Medical Management of Vascular Disease

KEITH E SWANSON MD
ND ACADEMY OF FAMILY PHYSICIANS
FAMILY MEDICINE UPDATE
JANUARY 2017

Objectives

1. Appreciate the long term implications of PAD
2. Appreciate the under-appreciation of PAD
3. Briefly review key diagnostic modalities in PAD
4. Provide an update on the pillars of medical management in PAD

Potential Conflicts of Interest

- Speaker’s Bureau: BMS/Pfizer
- Will not affect the content of this talk

PAD Defined

- Obstruction in any artery from any cause
- Separate from CAD and CVD
- Traditionally, a blocked leg artery although many other possible vascular beds involved
- Mesentery
- Renal artery disease
- Carotid artery disease

PAD incidence in a population > 70 OR > 50 with either DM and/or smoking history

- A. 5-10%
- B. 10-15%
- C. 15-20%
- D. 20-25%
- E. 25-30%

PAD → Not trending on Twitter!!
**PAD Awareness, Risk and Treatment: New Resources for Survival study**

▶ “What is the prevalence of PAD in American primary care practice?”
▶ PAD → 29% of the study population
▶ PAD Dx new in 55% of PAD only group and 35% of those with multi-vascular bed disease!
▶ Similar numbers replicated in many other studies

*Hirsch AT et al. JAMA 2003;289 (11): 1317*

**PAD, not as well studied**

▶ More common than you might think
  1. 202 M people worldwide alive with PAD…
  2. Overall Prevalence increasing: Lower > higher income countries
  3. US prevalence: 5.9%. (8-12 million)
  4. High risk subgroups → at least 30% prevalence!!
▶ Bottom-line:
  ▶ “Safe bet” some of your patients have PAD unbeknownst to either you or them!!


But what’s the big deal anyways?

▶ Over 10 years → 10-15 x risk of CV death**
▶ 3-4 x risk CV events even if asymptomatic
▶ 1 in 5 with PAD → nonfatal CV event
▶ Another 1 in 5 will die (CV death)
▶ CLI (rest pain or tissue loss), outcomes are dire*:  
  ▶ 25% amputation
  ▶ 25% DIE!!

*Rooke, TW; Hirsh AT, Meier S et al. Management of pts with PAD. J Am Coll Cardiol*

---

**Critical limb ischemia**

- 1-2%
  - 1-year outcomes
  - Alive with two limbs 50%
  - Amputation 25%
  - CV Mortality 25%
How Should I diagnose PAD?

► A. Simple, just take a history!
► B. Even easier, just do a pulse exam!
► C. The Rose Questionnaire is, by far, the most accurate way to diagnose PAD
► D. Ankle to Brachial Index

Dx pearls:

► Pt reported symptoms underestimate PAD prevalence
► Remember, almost 50% are asymptomatic!
► Atypical is the typical nonspecific symptoms
► Leg fatigue, multiple areas of pain, buttck pain
► Physical Exam NOT reliable
► Pulse exam overestimates disease by 2-fold
► Rose/WHO Questionnaire; 1962, several modifications through the years
► Many “upgraded” renditions, all inferior vs ABI

ABI is the diagnostic test for PAD

Sensitivity: 90-95%
Specificity 95%

The above image contains detailed information on diagnosing PAD, including the use of different methods such as taking a history, pulse exam, and the Rose Questionnaire. It also highlights the importance of the Ankle-to-Brachial Index (ABI) as the diagnostic test for PAD, with sensitivity and specificity details. The ABI values are categorized and their implications for cardiovascular disease are discussed.
ABI and Reimbursement

- Several consensus documents/practice guidelines recommend screening for PAD in:
  - All > 65 years of age OR...
  - Age > 50 + h/o DM OR smoking
  - Why screen? → identify pts with increased CV risk
  - Unfortunately, No symptoms = No Reimbursement
  - Despite ½ being ASYMPOMATIC
  - This is your tax dollars at work people!! (i.e. CMM5)

PAD Medical Management

“I can hardly walk to my mailbox anymore”

- 65 y/o m previous smoker, no known vascular disease
- Gradual onset over past 2 months
- No tissue loss/rest pain
- Has DM, HTN and FH of CAD
- MROS negative
- Rest ABI normal; precipitous drop post exercise ABI
- Angio shows...

In terms of gains in Peak Walking time, Supervised Exercise training is...

- Inferior to stenting.
- as effective as stenting.
- a bit better than stenting.
- superior to stenting.
**Claudication: Exercise Versus Endoluminal Revascularization**

- Aortiliac stenting vs supervised exercise
- All with optimal medical management
- Primary endpoint: peak walking time
- Secondary endpoint: Quality of Life

*Murphy TP et al. Circulation 2011; 123:

**Clever findings...**

- Peak Walking Time (after 6 months)
  - Significantly improved in SE and stenting OVER optimal medical management
  - Significantly higher in SE than stent group!!
- Quality of Life: trend toward favoring stenting group
- Stenting: assists in the durability of PWT
  - 18 month f/u: Stenting group catching up to SE only group
- No arm for SE + Stenting—> poor recruitment

**Endovascular Revascularization and Supervised Exercise**

- BOTH endovascular + SE vs SE alone
- 1 yr: combo group greater improvements in Max Walking Distance (MWD) and health-related QOL scores
- Both groups: dramatic improvement in MWD, pain-free walking distance, QOL
- SE: 285 m to 1240 m (net gain of 955 m)
- SE + endo: 264 m to 1501 m (net gain of 1237 m)
- Take-away:
  1. combo Rx = most effective strategy for many with claudication
  2. re-confirms that SE alone markedly improves MWD, pain-free walking distance

*Fakhry F et al. JAMA 2015; 314:

**Exercise works**

- Improved skeletal mm metabolism
- Changes endothelial function
- Improves gait biomechanics
- Best if supervised
  - Unsupervised with tracking device catching up
- Cheap!
  - Although sneakers are getting more $$$

**The real benefit...**
The rub with exercise

- Motivation
- Not covered by insurance?

Prescribing Exercise

- “You should get some exercise” → not effective
- Typical program: 12 weeks, best if supervised
- Many published programs, general principles
  - 3-5 d/w
  - 45 min/session
  - Pushing to moderate claudication symptoms → rest → go
  - Able to make 8 minutes?
  - speed up OR raise incline

Optimal Medical Therapy

The PAD “Prescription”
Doc, What’s in it for me?

4 Therapies:
- Statin
- Ace
- Antiplt
- No smoking

Smoking Cessation

- #1 Lifestyle modification in preventing CLI, amputation, and MACE in PAD
- 5 year outcomes in quitters vs non-quitters (after LE PCI)
  - Lower mortality: 14% vs 31%
  - Improved amputation free survival: 81% vs 60%
- Guidelines
  - Tobacco use status addressed at every visit
  - Offer counseling/assistance in developing quit plan
    - Pharmacotherapy and/or referral to formal smoking cessation program
  - UND smoking cessation program for all my smokers

Smoking cessation strategies

- Success rates at one year
  - On own: 0.1%
  - Physician advice + frequent f/u: 5%
  - Nicotine replacement therapy: 16%
  - Bupropion/Varenicline: ~30%
- Varenicline superior?
  - Ultimately, cost effective.

Pharmacotherapy for Claudication

- Cilostazol (Pletal), Type III phosphodiesterase inhibitor
  - Lackluster efficacy
    - Clearly inferior to walking program
  - Side effect profile: poor compliance
    - HA, palpitations, diarrhea
  - Contraindicated in CHF
  - May take up to 4 months to derive max benefit

Ace Inhibitors

- a/w significant reduction in MACE
- MACE incidence in HOPE PAD cohort:
  - 16.4% Ramipril vs 22% placebo
  - Lower incidence regardless of symptoms
- Shown to increase walking time in those with intermittent claudication
Statins and PAD

- No surprise, lower MACE
- Surprise, reduced adverse limb outcomes
  - REACH registry (all with symptomatic PAD)
  - Those on statins saw a lag reduction in combined endpoint of worsening claudication, new CLI, new revascularization, or amputation
  - Absolute 4 year event rates: 22% vs 26.2%
  - Ischemic amputation rates: 3.8% vs 5.4%
  - Post-LE revascularization: lower amputation rates
  - Among CLI, improved 1 yr rate of primary and secondary patency, and improved limb salvage after endovascular intervention
  - Bottom-line: convincing evidence of efficacy both MACE and limb related outcomes
- Despite this, most studies show that statin prescription rates are <75%

ASA Therapy and PAD

- ASA is a mainstay despite relatively little evidence of efficacy
  - Meta-analysis: ASA for PAD; 18 trials; 5269 pts
    - If on ASA monotherapy, non-significant reduction in CV events RR 0.75 (95% CI 0.48-1.18)
    - Significant reduction in nonfatal stroke HR 0.64 (95% CI 0.42-0.99)
- 2 recent trials assessing fatal and nonfatal CV events or revascularization
  - Neither trial able to show efficacy over placebo
  - Both trials used somewhat borderline ABIs
    - ABI < 0.9 PAPADAD trial
    - ABI < 0.95 AAA trial
  - Used the lower of the two pedal pressures (not considered standard of care)

Endovascular Therapy and PAD

No CLI
- Exercise + Cilostazol
- No better at 6 months:
  - Consider revascularization
  - Less invasive trumps invasive

CLI
- Urgent revascularization
- Extremely high risk of amputation and CV events

In Summary

- PAD marker of systemic vascular disease with bleak prognosis
- Despite increasing prevalence, PAD remains under recognized and under treated.
- Lack of recognition translates into many needlessly suffering MACE
- PAD is easily and noninvasively diagnosed: ABI
- Combining exercise + Intervention best for optimally managed lifestyle-limiting claudication.
- Smoking cessation: largest single intervention in the Rx of PAD
- Statins, Ace inhibitors, antiplatelet agent, save lives and limbs

Thank You

KSWANSON@ALTU.ORG