Lower Extremity Revascularization……Does Anesthesia Matter

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Case Presentation

- 89yoM PMH of HTN, DM, HLD, BPH presented to podiatry with abscess to R great toe 5 weeks prior
- Drained by podiatry, patient then presented to ED with cellulitis, drainage from site, increased pain, and poor wound healing
89yo obese male resting comfortably, no rest pain or c/o pain with ambulation.

MEDS: Losartan, lasix, flomax, Lantus, norvasc, levothyroxine, metformin, saxagliptin

ALL: lisinopril, grapefruit

PSH: RIH repair

SH: denies etoh & tobacco
Physical Exam

- Temperature: 97.5°F
- Blood pressure: 81/153 mmHg
- Pulse: 18 beats per minute
- Oxygen saturation: 96%

- Femoral: 1+ BL
- Non-palpable pop/dp/pt BL, feet warm
- R great toe with 2.5cm cavity packed, no purulent drainage
Vascular

Recommendations

- CTA with runoff
CTA
Surgical Intervention

- Right femoral to proximal tibial bypass with DistaFlo graft, R common femoral endarterectomy
Post Operative Course

- POD 0: Admitted to MICU, ASA/plavix started
- POD 1: Downgraded to floor
- POD 5: RLE duplex demonstrates patent graft, Patient dc home
- POD 12: Seen in clinic, patent graft doing well
QUESTIONS?
Peripheral Arterial Disease

- Lower Extremity PAD
  - Estimated to affect 8-12 million Americans
  - Risk factors: tobacco, DM, HTN, obesity, age
  - More than 100k undergo some form of revascularization

- Classification of PAD
  - Intermittent claudication
  - Critical limb ischemia (CLI)
Critical Limb Ischemia

- Chronic lower extremity PAD with either rest pain or tissue loss
Will the patient tolerate surgery?

- Comorbid conditions
  - Systemic atherosclerosis
  - Preoperative functional status
    - Ambulatory? Independent living?
Decision Making Process

- MEDICAL VS REVASCULARIZATION
- AMPUTATION VS REVASCULARIZATION
- ENDOVASCULAR VS OPEN
Open Bypass - Conduit Availability

- Accepted practice that autologous vein is superior to synthetic graft

- Above Knee
  - PTFE suitable alternative when AGSV is not available

- Below Knee
  - PTFE suitable alternative when AGSV is not available, vein cuff improves patency
Prosthetic Grafts

- Polytetrafluoroethylene (PTFE) developed in 1938, Dacron (PET) developed in 1941
- Both have similar infrainguinal patency rates
- Lower patency than vein
  - Greater risk of thrombosis
  - Anastomotic neointimal hyperplasia
Recap…

- Patient diagnosed with CLI with a host of comorbid conditions
- Patient lives alone and able to complete ADLs
- Has long segment SFA disease, will benefit from revascularization
- Does not have suitable GSV, plan for ePTFE (hooded & heparin coated)
- What about our anesthesia choice?
Anesthesia Options

- Regional
  - Spinal
    - Procedures of known duration, remain conscious, airway concern
  - Epidural
    - Procedures of unknown duration, continuous catheter bases delivery
- General
Anesthesia-Based Evaluation of Outcomes of Lower-Extremity Vascular Bypass Procedures

- Ann Vasc Surg 2013
- NSQIP data from ‘05-’08, non emergent infrainguinal bypass procedures for CLI
- Compared regional vs general
- Analysis demonstrated no significant differences with regards to morbidity, mortality or LOS by anesthesia type
What about effects on patency?

- Perioperative Morbidity in Patients Randomized to Epidural or General Anesthesia for Lower Extremity Vascular Surgery

- Journal of Anesthesiology 1993
- No significant differences seen
  - Cardiac, pulmonary, LOS, mortality
- Increased rate of reoperation in general group
  - Including regrafting or thrombectomy
What Does It All Mean?

- Overall optimization of perioperative care is the most important factor in improving outcomes after vascular surgery

- Anesthetic choices should be governed by local expertise and practice patterns
Summary

- PAD is a large problem and can be thought of as 2 types
- CLI demands some type of intervention
- Decision of open vs endovascular
- Vein should always be used if possible
- When using graft below the knee, vein interposition or hooding should be done
- Anesthesia type does not affect vascular surgery outcomes
References


