

Evaluation of three peripheral arteriovenous fistulas for hemodialysis access in dogs.

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OBJECTIVE: To design and create 3 types of arteriovenous fistulas (AVF) in normal dogs, to monitor the dogs for secondary cardiovascular complications, and to verify adequacy of these fistulas for hemodialysis vascular access. **STUDY DESIGN:** Experimental study. **ANIMALS:** ur normal adult dogs. **METHODS:** Cadaveric dissections were performed, and surgical protocols were generated for carotid-jugular (CJ), brachial-cephalic (BC), and distal caudal femoral-lateral saphenous anastomosis (DCFLS) AVF. Each surgical procedure was then performed in 2 live dogs. Echocardiography was performed at days 0, 1, 3, 7, 14, 28, and 56 to evaluate the dogs for evidence of volume overload secondary to AVF formation. Estimation of luminal diameter and confirmation of fistula patency were performed using percutaneous color Doppler ultrasound. At day 56, hemodialysis was performed using each fistula as a vascular access. **RESULTS:** No significant changes occurred in the echocardiographic variables over time. All fistulas were patent at day 56 with mean luminal diameters of 4.5 mm (CJ), 4 mm (BC), and 1.5 mm (DCFLS). The BC fistula was superior for ease of needle placement and stabilization and provided adequate blood flow for clinical hemodialysis. **CONCLUSIONS:** Based on this short-term study, arteriovenous fistulas appear to be a safe and effective means for hemodialysis access in dogs. **CLINICAL RELEVANCE:** The arteriovenous fistulas described provide an alternative to the central venous catheters currently used for chronic hemodialysis access in dogs. Copyright 2002 by The American College of Veterinary Surgeons