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CONFERENCE

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My Diabetic Patient Has No Pulses; What Should I Do?

- There are no disclosures.

Background

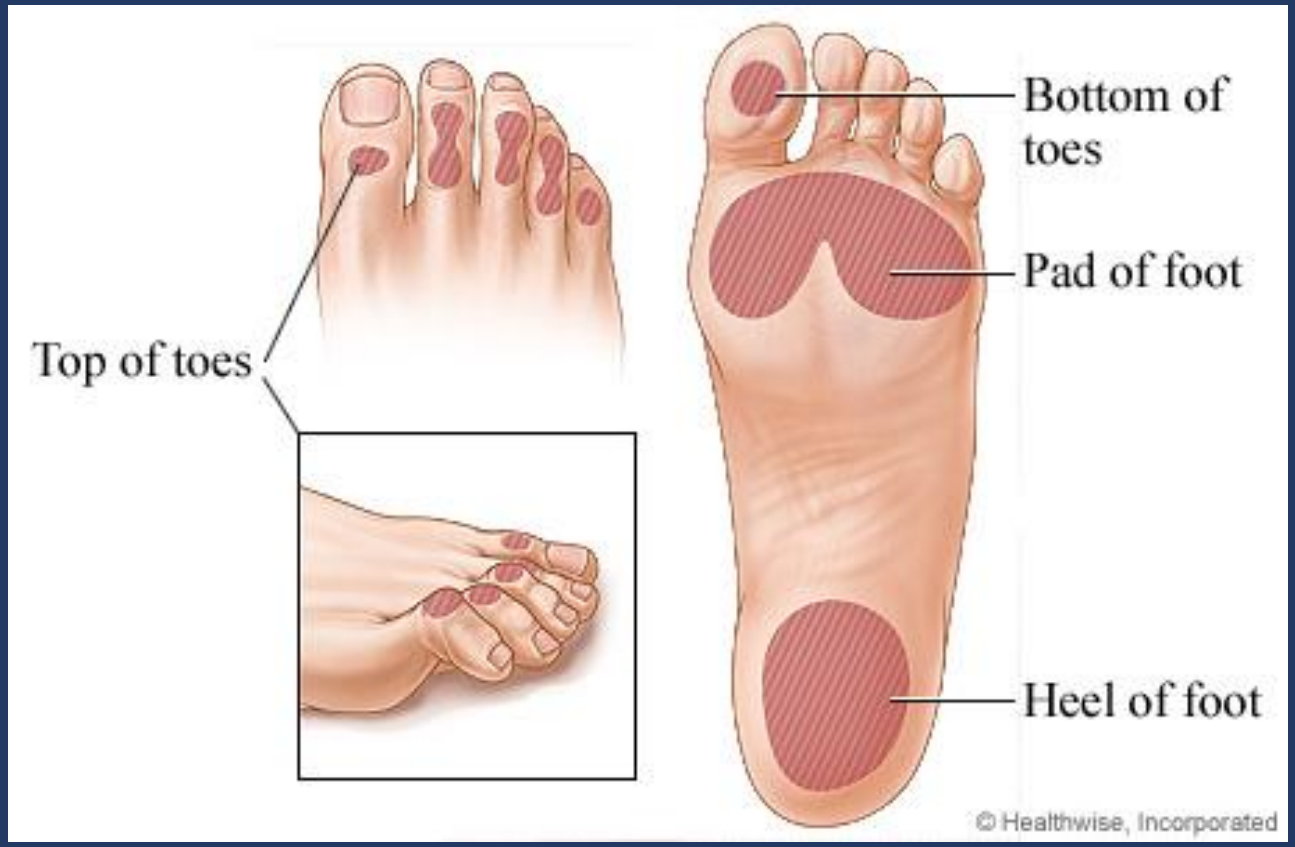
- Diabetes affects 387 million people worldwide.[1]
  - Will increase to 592 million by 2035
- As global incidence increases, consequences grow.
  - Hospital costs and amputations ≈ $8.3 billion[2]
- Annual cost of diabetic foot dz in US >$6 billion
  - At least ¼ of DFU's will not heal

Background

- 80% of diabetes-related amps are preceded by a foot ulcer

- Up to 55% of diabetic amputees will require amp of the contralateral leg within 2-3 years.[2]

Typical Presentation of a Diabetic Foot Ulcer (DFU)



Diabetic Feet

- Risk factors for ulceration:
  - Neuropathy
  - PAD
  - Foot deformity
  - Limited ankle ROM
  - High plantar foot pressures
  - Minor trauma
  - Visual impairment
  - Previous ulceration or amputation

Once an ulcer has developed, infection and PAD are the major factors contributing to subsequent amputation.

Why Does It Matter?

- Prevention is key

Multidisciplinary clinical care teams

Developing guidelines as a standard of care

Cost-effective

WIfI Classification

- Wound, Ischemia and foot Infection (WIfI) classification developed in 2014[3]
  - Based on the 3 major factors that impact amputation risk
  - Developed to replace old classification systems
- Recent 2017 data suggests limitations

The management of diabetic foot: A clinical practice guideline by the Society for Vascular Surgery in c ican Podiatric M Society for Vascular Me

Recommendation: ALL diabetics to have ABI measurements performed when they reach 50 years of age (Grade 2C).[4]

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Prevention of DFUs

- Visits at least 1x / year
- Thorough history
  - Prior ulceration? Amputation?
  - Poor visual acuity?
- Thorough physical
  - Foot deformities
  - Test for neuropathy, assess pulses/signals
  - Pressure points, callus formation

Prevention of DFUs

Frequency of visits based upon the American College of Foot and Ankle Surgeons recommendations

Category	*Risk profile*	*Evaluation frequency*
0	Normal	Annual
1	Peripheral neuropathy	Semiannual
2	Neuropathy with deformity and/or PAD	Quarterly
3	Previous ulcer or amputation	Monthly or quarterly

PAD, Peripheral arterial disease.

Glycemic Control

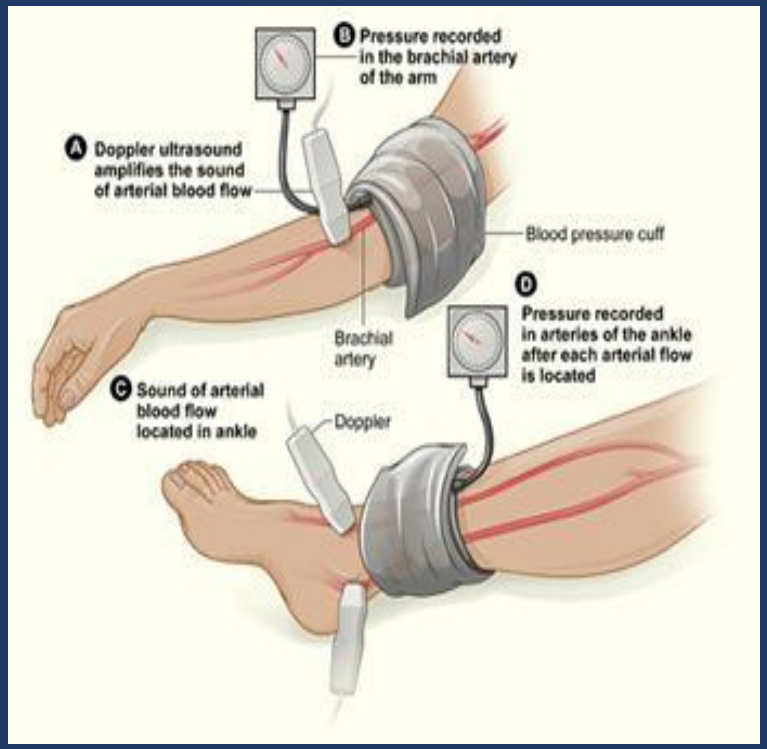
Achieved with Hgb $A_1c < 7\%$

- No major benefits noted with macrovascular disease, but benefits seen with peripheral neuropathy in the UK Diabetes Study[5]
- SVS SR *did* associate control with a significant decrease in amputations[6]

- Reduce the risk of DFUs and infection, with subsequent reduction in amputation risk (Grade 2B)

Assessing PAD

- ABI remains the gold standard test for limb blood flow
- Additional non-invasive studies helpful (Grade 1B)



Assessing PAD

- Toe pressures often better due to medial arterial calcification
- ABI or toe-brachial index detection of hemodynamically significant PAD
  - Sensitivity: 63%
  - Specificity: 97%

Making Sense of the Numbers

- Non-invasive vascular lab tests

TEST	*ABNORMAL VALUE*
Transcutaneous oxygen measurement (TcPO2)	Less than 40 mm Hg
Ankle-brachial index	Less than 0.9: abnormal Less than 0.4: severe, limb-threatening
Absolute toe systolic pressure	Less than 45 mm Hg

Diabetic Foot Infection

- Caused by neuropathy, vasculopathy, immunosuppression

- Most common…
  - Diabetic complication requiring hospitalization!!
  - Precipitating event leading to lower extremity amputation!!

Infectious Disease Society of America

- In ALL patients → serial plain xrays of the foot (2C)
  - Sn: 68%, Sp: 54% for OM
- Open wounds → probe to bone (2C)
  - Sn: 60%, Sp: 91% for OM
  - Specificity: 97%

Which Dressings to Use?

- Dry wounds
  - Hydrogels and hydrocolloids
  - Preserve moisture

- Exudative wounds
  - Foam dressings and alginates
  - Absorb moisture

What About MRI?

- Only if additional imaging is necessary (1B)
  - When soft tissue infection is suspected
  - Diagnosis of OM remains uncertain

- If unavailable, WBC scan combined w/bone scan (2B), Sn: 81%, Sp: 28%

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Prophylactic Revascularization?

- No trials addressing this question
- Inherent pattern of 1) long-segment and 2) distal arterial disease often present in diabetics
- Risks of invasive procedures outweighs their benefits (Grade 1C *against* prophylactic revasc)

References

1. International Diabetes Federation. www.idf.org.
2. Amputee Coalition. www.amputee-coalition.org.
3. The Society for Vascular Surgery Wound, Ischemia, and foot Infection (WIfI) classification system predicts wound healing but not major amputation in patients with diabetic foot ulcers treated in a multidisciplinary setting. Mathioudakis N, Hicks CW, Canner JK, et al. J Vasc Surg. 2017 Mar 5. pii: S0741-5214(17)30114-3.
4. The management of diabetic foot: A clinical practice guideline by the Society for Vascular Surgery in collaboration with the American Podiatric Medical Association and the Society for Vascular Medicine. Hingorani A, LaMuraglia DM, Henke P, et al. J Vasc Surg. 2016 Feb;63(2 Suppl):3S-21S.
5. UK Prospective Diabetes Study Group: Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes (UKPDS 38). *BMJ* **317**:703-713, 1998.
6. A systematic review and meta-analysis of adjunctive therapies in diabetic foot ulcers. Elraiyah T, Tsapas A, Prutsky G, at al. J Vasc Surg. 2016 Feb;63(2 Suppl):46S-58S.

Thank you