Publication Brief

Predictive value of access blood flow in detecting access thrombosis.

Wang E, Beth Israel Medical Center, New York, New York, USA.

OBJECTIVE
The goal of the study was to evaluate whether repeated measurement of access blood flow (Qac) using the ultrasound dilution technique could predict access failure in patients on hemodialysis.

METHOD
- 131 patients (63 had an AV fistula, and 68 a PTFE graft) were evaluated at intervals of 8 weeks for a period of 6 months. The incidence of thrombosis was determined within each study period.

RESULTS
- During the 6 month follow-up, 36 thrombotic events occurred in 27 of 68 PTFE grafts, and six thrombotic events occurred in 5 of 63 arteriovenous fistulas.
- Qac was significantly lower in thrombotic compared with patent PTFE grafts (958 +/- 506 mL/min vs 1141 +/- 482 ml/min, p < 0.05).
- A significant relationship was found between the incidence of subsequent PTFE graft thrombotic events and Qac (p < 0.001).
- Compared with accesses with high blood flow (1100-1400 mL/min), the risk for subsequent thrombosis tripled in grafts with a Qac of less than 500 mL/min. This relationship was not seen with AV fistulas.
- In patent PTFE grafts, Qac remained unchanged within each 2-month interval, whereas it decreased in thrombotic PTFE grafts.

CONCLUSIONS
- The relative risk for access thrombosis for patients with PTFE grafts was 5.6 times greater than for patients with AV fistulas.
- Repeated measurements of Qac have the potential to predict future access failure in PTFE grafts; however, an increased measuring frequency might improve the predictive value of graft failure with high Qac.

Reference: