The Importance of Blood Flow for the Podiatric Physician

You Bring the Blood, Then I'll Do My Job

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Disclosure
I am a consultant for Covidien and Bard Vascular

All Physicians Who Treat Wounds Are Forever Held Hostage to Blood Flow

Therapeutic Strategy
- Complete bed rest
- Thorough debridement
- Topical therapy
- Antibiotic sensitivity – large doses
- Arteriography – possible reconstructive surgery
- Consultation diabetic & general needs
- When ambulating: weight redistribution

Effective Wound Care
- Involves treating the whole patient, not just the wound
- Physicians who treat wounds need to be organized into effective networks and teams
**Classical Diabetic Triad of Pathology**

- **PVD**
- **Neuropathy**
- **Infection**

**Osteomyelitis of Metatarsal Head**

**The Six P’s for Saving Diabetic Limbs**

- Peripheral Flow Increase
- Podiatric Care
- Protective Footwear
- Pressure Reduction
- Prophylactic Surgery
- Preventive Education
Multi-Step Approach to Limb Preservation

- Amputation of one of more digits, or even transmetatarsal amputation, preserves enough of the foot to allow quality ambulation.
- Healing potential is directly proportional to appropriate blood supply.

The Keys to Success

- The goal of any endovascular intervention for limb salvage is to restore continuous in-line flow from the aorta to the foot.
  - Restoring single vessel runoff is generally adequate to provide for wound healing and elimination of rest symptoms.
- Early detection…Early referral.

Another Solution: Better Dietary Habits

Diabetes – Work in Progress

Supersizing

End Result

DARWINS THEORY OF EVOLUTION???

CLI is a Marker for Death

- Within three months of presentation:
  - death in 9%
  - MI in 1%
  - stroke in 1%
  - amputation in 12%
  - persistent CLI in 18%
- 1-year mortality: 21.0%
- 2-year mortality: 31.6%
It has been found that diabetic gangrene is not heaven sent but earth born.

Elliot Joslin 1934

Ulcers will fail to close if focal area of pressure is not reduced

- Felted foam dressing
- Healing sandals
- Prefabricated walker (aircast)
- Platform shoes
- Total contact casts
- CROW walkers
- Standard below knee cast
- Floating patellar tendon bearing braces

Total non-weight bearing...if all else fails...hand-cuff to bed!

Principles of Wound Care Summary

- All adjunctive wound healing modalities do not supplant the need for:
  - Offloading
  - Debridement
  - Infection management
  - Ischemia management

Critical Limb Ischemia/ Limb Salvage

91 yo female
- HTN
- ↑Cholesterol
- Prior stroke
- Atrial fibrillation
- Non-diabetic

Recommended treatment: lower limb amputation
3 mos post plaque excision with no skin graft, no prosthesis and no pain meds

Appropriate Route for Limb Salvage

- ABI
- Arterial Duplex Scanning
- Venous Duplex Scanning with appropriate technologist
  ▶ DPM
  ▶ Gatekeeper
- CT Angiogram
- MRA
- Atherectomy (TurboHawk)
- VNUS Closure (Venefit)
- Surgical Bypass
- Amputation only if needed
  ▶ Endovascular Specialists

Each stage of the management, from presentation of the problem until resolution, necessitates continuous communication and cooperation among:

- Podiatric Medicine Specialist
- Endocrinologist and Interventionalist Cardiologist
- PVD Specialist
- DPM
- Gatekeeper

Improvement in revascularization techniques, good awareness in offloading, amazing new antibiotics: Why do we still amputate?
Too Little Too Late!

- 28% – 51% receive contralateral limb amputation within 5 years

- Amputation Related Mortality:
  - 1 Yr: 11%-41%
  - 3 Yr: 20%-50%
  - 5 Yr: 39%-68%

Primary amputations are still the most common treatment for critical limb ischemia

Which Would You Rather?

Percutaneous Surgical

Treating PVD

Treatment for severe PVD in 2010
The Problem: Lesion Assessment

- Less than half of the patients that eventually received a PRIMARY amputation (49%) had any diagnostic evaluation prior to their amputation! Not even a simple ABI
- Perhaps an earlier referral to a trained specialist could prevent this alarming trend

I only hope as this Congress initiates, these lectures will provide you with a thoughtful look at the issues facing our growing population of CLI patients. As this patient base grows, so too must our skills and tools for their treatment.

Good blood flow results in happy feet!