TRANSONIC ACCESS FLOW MONITORING

HUMC RENAL DEPARTMENT

Presentation By:
Phoebe Del Boccio, CHT
Why is access monitoring important?

● To preserve and prolong the life of a patient’s access!

● Remember, an artificial access is the patient’s LIFELINE for Dialysis Care

● Without a working access, the patient cannot receive treatment
How can monitoring help my patient?

- Detects recirculation
- Monitors actual delivered blood flow
- Helps detect stenosis of access
- Reduces patient hospital stays
- Reduces unnecessary invasive procedures
- Reduces Costs
THREE STEPS TO ACCESS CARE

Step One: SURGICAL CREATION

Step Two: ACCESS SURVEILLANCE

Step Three: SURGICAL INTERVENTION OR REVISION
Access Flow Monitoring

- Access Flow monitoring is an important part of vascular access care
- Can be accomplished by direct observation and inspection of access
- Can also be accomplished by access flow monitoring via transonic machine
Which Monitoring System do we Use?

- The TRANSONIC© HD02 Access Flow Monitoring System
Transonic Measurement Procedure
STEP 1 – EQUIPMENT SET-UP

COMPUTER & MONITOR SET-UP

- PLUG IN LAPTOP AND MONITOR
- TURN COMPUTER ON
- TURN MONITOR ON
- MACHINE SAYS AC ER WHEN TURND ON
Transonic Monitoring Procedure

STEP 2 – SENSOR SET-UP

SET-UP THE PATIENT

- PLACE LUBRICANT IN SENSOR GROOVE
- POSITION SENSORS 2-4 INCHES FROM CONNECTION IN THE DIRECTION OF FLOW
- TRANSONIC MACHINE SHOULD NOW READ FLOW IN mL/Min
Transonic Measurement Procedure

STEP 3 - Program Operation

1. Open HD02 Dialysis System Icon
2. Click on Monitor Symbol
3. Select or Add Patient
4. Select Tubing (F2)
Transonic Measurement Procedure

STEP 4 – Delivered Blood Flow

- Compare the mL/min on the Dialysis Machine to the mL/min on the Transonic machine

- Monitor flow readings should be within 10% of Machine flow readings

- If not, notify VAC
Recirculation - Vascular Access Stenosis

**Venous Stenosis** - the dialyzed blood recirculates from the venous needle back into the arterial needle.

**Mid-graft stenosis** - limits access flow. Pump flow bypasses the stenosis.
Transonic Measurement Procedure
STEP 5 – Measuring Recirculation

1) Click on the recirculation icon in lower right corner, or press F9

2) When light turns green, give 5 seconds of NS

3) Clamp line, spread limits on machine, wait until timer reaches zero

4) Recirculation reading will be displayed
   Reading should be zero – If higher, repeat test
Transonic Recirculation Result

Dialyzer Blood Flow ($Q_b = 290$ ml/min) Recirculation = 38%
Access flow measurement with lines reversed. Line reversal creates an artificial recirculation loop with a mixing site at the arterial side of the access.
Transonic Measurement Procedure

STEP 6 – Access Flow Flow Monitoring

1) Click on Access Flow Icon, or press F10

2) Stop the Blood Pump, reverse blood lines, set pump between 250-300 mL/min

3) When light turns green, open limits and release 5 seconds NS

4) Clamp and wait until timer reaches zero

5) Access flow reading will be displayed
Transonic Access Flow Window

Dialyzer Blood Flow (Qb) = 277 ml/min  Access flow = 1290 ml/min
Transonic Step 1 – Plug in Machines
Transonic Step 1A – Check Switch
Transonic Step 2 – Turn Computer On
Transonic Step 3 – Check Display
Transonic Step 4 – Start up Program
Transonic Step 5 – Select Monitor
Step 7 – Prepare Blood Lines
Step 8 – Attach Probes Properly
Step 9 – Select Patient’s Name
Step 10 – Add New Patient If Needed
Step 11 – Enter Patient Data
Step 12 – Select Recirculation (F9)
Step 13 – Enter BP and TX Time
Step 14 – Select Recirculation
Step 15 – Begin Recirculation Study

1. After the traffic light turns green, open the limits of the venous pressure (to avoid pump stop).
2. Release saline from infusion bag for 3-6 sec.
   (Do not clamp off arterial line and check infusion line for flat spots resulting from clamps and hemostats). OR
3. Inject a 15 ml saline bolus (within 3-6 sec) into or before the venous bubble trap.

46 sec
Step 16 – Wait for Green Light

1. After the traffic light turns green, open the limits of the venous pressure (to avoid pump stop).
2. Release saline from infusion bag for 5-6 sec. (Do not clamp off arterial line and check infusion line for flat spots resulting from clamps and hemostat)
3. Inject a 10 ml saline bolus (within 3-4 sec) into or before the venous bubble trap.
Step 17 – Release Saline (4- 5 seconds)
Step 18 – Record Recirculation Result
Step 19 – Select Access Flow

Access Flow
Reversed Line Position
Set the pump to 250 - 300 mL/min.

Reverse the arterial & venous lines before proceeding!

Start Protocol (Same)
Step 20 – Clamp Blood Lines
Step 21 - Reverse Blood Lines
Step 22 - Access Flow Countdown

1. After the traffic light turns green, open the ends of the venous pressure to avoid pump stop.
2. Release saline from infusion bag for 5-6 sec.
   (Do not clamp off arterial line and check infusion line for fill spots resulting from clamps and hemostat.)
   OR
3. Inject a 10 ml saline bolus (within 3-4 sec) into or before the venous bubble trap

NOTE:
- If Qb > 200 ml/min use saline bolus injection.

15 sec
Step 23 – Record Access Flow Result
Step 24 – Repeat Access Flow X 3
Step 25 – Return Lines to Normal Position
Katie Demonstrating Transonic Study

- Katie Intro for transonic vid.avi
Katie Demonstrating Transonic Study

- **katie transonic access flow study vid.avi**
Performing Access flow study

- E:\transonic results of access flow vid.avi
Troubleshooting

- IF NO DISPLAY (AC ER) - CHECK POWER CORDS AND SWITCHES

- IF PILLOW FLATTENS AFTER SWITCHING LINES - ADJUST VENOUS NEEDLE AND TRY AGAIN

- ANY OTHER PROBLEMS – CONTACT:

  JANICE DORMAN - ext. 8611 for access problems
  OR  CHRIS PARISI - ext. 2616 for hardware problems
RECORDING AND REPORTING RESULTS

RECORD RESULTS ON TREATMENT SHEET & KARDEX AND REPORT ALL RESULTS TO:

- THE PATIENT’S RN
- THE VASCULAR ACCESS COORDINATOR, Janice Dorman (201) 336-8611
COMPARE RESULTS

- COMPARE RESULTS TO PREVIOUS STUDIES

- IF RESULTS HAVE CHANGED BY > 15% OR IF URR HAS DECREASED, ALERT RN TO CHANGE IN RESULTS
Printing A Transonic Report - Step 1

Take the Loose end of the Printer Cable
Printing A Transonic Report - Step 2

Plug it into the back of the Transonic Laptop
Select Administrator Function
Printing A Transonic Report - Step 4

Select HUMC group
Printing A Transonic Report - Step 5

SELECT YOUR PATIENT

BAUTISTA EDGARDO (07669146)

[Table showing patient data with columns for Date, Time, Mode, Access Site, Flow, and Notes]
Printing A Transonic Report - Step 6

CHOOSE REPORT FUNCTION
Printing A Transonic Report - Step 7

Select Custom, Options 4 and 6
Select OK From the print screen
Printing A Transonic Report - Step 9

Finished Report
Page One
### Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>All</th>
<th>Mode</th>
<th>Access Type</th>
<th>Access Flow</th>
<th>Mean Arterial Pressure</th>
<th>Text</th>
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<tbody>
<tr>
<td>2/19/08</td>
<td>20:06</td>
<td></td>
<td>AXSFLW</td>
<td>Fatula</td>
<td>Access Flow = 170 mL/min.</td>
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<td>18:58</td>
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<td>REC</td>
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<td>Recirculation = 35% Qb = 300 mL/min.</td>
<td>Repeat</td>
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<td>13:56</td>
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<td>Recirculation = 45% Qb = 274 mL/min.</td>
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<td>19:53</td>
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<td>SESSION</td>
<td>Fatula</td>
<td>Treatment Began. 6/23/06 8:26 PM. Pump Flow: 360 mL/min. Transonic Flow: 382 mL/min.</td>
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<td>9/22/06</td>
<td>21:35</td>
<td>55</td>
<td>AXSFLW</td>
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<td>Access Flow = 200 mL/min. Mean Arterial Pressure: 110 (100 / 85) mmHg.</td>
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<td>21:35</td>
<td>55</td>
<td>AXSFLW</td>
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<td>Access Flow = 100 mL/min. Mean Arterial Pressure: 110 (100 / 85) mmHg.</td>
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<td>Fatula</td>
<td>Recirculation = 35% Qb = 306 mL/min.</td>
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<td>6/22/06</td>
<td>21:31</td>
<td>62</td>
<td>REC</td>
<td>Fatula</td>
<td>Treatment Began. 6/23/06 8:26 PM. Pump Flow: 360 mL/min. Transonic Flow: 382 mL/min.</td>
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<td>19:30</td>
<td>54</td>
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<td>Access Flow = 340 mL/min. Mean Arterial Pressure: 118 (108 / 95) mmHg.</td>
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