Best Practice: Vascular Access Surveillance

Identify ESRD patients at risk for underdialysis, thrombotic events and cardiac failure with Transonic® Hemodialysis Surveillance

FLOW-BASED ACCESS SURVEILLANCE
Access flow is the quintessential vital sign for an AV Access. Insufficient flow causes underdialysis. Still lower flow invites thrombosis. Too much flow can lead to heart problems. Each condition harbors associated morbidities.

Transonic® ultrasound dilution technology is recognized as the “gold standard” intra-access flow measurement technology for hemodialysis patient surveillance during the dialysis session. The method uses Transonic® Hemodialysis Monitors and Flow/dilution Sensors to measure access flow directly for an instant snapshot of access function. Vascular access flow measurements detect flow limiting problems wherever they occur within a vascular access.

By measuring vascular access flow routinely and trending the results over several months, a record of access patency is created (Fig. 1). A drop in access flow signals formation of a stenosis, in time for proactive minimally invasive intervention.

KDOQI GUIDELINES: GRAFTS AND FISTULAS
- Intra-access flow measurements (such as Transonic® ultrasound dilution) are the preferred method for A-V graft and fistula surveillance.
- Low-flow Thresholds:
  - Grafts: < 600mL/min
  - Fistulas: 400-500 mL/min
- When access flow is less than 1000 mL/min and has decreased by more than 25% over four months, the patient should be referred for a fistulogram.

“ADEQUATE BLOOD FLOW IN PERIPHERAL HEMODIALYSIS FISTULAE AND GRAFTS IS VITAL TO THE SUCCESS OF HEMODIALYSIS AND TO THE SURVIVAL OF THE PATIENT. REDUCTION IN FLOW … PRESAGES FAILURE OF THE ACCESS DEVICE ITSELF. ACCESS FLOW CAN THEREFORE BE CONSIDERED A FUNDAMENTAL PROPERTY OF THE ACCESS THAT SHOULD BE MONITORED.”
Depner, TA et al
Best Practice: Vascular Access Surveillance Cont.

**HOW IT WORKS:**
**ULTRASOUND INDICATOR DILUTION (Patient Blood Flows & Recirculation)**

The Krivitski Method® to measure vascular access flow is a pioneering Transonic® contribution to vascular access management (Fig. 2). A saline indicator is introduced via the upstream (venous) access needle into the access flow stream. The downstream (arterial) access needle samples the blood concentration diluted by the indicator from which vascular access flow is calculated (Fig. 3).

**WHY PREVENTION OF FISTULA THROMBOSIS THROUGH ACCESS SURVEILLANCE IS WORTHWHILE**

A thrombosed vascular access is problematic for:

**Dialysis Staff who need to:**
- Assist patient in coping
- Arrange for transportation
- Interface between patient and physicians
- Rearrange dialysis schedule

**Nephrologist who needs to:**
- Console unhappy patient & family
- Arrange logistics to resolve AVF failure

**Patient who copes with:**
- Discomfort, pain, anxiety and fear
- Delay of dialysis
- Concerns about K+ and fluid
- Disruption to schedule
- Decreased quality of life


**Select References**