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## **ULTRASOUND HELPS PREDICT THE SUCCESS OF ARTERIOVENOUS FISTULAS IN INDIVIDUAL DIALYSIS PATIENTS**

*Certain parameters indicate likelihood of arteriovenous fistula maturation.*

### **Highlight**

- Certain parameters measured by ultrasound helped predict the success of an arteriovenous fistula, the preferred type of hemodialysis vascular access, in individual patients.

**Washington, DC (October 11, 2018)** — Unfortunately, arteriovenous fistulas, the gold standard for accessing the bloodstream for dialysis, frequently fail to mature and cannot be used. A new study in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)* suggests a strategy to identify failure earlier, permitting effective intervention.

An arteriovenous fistula (AVF), which is created by connecting a patient's own vein and artery to form a long-lasting site through which blood can be removed for treatment and returned, is the preferred way to gain access to the bloodstream for dialysis. After surgical creation of an AVF, the vessels undergo a remodeling process that is referred to as maturation. Unfortunately, 20% to 60% of AVFs fail to mature for successful dialysis use. Michelle L. Robbin, MD (University of Alabama at Birmingham) and her colleagues investigated whether ultrasound measurements after surgery could predict maturation in individual patients.

The team analyzed the relationships of various patient characteristics and ultrasound measurements with AVF maturation in newly created AVFs, measured at 1 day, 2 weeks, and 6 weeks, in 602 participants of the Hemodialysis Fistula Maturation Study.

At 6 weeks after AVF creation, ultrasound measurements of AVF blood flow, AVF diameter, and AVF depth predicted future AVF maturation with moderate accuracy. No other patient characteristic was as useful as the 3 ultrasound measurements.

“If there is a clinical concern about AVF maturation after surgery, a 6-week ultrasound can help the clinician assess the likelihood of AVF maturation,” said Dr. Robbin. “If the AVF does not appear ready for dialysis access, management decisions such as the need for AVF intervention or watchful waiting for expected maturation can be aided based on 6-week ultrasound measurements of AVF depth, diameter, and blood flow.”

Study co-authors include Tom Greene, Michael Allon, Laura M. Dember, Peter B. Imrey, Alfred K. Cheung, Jonathan Himmelfarb, Thomas S. Huber, James S. Kaufman, Milena K. Radeva, Prabir Roy-Chaudhury, Yan-Ting Shiu, Miguel A. Vazquez, Heidi Umphrey, Lauren Alexander, Carl Abts, Gerald J. Beck, John W. Kusek, Harold I. Feldman, and the Hemodialysis Fistula Maturation Study Group.

Disclosures: M. Allon is a Consultant for CorMedix. A. K. Cheung is a member of the Data and Safety Monitoring Board for a trial on vascular graft co-sponsored by Humacyte, Inc. and the National Heart, Lung, and Blood Institute as well as a member of the Clinical Events Committee and Data Safety and Monitoring Board for the Novel Endovascular Access Trial sponsored by TVA Medical, Inc. L. M. Dember is a member of the Data Monitoring Committee for vascular access trials sponsored by Proteon Therapeutics. J. S. Kaufman is consultant and member of the Data Monitoring Committee for vascular access trials sponsored by Proteon Therapeutics. P. Roy-Chaudhury is a Consultant/Advisory Board Member for WL Gore, Bard Peripheral Vascular (Lutonix), Medtronic, TVA, Cormedix and Proteon. M. Vazquez is a member of the Managing Committee for the UTSW Health Systems-DVA Dialysis Joint Venture. C. Abts, L. Alexander, C. E. Alpers, H. Feldman, J. Himmelfarb, T. Greene, P. Imrey, J. W. Kusek, B. Larive, M. L. Robbin, Y. T. Shiu, C. Terry, and H. Umphrey have no disclosures.

The article, entitled “Prediction of Arteriovenous Fistula Clinical Maturation from Postoperative Ultrasound Measurements: Findings from the Hemodialysis Fistula Maturation Study,” will appear online at <http://jasn.asnjournals.org/> on October 11, 2018, doi: 10.2215/ASN.2017111225.

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Tweet: Ultrasound helps predict the success of arteriovenous fistulas in individual dialysis patients.

Facebook: Certain parameters measured by ultrasound after surgery in kidney failure patients can help predict the success of what's considered the gold standard procedure for accessing the bloodstream for dialysis. The results appear in the *Journal of the American Society of Nephrology*.