Welcome to eSessions

This session contains audio. Review the information on each slide before continuing.
OPTIMIZING PLATELET PROCEDURES MAKING “SPLITS” A REALITY

COBE SPECTRA® APHERESIS SYSTEM

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Getting Around

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This button toggles between **PLAY** and **PAUSE**. Click the **PLAY** button to continue.

Go to **PREVIOUS** screen.

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Presentation Objectives

Participants will be able to:

- List two advantages of collecting “split” platelet products (double or triple products)
- Discuss how changes made during the procedure will impact the outcome of the collection
- List two methods to optimize collections on the COBE Spectra system to collect multiple platelet products
- State the difference between the Inlet:AC ratio and AC infusion rate on the COBE Spectra system
- Describe how in-line leukoreduction is achieved using the COBE Spectra system
“Split” Platelet Products

- “Split” means a multiple platelet product
- Platelet collection from a single donor containing two to three times the yield required for a transfusion
  - Two to three transfusions for two to three patients
  - Two to three transfusions for one patient
- Minimum yield per product = 3.0 x 10^{11}
Splits are Win-Win

- The patient wins!
  - Fewer donor exposures
  - Products available when needed
  - Increased availability of “rare” products
- The donor wins!
  - Enhanced opportunity to give
  - Fewer calls to donate
- The blood center wins!
  - More products available for use
  - Higher staff productivity
  - Increased revenue
  - Decreased costs
Optimizing Productivity

Donor selection

YOU
the operator

Procedure optimization
Donor Selection: Selecting Optimal Donors

- Choose motivated and willing donors:
  - Able to stay 1 to 2 hours
  - Have good venous access

- Consider both donor size and pre-platelet count:
  - Large donors with low platelet counts can give double products
  - Small donors with high platelet counts can give double products
Donor Selection: Retaining Optimal Donors

- Demonstrate confidence:
  - Slow your pace
  - Be aware of the volume and tone of your voice
  - Use positive words

- Talk to your donors and call them by name:
  - Appeal to their altruistic nature
  - Thank them on behalf of the patients they help
  - Encourage them to stay longer:
    - The average movie is 110 minutes long – why not watch until the end
Platelet Procedure Optimization

Be yield focused vs. time focused

- Optimize every run:
  - Target a yield
  - Increase the inlet flow rate
  - Adjust the run time
- Explore other optimization techniques
- Perform key procedural elements to complete a successful run
Optimize Every Run Targeting a Yield
Targeting a Yield

- Target a yield higher than the minimum required:
  - Minimum per SDP = $3.0 \times 10^{11}$
  - Minimum per DPP = $6.0 \times 10^{11}$
  - Target is based on your process

Yield = 6.9.E11, collect = _490_, conc. = _1,400_,
plasma = __0__, time = _100_ m in. OK (YES/NO)?
Targeting a Yield (cont)

AVERAGE TARGET = 7.0
AVERAGE YIELD = 6.0
Optimize Every Run Increasing the Inlet Flow Rate
Increasing the Inlet Flow Rate

Yield= 5.6.E11, collect= _410_, conc.= _1400_
plasma = __0__, time= _100_ min. OK (YES/NO)?

1. Press CLEAR/NO

Change: 1 = run time, 2 = inlet flow,
3=collect volume, 4=conc., 5=plasma

2. Increase inlet flow rate and press ENTER

Yield= 6.3.E11, collect= _450_, conc.= _1400_
plasma = __0__, time= _100_ min. OK (YES/NO)?
Increasing the Inlet Flow Rate (cont)

- Blood processed
- Increasing inlet flow
- Citrate reaction
- Platelets collected
- AC infusion rate

Increasing inlet flow results in:
- Blood processed
- Platelets collected
- AC infusion rate
- Citrate reaction
Increasing the Inlet Flow Rate: Donor Safety

- Maximum infusion rate = 1.2 mL/min/L TBV
  - Increase in the inlet pump flow rate will increase the yield, but will also increase the infusion rate
  - System will automatically reduce the flow rate to a safe limit

AC infusion rate exceeds allowable limits. Flow reduced
Increasing the Inlet Flow Rate: Citrate Reactions

1. Pause the procedure
2. Decrease the inlet pump flow rate
Increasing the Inlet Flow Rate – Inlet:AC Ratio

- Platelets collected
- Blood processed
- Risk of platelet clumping

Increased ratio

AC infusion rate unchanged
Inlet:AC Ratio (cont)

- Center configured ratio is appropriate for most donors
- For donors for whom it is not appropriate:
  - Observe the product for swirl
  - Monitor the CCM for trending purposes
  - Disable the custom ramp and lower the ratio if you suspect clumping
Increasing the Inlet Flow Rate: Inlet Flow Rate Maintenance

- Educate your donors
- Secure your needle
- Maintain adequate cuff pressure
- Keep your donors warm
- Troubleshoot alarms appropriately:
  - Identify and correct the source of the alarm
    - Repeatedly pressing CONTINUE decreases procedure efficiency
Inlet Flow Rate Maintenance (cont)

- When all other interventions fail, decrease the inlet pump speed
- Verify end results after making changes
Optimize Every Run Adjusting the Run Time
Adjusting the Run Time

Yield= 5.8E11, collect=_420_, conc.= _1400__
plasma = __0__, time= _100_. min. OK (YES/NO)?

1. Press CLEAR/NO

Change: 1=run time, 2=inlet flow,
3=collect volume, 4=conc., 5=plasma

Yield= 6.4.E11, collect=_450_, conc.= _1400__
plasma = __0__, time= _110_ min. OK (YES/NO)?
Other Optimization Techniques

- Dual-needle vs. single-needle procedures
- Concurrent collection of plasma
Dual-Needle vs. Single-Needle Procedures

Male donor: Hct = 45%, platelet count = 250K/µL

Dual-needle prediction:

Yield= 6.9E11, collect= _490_, conc.= _1400_
plasma = __0__, time= _100_ min. OK (YES/NO)?

Single-needle prediction:

Yield= 6.0E11, collect= _430_, conc.= _1400_
plasma = __0__, time= _100_ min. OK (YES/NO)?
Dual-Needle vs. Single-Needle Procedures (cont)

- Use dual-needle procedures as your standard
  - Dual-needle procedures offer more efficient collection
  - Single-needle procedures are limited by flows
- Consider single-needle procedures because of
  - Access
  - Donor preference/insistence
Concurrent Collection of Plasma

- Flow rate increase leads to yield increase:
  - Collect more platelets in the same amount of time
    - You must ensure donor eligibility

Yield = 5.9E11, collect = 420, conc. = 1400
plasma = 0, time = 100 min. OK (YES/NO)?

Yield = 6.3E11, collect = 440, conc. = 1400
plasma = 225, time = 100 min. OK (YES/NO)?
Key Elements of a Successful Run
Completing PIR

- Platelet inventory recovery (PIR) recovers platelets from the LRS® Chamber
  - PIR volume is included in the COBE Spectra system yield prediction
- Failure to complete PIR may result in low yield products or missed double platelet products
Completing PIR (cont)

Fluidized particle bed separation:
- Platelets act as a physiological filter
- Particle bed separates WBCs from platelets during collection
- Platelets must be collected from the LRS chamber to achieve the yield
Product Yield Management

- Donors with platelet counts below 200,000 platelets/μl:
  - Reduced number of platelets flow to the collect bag during the run
  - Platelets are transferred to the collect bag during PIR
    - Performing PIR is essential to obtaining adequate platelet yields
Product Concentration Management

- Donors with large total blood volume, and high platelet counts (LRST procedures only):
  - High concentrations may result unless adjustments are made

Yield = $8.3 \times 10^{11}$, collect = 340, conc. = 2400
plasma = 0, time = 100 min. OK (YES/NO)?
Product Concentration Management: High Concentrations

- Make adjustments early in the procedure:
  1. Lower the Inlet:AC ratio
  2. Decrease the inlet flow rate
  3. Adjust run time to obtain the desired yield
  4. Increase the volume to achieve the desired concentration

- Document ratio/inlet flow/time in donor’s record for next donation
Sampling Products

- Ensure that you properly obtain samples; improper sampling may result in the discard of good products
  - Follow procedures closely
  - Do not over-agitate the product
  - Do not sample if visible aggregates are present
- Establish a feedback loop between you and the lab
Collecting Split Products: Summary

- Select and retain the right donors.
- Optimize the procedure:
  - Target an appropriate yield
  - Manage flow rates
  - Maximize run time
- Focus on the yield vs. the time