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The Natural History of Upper Arm Vessels After Placement of a Forearm Arteriovenous Graft: A Pilot Study
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Type: Original Research

Background: Arteriovenous fistulas (AVF) are the preferred vascular access in hemodialysis (HD) patients. Smaller pre-operative vessel diameters decrease subsequent AVF patency and often leads to avoidance of AVF for initial HD access. Among patients with marginal vessel diameters, arteriovenous grafts (AVG), including forearm arteriovenous grafts (fAVG), may be a preferred alternative. Prior studies demonstrated proximal vessel remodeling after fAVG creation, but timing of these changes is unknown. In this pilot study, we aimed to determine the timing and degree of vessel remodeling following fAVG creation.

Methods: We prospectively evaluated the basilic and cephalic veins, and brachial artery in 10 patients undergoing fAVG placement. Vessel diameter was assessed by ultrasound prior to surgery and at 1, 4, 12 and 27 weeks post-fAVG, and compared across the respective time points. The brachial artery was measured near the antecubital fossa, while the cephalic and basilic vein were measured at the antecubital fossa (AC), mid upper-arm (MID), and proximal upper-arm (UP).

Results: Basilic vein diameter increased at week one across all sites and continued to increase through week 12. The change in the cephalic vein was less than the basilic vein, but the AC location increased from baseline to week 12. The increase in mean brachial artery diameter reached significance at week 12.

Conclusion: In our pilot cohort, we observed substantial increases in basilic vein diameter, and cephalic vein diameter following fAVG creation. The rapid increase in size of upper arm vessels may improve the success of secondary upper arm fistula formation.

https://doi.org/10.32873/unmc.dc.gmerj.4.1.039

Cost Analysis of Reducing Peri-Operative Eye Drop Regimen at the VA Health System
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Background: Eye surgeries are one of the most commonly performed procedures worldwide. Improved surgical techniques and instrumentation have significantly decreased the number of complications and provided the opportunity to reduce the need for topical eye medications. We aim to examine the potential financial benefits to the VA health care system after implementing a reduced peri-operative eye drop schedule.

Methods: After reviewing the costs of various peri-operative eye drops obtained through the Veteran’s Administration Hospital, analysis was conducted on the potential risks and benefits of each medication. It was determined that dexamethasone 0.1%, neomycin sulfate 3.5mg/mL and polymyxin B sulfate 10,000 U/mL (Maxitrol®) can act to prevent post-operative complications while allowing for simpler instruction to patients, which would reduce confusion and potentially improve medication compliance. Ketorolac 0.5% would only be used in patients at increased risk of developing cystoid macular edema (previous history of diabetic retinopathy or uveitis). A cost-analysis was then performed for the current and proposed drop regimens. A pre- and post-implementation survey will be given to the ancillary staff and physicians to determine the effects of the implementation.

Results: The costs of the current and reduced peri-operative drop regimen were calculated (Table 1). A cost reduction of 58.6% to 81.5% was calculated depending on the optional addition of Ketorolac.

Conclusion: A consolidated peri-operative drop regimen for routine ophthalmic surgery confers a substantial cost benefit while reducing eye drop burden to the patient and simplifying patient instruction.

https://doi.org/10.32873/unmc.dc.gmerj.4.1.040