Publication Brief

Monthly access flow monitoring with increased prophylactic angioplasty did not improve fistula patency

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BACKGROUND
Regular access monitoring is recommended to detect and treat access stenosis in order to prevent access thrombosis and failure.

OBJECTIVE
To discover the impact of ultrasound dilution surveillance on patency of first arteriovenous autogenous fistulas.

STUDY
- In 1999, monthly access blood flow monitoring using the ultrasound dilution technique (UDT) was instituted.
- In a sequential observational trial, 222 patients were studied;
  Group 1, the historic group (before 1999), had 146 arteriovenous fistulas (50.7% upper arm), followed for 259 access-years.
  Group 2 (UDT) had 76 arteriovenous fistulas (60.5% upper arm), followed for 123 access-years.
- Decision to refer for angiography was based on clinical criteria for Group 1, and clinical criteria plus results of ultrasound dilution flow surveillance in Group 2.

RESULTS
- Cumulative patency was longer (P < 0.01) and the thrombosis rate was lower (P < 0.05) in group 2.
- The improvement occurred prior to initiation of UDT flow monitoring.
- There was a sevenfold increase in angioplasty procedures in Groups 2.
- There was no improvement in the thrombosis rate or cumulative fistula patency.

STUDY’S CONCLUSION
Ultrasound dilution surveillance increased the rate of angioplasty procedures and thereby shortened primary unassisted patency, but did not decrease the thrombosis rate or improve cumulative fistula patency when compared to historic controls. Measured flow rates immediately before and after angioplasty, showed that angioplasty intervention was effective at largely restoring flow to its original baseline level. Although the results are consistent with other randomized controlled trials by Ram, Dember, and Moish that failed to show a benefit of regular access flow monitoring or preemptive intervention on cumulative patency of arteriovenous grafts, the study has limitations. Historic rather than concurrent controls were used and the study was not randomized thereby risking an uncontrolled bias.

Reference: