

Ulceration/Gangrene, Plavix and amputation-free survival

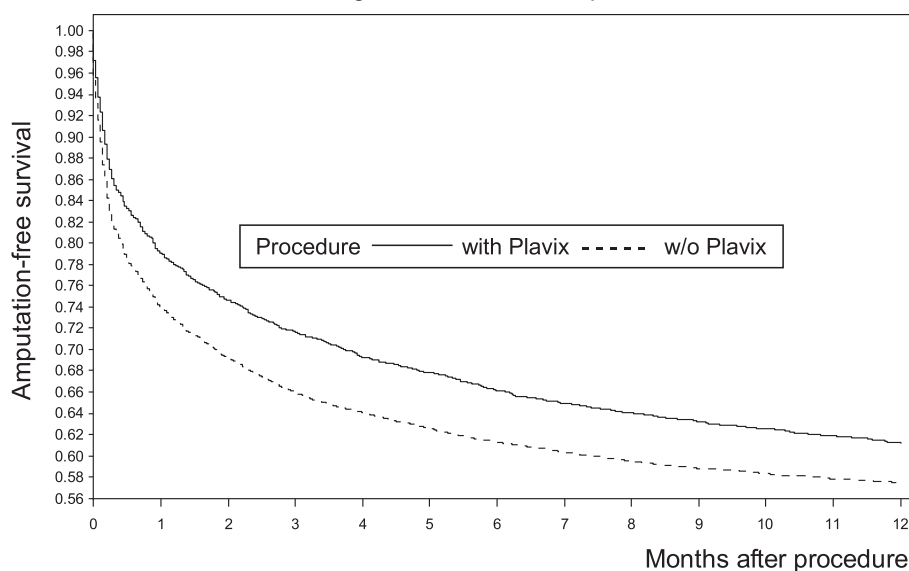


Fig.

Myofiber Type Sensitivity of Gastrocnemius Muscle to Oxidative Stress in Peripheral Arterial Disease Patients

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Objectives: Peripheral arterial disease (PAD) affects approximately 8.5 million Americans and is characterized by the formation of atherosclerotic plaques in the arteries limiting the blood supply in the legs. Previous studies have demonstrated that oxidative damage (carbonyl and 4-hydroxyl-2-nonenal adducts) in PAD muscle fibers is higher than control gastrocnemius and correlates with disease progression. In this study, we investigated the effect of oxidative damage in myofiber type (slow and fast twitch) of gastrocnemius muscle while the disease is progressing.

Methods: Muscle biopsies were collected with a Bergstrom needle from PAD-claudication patients (PAD-C; n = 28), PAD-critical limb ischemia patients (PAD-CLI; n = 25), and control subjects (n = 25). Quantitative fluorescence microscopy was used to label the myofiber sarcolemmas, carbonyl adducts, and the slow/fast/hybrid twitch fibers. Differences between and within the groups of carbonyl adducts and myofiber cross-sectional area of each myofiber type were measured. A discriminant model was used to categorize muscle specimens on the basis of the disease progression.

Results: Carbonyl adducts in gastrocnemius fibers were higher in PAD-C and PAD-CLI patients when compared with control fibers for all myofiber types. Cross-sectional area of fast twitch and hybrid fibers was significantly decreased when compared with control fibers ($P < .05$). Fast twitch and hybrid fibers demonstrated a significant increase of oxidative damage ($P < .01$) when compared with slow twitch fibers for both the PAD-C and PAD-CLI groups. Fast twitch fibers frequency was decreased while the disease was progressing, while slow and hybrid twitch fibers frequency was increased. The discriminant model demonstrated that ankle-brachial index, oxidative damage, and cross-sectional area of fast twitch fibers can accurately identify controls (100% accuracy), PAD-C (78.6% accuracy), and PAD-CLI (84% accuracy) with an overall classification accuracy of 87.2%.

Conclusions: Oxidative damage is myofiber-type-sensitive towards fast twitch and hybrid fibers. The discriminant model establishes that fast twitch fibers are more susceptible to degeneration in association with increased oxidative damage.

Liposuction-Assisted Brachio-cephalic Fistula in the Morbidly Obese: Functional Patency and Reimbursement

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Objectives: Arterio-venous fistulas (AVFs) are preferred for hemodialysis, but upper arm brachio-cephalic fistula (BCF) in the obese patient is problematic with poor functional patency. Technical reports demonstrate the feasibility of liposuction to facilitate cannulation, but no long-term functional patency data are available. There is also no published information regarding liposuction reimbursement for this indication. We report functional patency and reimbursement for BCF with staged liposuction in obese dialysis patients.

Methods: Retrospective analysis of primary and secondary functional patency in 30 consecutive obese patients (19 female, 28 diabetic; body mass index, 40.03) undergoing both BCF placement and staged liposuction at a single center. All patients underwent preoperative venous mapping and had the fistula placed under local anesthesia. All patients had a duplex ultrasound at 14 days (prior to liposuction) and at 30-days postplacement. Patients were followed weekly, and all secondary interventions were recorded. Professional and technical revenues for the liposuction procedure were also recorded.

Results: Immediate technical success was achieved in all 30 patients. Four additional patients had BCF placement but never had liposuction due to poor or occluded outflow vein on preliposuction duplex. No patient had a postoperative infection or hematoma, and all fistulas were patent by ultrasound at 1 month. Twenty-eight of 30 fistulas achieved functional patency with a mean time to initial cannulation post-liposuction of 20 days (range, 12-42 days). Primary functional patency for the 30 liposuction patients was 93.25% at 12 months (standard error <10%) with mean follow-up of 17.7 months (range, 0-42 months). Mean professional reimbursement was \$1295, and technical reimbursement (to the ASC) was \$1745.

Conclusions: Brachiocephalic fistula placement with staged liposuction is an effective strategy for hemodialysis access in the obese patient with respectable functional patency rates. Reimbursement is favorable for both the surgeon and the facility. Randomized studies comparing upper arm AVF with liposuction to forearm grafts are needed to determine the optimal strategy for hemodialysis access in obese patients.

Single-Center Thirty-Two-Year Experience in the Treatment of Ruptured Abdominal Aortic Aneurysms

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