletion procedure (Category I)

- Symptomatic thrombocytosis
- Platelet count
  - $> 1,000 \times 10^3/\mu L^1$
  - $> 500 \times 10^3/\mu L^2$
Symptoms of Thrombocytosis

Symptoms are caused by thrombosis and abnormal platelet function. They can include, but are not limited to:

- Headache
- Seizures
- Blurred vision
- Aphasia
- Paresthesia
- Hemorrhage
Procedure Goals

Reduction of greatly elevated platelet numbers to reduce morbidity and/or mortality of the patient

Note: Cytopheresis procedures are a supportive therapy; chemotherapy controls the underlying disease.
Procedure Considerations: Processing time

- System default processing time: 120 minutes or as configured
  - May not process enough volume.
  - Ordering physician should decide.
- Longer processing time: > 120 minutes
  - Consider processing 1 to 1.5 x TBV to achieve the platelet reduction desired.
The platelet protocol is a collection protocol. Fluid balance is not maintained, so be prepared to calculate and manage the fluid balance.
Fluid balance

- Ins = AC + net saline returned (Rinseback – Prime divert)
- Outs = Volume collected
- Ins – Outs = Surplus or deficit
Example:

AC volume = 600 mL
Net saline (ELP) = 190 mL

\[ 600 \text{ mL} + 190 \text{ mL} = 790 \text{ mL volume in} \]

Collect volume = 500 mL

Surplus to patient:

\[ 790 \text{ mL} - 500 \text{ mL} = 290 \text{ mL} \]
Procedure Considerations: RBC Spillovers

• Cause
  - Change in patient’s RBC characteristics
  - Incorrect hematocrit (Hct)
  - Small return needle
  - Channel not completely loaded

• To recover from a spillover:
  - Increase the Hct by 3% up to 3 times.
  - Decrease the inlet flow rate.
  - Correctly seat the channel.

Note: Collected volume may be a dusky pink color
Procedure Considerations: Disposable Set

- Disposable set: DNELP/DNLRS
  - If using an LRS set, use a filler with an LRS bracket.
- Procedure selection: ELP, Standard
  - If using an LRS set, prime the set twice by pressing CHANGE MODE, PRIME after the first prime is complete to ensure the set is thoroughly primed.
1. Select ELP procedure (standard).

2. Enter patient data:
   - Sex, height, weight (TBV calculation)
   - Hematocrit
   - Platelet count
     • $2,000 \times 10^3/\mu L$ is the highest value that you can enter.
3. Platelet count > 400 x10³/µL. The following screen appears:

Select Procedure: 1= Donor Collect,
2= Patient Deplete. (ENTER= Collect)

Press 2 for a platelet depletion procedure.
• The system will automatically calculate:
  - Inlet volume (processed volume)
  - Time (120 minutes)
  - Inlet/AC ratio (6:1)
  - Collect volume

• Press NO, and increase the processing time to achieve the desired processed volume.
A platelet depletion procedure option is not included.
- To perform a platelet depletion procedure choose ELP, Standard.

This is still an AUTOMATED procedure!!!
- Minimal changes are necessary to turn a collection procedure into a depletion procedure.
1. Enter data: Sex, height, weight, Hct, platelet count.
   Note: A platelet count of up to 2000 x 10^3/µL can be entered.
2. The following run results screen appears:
   a. Do not accept initial run prediction.
   b. Press NO and change the concentration to 8,000.
   c. Press YES to confirm the values.
3. Press CONTINUE to start the run.
4. Change the inlet:AC ratio to 6:1:
   • To disable custom ratio ramping, press YES in response to the message “Disable custom Inlet:AC ratio protocol for this run only?”

5. Increase the target run time to process 1 to 1.5 x TBV:
   • Press the TARGET key and increase time.

   Note: Inlet volume processed minus ACD-A volume equals blood volume processed.
6. Determine the target collect flow rate:
   - Platelet conc. \( (10^3/\mu L) \) = Collect flow rate (CFR) \( \frac{500}{500} \)
   - Minimum collect flow rate = 2 mL/min

7. Change the target collect volume to achieve CFR:
   - Desired CFR \( \times \) target procedure time = target collect volume
   - Press TARGET key and change collect volume
Once you have made the necessary changes the concentration may no longer be 8,000 – that’s OK!!
**Procedure Efficiency**

- **Platelet count reduction**
  - Post-procedure platelet count is not always a good indicator of the procedure efficiency because of the possible recruitment of sequestered cells.
  - Consider obtaining total platelet count on the collected waste product and comparing it to the patient’s starting total platelet count.
References and Resources

1. “Clinical Applications of Therapeutic Apheresis,” *Journal of Clinical Apheresis Special Issue*,
   • Vol. 8, No. 4, 1993
   • Vol. 15, Nos. 1 and 2, 2003
   • 1st edition, 1997
   • 2nd edition, 2003
4. Local expertise