Publication Brief

Hemodialysis access flow measurement. Comparison of ultrasound dilution and duplex ultrasonography.

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BACKGROUND
Decreased hemodialysis access flow is associated with an increased risk of access thrombosis. Duplex ultrasonography can measure access flow and select a subset of patients at increased risk for access failure. With in-line techniques (ultrasound dilution), access flow can be measured during hemodialysis.

OBJECTIVE
This study attempted to determine if access flow measured by ultrasound dilution (QA-T) was comparable to that measured by duplex ultrasonography (QA-S).

STUDY
• 66 simultaneous measurements of hemodialysis access flow were performed by ultrasound dilution and duplex ultrasound with time-domain correlation;
• 19 patients during 19 hemodialysis treatments.

RESULTS
• Mean access flow was 1,086 +/- 505 ml/min by ultrasound dilution; 1,026 +/- 513 ml/min by duplex ultrasonography (NS).
• Regression analysis revealed a linear relationship between the two techniques described by the equation QAT = 246.14 + 0.8104(QAS) (correlation coefficient of 0.83; p < 0.0001).

CONCLUSION
• Measurement of hemodialysis access flow by ultrasound dilution was essentially equivalent to that obtained by duplex ultrasound.
• Additional studies are needed to determine if regular in-line flow measurements can predict and prevent future access thrombosis and decreased the cost of access management.

REFERENCE