Welcome to eSessions

This session contains audio.
Review the information on each slide before continuing.
PLATELET DEPLETION PROCEDURES

COBE® SPECTRA APHERESIS SYSTEM

Click here to begin
Getting Around

Click on these **TABS** to change the view of the left sidebar:

- **OUTLINE**: shows links to each slide.
- **THUMBNAILS**: shows a small image of each slide.
- **SEARCH**: allows you to search the eSession by keyword(s).

- **This button toggles between PLAY and PAUSE. Click the PLAY button to continue.**
- **Go to PREVIOUS screen.**
- **Click this icon to toggle between FULL SCREEN and STANDARD view.**
- **Go to NEXT screen.**
Presentation Objectives

- Identify the indications for a platelet depletion procedure
- Discuss management of fluid balance during a platelet depletion using the COBE Spectra 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 COBE Spectra system with software version 6.1 or version 7.0
- Demonstrate how to calculate the appropriate collect flow rate for a platelet depletion
Indication for 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.
Procedure Considerations: Fluid Balance

The platelet protocol is a collection protocol. Fluid balance is not maintained, so be prepared to calculate and manage the fluid balance.
Fluid balance

- $\text{Ins} = \text{AC} + \text{net saline returned}$
  (Rinseback – Prime divert)
- $\text{Outs} = \text{Volume collected}$
- $\text{Ins} - \text{Outs} = \text{Surplus or deficit}$
Procedure Considerations: Fluid Balance (cont)

Example:

AC volume = 600 mL
Net saline (ELP) = 190 mL
600 mL + 190 mL = 790 mL volume in
Collect volume = 500 mL
Surplus to patient:
790 mL – 500 mL = 290 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.
Platelet Depletions Using Versions 4.7 and 5.1

1. Select ELP procedure (standard).
2. Enter patient data:
   - Sex, height, weight (TBV calculation)
   - Hematocrit
   - Platelet count
     - $2,000 \times 10^3/\mu\text{L}$ is the highest value that you can enter.
3. Platelet count > 400 x 10^3/µL. The following screen appears:

Select Procedure:  1= Donor Collect,  
2= Patient Deplete.  (ENTER= Collect)  
Press 2 for a platelet depletion procedure
Platelet Depletions Using Versions 4.7 and 5.1 (cont)

- 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
Platelet Depletions Using Versions 6.1 and 7.0

- 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.
Platelet Depletions Using Versions 6.1 and 7.0 (cont)

1. Enter data: Sex, height, weight, Hct, platelet count
   Note: A platelet count of up to 2,000 x 10^3/μL can be entered
2. The following run results screen appears:
   Yield=____E11, collect=___, conc.=___,
   Plasma=____, time=___min.  OK (YES/NO)
   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/µL) = Collect flow rate (CFR)
     - 500
   - Minimum collect flow rate = 2 mL/min

7. Change the target collect volume to achieve CFR:
   - Desired CFR x target procedure time = target collect volume
   - Press TARGET key and change collect volume
Platelet Depletions Using Versions 6.1 and 7.0 (cont)

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


4. Local expertise