SIGNIFICANCE STATEMENT

The utility of early postoperative ultrasound measurements in predicting arteriovenous fistula (AVF) clinical maturation is uncertain. This article describes associations of ultrasound AVF measurements at 1 day and 2 and 6 weeks with unassisted and assisted clinical maturation in 602 participants of the multicenter, prospective cohort of the Hemodialysis Fistula Maturation Study. Six-week ultrasound measurements of AVF blood flow, diameter, and depth moderately predicted unassisted and overall AVF clinical maturation (area under the receiver operating characteristic curve, 0.79 and 0.76, respectively). Ten demographic and clinical factors analyzed, including AVF location and upper arm arterial blood flow, did not further improve AVF clinical maturation prediction. The models quantify and confirm prior clinical beliefs and may assist prediction of AVF clinical maturation.