PAD Management in diverse groups 2012

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Disclosures

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• Research Cook, Boston Scientific
PAD in 2012

• African American, Hispanics Low SES whites double the rate of PAD
• One in four AA > age 65 have DM
• One in three diabetics > PAD and one in fifteen diabetics will lose limb
• 5-6x increased rate of limb amputation (Kirksey et al. Vascular and endovascular Surgery)
• Independently, smoker have 4x greater risk
Social Determinants of PAD

• Reduced access to healthy foods in at-risk communities > Food Desserts
• Targeted tobacco marketing campaigns
• Reduced open/safe venues for exercise
• Uninsured/Medicaid associated with worse PAD outcomes
Relative Clinical outcomes

- More likely to be treated by low volume surgeon, hospital or non board certified proceduralist
- More likely to present with CLI with tissue loss
- 5-6x higher rate of amputation
- Greater rate of primary amputation
Altering the course-Systems Approach

- Consistent, uninterrupted access to meaningful healthcare services for all
- Limb salvage programs for high risk patients i.e., smoker, diabetic
Limb Loss Prevention Program

• Multidisciplinary care
  – Patient education for self monitoring
  – Frequent foot care-podiatry PCP
  – Mechanical offloading for diabetics
  – High risk patients monitored for tight control of HTN, Choles, Tobacco cessation
  – Baseline vascular exam with pulse volume recordings (PVR), ABI duplex ultrasound studies
Secondary benefits of PAD detection

- Increased risk of stroke, MI and CKD in the face of PAD
- ABI<.5 increased risk of MI, stroke 2-3 fold over 5 years
Economic considerations of PAD

- 80% of amputations in US for CLI
- 80% are preceded by foot ulcer
- 80% covered by Medicare
- 50% of diabetic complications are related to lower extremity wounds at a cost of $80 billion/year
- Single amputation =$350,000 over lifetime + the loss of work productivity
ACC/AHA Guidelines for the Management of Patients with Peripheral Arterial Disease (Lower Extremity, Renal, Mesenteric, and Abdominal Aortic)


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J Vasc Interv Radiol 2006; 17:1383–1398
Intermittent Claudication

• Aching, pain, tiredness, tightness, cramping in the buttocks, thigh, calf or foot brought on by exercise and relieved with rest
  – Reproducible with a consistent level of exercise from day to day
  – Completely resolves within 2-5 minutes after exercise completion
  – Occurs again at the same distance after exercise resumed
Some Not So Well Known Facts

- Only 8%-10% of patients with PAD have “classic” claudication
- ~40% of patients with PAD have “atypical” leg symptoms
- ~50% of patients with PAD are asymptomatic with regard to the leg
Factors of prognostic importance for subsequent rest pain in patients with intermittent claudication

• Non Diabetics- 1.5%/year progress to CLI

• Diabetics- 40% over six years progressed to CLI

<table>
<thead>
<tr>
<th>Character of discomfort</th>
<th>Intermittent Claudication</th>
<th>Pseudoclaudication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cramping, tightness, tiredness</td>
<td>Same of tingling, weakness, clumsiness</td>
<td></td>
</tr>
<tr>
<td>Location of discomfort</td>
<td>Buttock, hip, thigh, calf, foot</td>
<td>Same</td>
</tr>
<tr>
<td>Exercise induced</td>
<td>Yes</td>
<td>Yes or no</td>
</tr>
<tr>
<td>Distance to claudication</td>
<td>Same each time</td>
<td>variable</td>
</tr>
<tr>
<td>Occurs with standing</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Relief</td>
<td>Stop walking</td>
<td>Often must sit or change body position</td>
</tr>
</tbody>
</table>
Prevalence of PAD

In primary care population defined by age and common risk factors for PAD the prevalence of PAD was one in three.

NHANES- National Health and Nutrition Examination Study
Partners-PAD Awareness, Risk and Treatment: New Resources for survival
Partners Study JAMA 2007
Partners

• Targeted Population
  – Age (>70 years)
  – Younger persons (50-69 years) with risk factors (ever smoking or diabetes)

• Geographically diverse

• Goal: 1500 PAD patients by screening 10,000 at risk patients
Partners

- 6979 patients screened- 29 % objective evidence of PAD
- Only 20 % had pre-existing PAD diagnosis

Patients with PAD have low platelet treatment regimens relative to known CAD patients
Why Screen for PAD

• To identify patients with blockages in their arteries so that they can undergo angioplasty, stenting, or surgical revascularization to prevent eventual amputation

• To identify a patient who is at increased risk for myocardial infarction, stroke and cardiovascular death so that they can undergo aggressive cardiovascular risk reduction (smoking, lipids, blood pressure, antiplatelet) and limb monitoring
Benefits of Pharmacology

• To date no trial has shown a benefit of b blocker, statins, asa, clopidogrel in the reduction of CLI> clear benefits to CVD event reduction
Current Screening Recommendations

- Patients > 70 years old
- Patients > 50 with history of smoking or diabetes

Treat patient aggressively if
- ABI > 1.4 or
- less than .9
Natural History of Atherosclerotic Lower Extremity PAD Syndromes

PAD Population (50 Years and Older)

Initial clinical presentation

Asymptomatic PAD 20%-50%

Progressive functional impairment

Atypical leg pain 40%-50%

Claudication 10%-35%

Critical limb ischemia 1%-2%

1 year outcomes

Alive with two limbs 50%
Amputation 25%
CV Mortality 25%

5 year outcomes

Limb morbidity

Stable claudication 70%-80%

Worsening claudication 10%-20%

Critical limb ischemia 1%-2%

Amputation (see CLI data)

CV morbidity & mortality

Nonfatal cardiovascular event (MI or stroke) 20%

Mortality 15%-30%

CV causes 75%
Non-CV causes 25%

Hirsch et al. Circulation 2005
5 year outcomes for Intermittent Claudication

- Limb morbidity
  - Stable claudication: 70%-80%
  - Worsening claudication: 10%-20%
  - Critical limb ischemia: 1%-2%
  - Amputation (see CLI data)

- CV morbidity & mortality
  - Nonfatal cardiovascular event (MI or stroke): 20%
  - Mortality: 15%-30%
  - CV causes: 75%
  - Non-CV causes: 25%

- Alive with two limbs: 50%
- Amputation: 25%
- CV Mortality: 25%
Reduced ABI correlates with a higher incidence of vascular events

Diehm C et al. Eur Heart J. 2006;27:1743-1749
getABI-Study Group ABI and 1 year event rate

Decreased ABI correlates with higher incidence of vascular events

Diehm C et al. Eur Heart J. 2006;27:1743-1749
ABI= ankle pressure
brachial pressure
Patient Name: Elango Devy
Patient ID: mes003
Age / Sex: 48 / Male
Date & Time: 16/Jan/2009 - 01:51:51 PM

VASCULAR DOPPLER REPORT

Right Brachial G0 BP: 144
Right Post Tibial G0 BP: 126
Right Dors Pedis G0 BP: 129
Right PPG Toe G0 BP: 190

Left Brachial G0 BP: 126
Left Post Tibial G0 BP: 168
Left Dors pedis G0 BP: 172
Left PPG Toe G0 BP: 177

Interpretation:
Normal left arterial study, Mild right arterial disease, Adequate right toe pressure.
Above .90 - Normal
0.71-.90   - mild obstruction
0.41-.70   - moderate obstruction
0.00-0.40  - severe obstruction

Right ABI
80/160= 0.50
Left ABI
120/160= 0.75

Right arm
Pressure: 160

Left arm
Pressure: 120

Pressure:
DP 40
PT 80
DP 60
PT 120
Cilostazol vs Pentoxifylline

Improvement in Absolute Claudication distance-% Change from Baseline

Percent Change from Baseline ACD (mean)

Weeks of treatment

Improvement in Absolute Claudication distance-%
Change from Baseline

Change from Baseline ACD (meters)

Weeks of treatment

- Cilostazol 100 mg bid (n=140)
- Cilostazol 50 mg bid (n=139)
- Placebo (n=140)
Six things to remember about Cilostazol

• It should be used to treat the symptoms of IC, not for CV risk reduction.
• Use a dose 100 mg twice a day (unless the patient is on a medication that requires a dose reduction) i.e., diltiazem.
• Take on empty stomach to assure consistent absorption (1/2 hr before breakfast and dinner).
• Tell the patient it may take 4 months to get the medication’s full effect.
• If side effects develop, reduce dose to 50 mg bid.
• Cilostazol does not cause heart failure, however, it should not be used in patients with heart failure.
Thrombin

TXA2

Collagen

ASA

ADP

Activation

Dipyridamole

TXA2

COX

GP IIb/IIIa (fibrinogen receptor)

Clopidogrel

Ticlopidine

Prasugrel

Adapted with permission from Elsevier.
Caprie Trial

• Randomized double blind trial comparing clopidogrel (75 mg daily) with aspirin (325 mg daily)
• 19,185 patients entered with recent stroke, recent MI or PAD
• Primary endpoint-MI, stroke or vascular death
Caprie Trial

• At mean follow up 2 years- 8.7% risk reduction for combined endpoints
• Largely in PAD cohort

Conclusion

• PAD disproportionately affects minority groups
• PAD represents a marker for increased CV morbidity and mortality risk
• Early PAD detection should prompt aggressive risk factor modification