Diabetes and Heart Disease

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2/8/2017
What’s the problem??

• Diabetes mellitus (DM) affects 1 in 10 US adults
• 90-95% of cases are type 2 DM
• DM is becoming an increasing problem in children
  ➢ Prevalence has increased by 30.5% between 2001-2009
• Women with DM live an average of 8.2 years less than those without DM
• DM is considered a coronary heart disease risk equivalent
• *Heart disease is the #1 cause of death in the US*

Patients with DM and no prior history of heart attack had a similar rate of having a heart attack as patients who don’t have DM but with a prior history of heart attack.

CHD=Coronary heart disease, DM=Diabetes mellitus, MI=Myocardial infarction

Source: Haffner SM et al. NEJM 1998;339:229–234
Complications of Diabetes

• MICROvascular
  – Retinopathy (most common)
  – Neuropathy (tingling, burning, numbness)
  – Nephropathy (kidney disease)
Complications of Diabetes

• MACROvascular
  – Coronary heart disease (heart attack, narrowing of the heart arteries)
  – Peripheral arterial disease
  – Stroke
Lifestyle risk factors

• Physical inactivity
• Diet
• Obesity
• Smoking
Metabolic risk factors

• High blood pressure (Hypertension, HTN)
• High cholesterol (dyslipidemia, hyperlipidemia)
• High blood sugar
Metabolic syndrome

Need at least 3 of the following risk factors:

Waist circumference >35 inches in females (>40 inches in males)

HDL <50 mg/dL in females, <40 mg/dL in males

Triglycerides ≥ 150 mg/dL

Fasting glucose ≥ 110 mg/dL

Blood pressure ≥130/≥85 mmHg

Mechanisms

• Chronic inflammation and injury
• Activates the immune system which leads to development of fatty plaque
• This can occur in the heart arteries (coronary arteries) or the arteries in the legs (peripheral arteries)
• Platelets are more “sticky” which can promote formation of blood clots
Subclinical: not readily detected or easily seen; you do not manifest signs/symptoms of the disease yet
Take Action!

1. **Know your numbers**
   - Hemoglobin A1C (HgbA1C; goal <7%)
   - Fasting Lipid Panel (LDL<100, HDL>50, Triglycerides<150)
   - Blood pressure (<130/80)
   - Weight and Body Mass Index (goal BMI<25)

*Know your past (learn your Family History)*
Take Action!

2. Write it down
   - Take inventory (Keep a food log)
   - Note triggers for eating—are you hungry, stressed, bored?

Why am I doing this?
Take Action!

3. **Get moving**
   - Aim to reduce body weight by 7-10% in the first year
   - Do at least 30 minutes of moderate intensity exercise at least 5 times a week
   - Make a schedule and keep your gym clothes and shoes in your car so you’re ready to go.
Take Action!

4. **Mind your mouth**

- Keep it natural
  - Avoid canned foods, deli meats, red meats, cheeses, processed and packaged foods
  - Reduce intake of saturated and trans fats
  - Aim for no more than 2,400 mg/day of sodium
  - More fruits, vegetables, unsalted nuts, fish

- Make more meals at home

- Daily intake of alcohol should be no more than 1 drink for adult women
Take Action!

5. Take your medications as prescribed
   And keep up with doctor’s visits

Ask your doctor if you would benefit from a statin (cholesterol medicine) or aspirin
• ASCVD Risk Calculator
  – Estimates your risk of having a heart attack or stroke in the next 10 years or your lifetime risk
  – Do not use this calculator if you have had a heart attack or stroke in the past
  – Do not use this calculator if your LDL level is greater than 190
EXAMPLE 1: 45 year old woman no risk factors

- Gender: Female
- Age: 45
- Race: White/Other
- Total Cholesterol: 170
- HDL-Cholesterol: 55
- Systolic Blood Pressure: 110
- Hypertension Treatment: No
- Diabetes: No
- Smoker: No

Not In Statin Benefit Group Due To 10-Year ASCVD Risk <5%

In individuals for whom after quantitative risk assessment a risk-
EXAMPLE 2: 45 year old woman with diabetes and no other risk factors

Gender: Female  
Age: 45  
Race: White/Other  
Total Cholesterol: 170  
HDL-Cholesterol: 55  
Systolic Blood Pressure: 110  
Hypertension Treatment: No  
Diabetes: Yes  
Smoker: No

Moderate-Intensity Statin Recommended

Moderate-intensity statin therapy should be initiated or maintained for adults 40 to 75 years of age with diabetes mellitus. (I A)
Primary Prevention

Preventing disease **BEFORE** it happens

- ADA/AHA/ACCF recommend low dose aspirin (75-162 mg/day) AKA “baby aspirin” in adults with DM and no prior vascular history who have a 10-yr CVD risk >10% and who are not at increased risk for bleeding.

- **Increased risk:** females >60 years old and males >50 years old with at least 1 more risk factor*

*Includes those with family history of premature CVD, hypertension, smoking, dyslipidemia, or albuminuria

Pignone M et al. *Circulation* 2010;121:2694-2701
Coronary artery calcium (CAC)

CAC scan or “Heart scan”

Does not require intravenous contrast
Simple CT scan of the heart arteries
Looks for presence of calcium
Calcium is a marker of atherosclerosis or plaque in the arteries
Can improve adherence to medication and lifestyle changes
Take Action!

6. Please stop smoking

Helpful resources:

Your primary care doctor

www.smokefree.gov

www.cdc.gov/tobacco

www.lung.org/stop-smoking
Quick tips

• Habits are key
• This is a lifestyle change
• Knowledge is power
• Get your family and friends involved
• *Don’t be afraid to ask for help.*
Resources

• Centers for Disease Control (CDC)
• American Diabetes Association (ADA)
• American Heart Association (AHA)
• Goredforwomen.org
• Cardiosmart.org
• statindecisionaid.mayoclinic.org
Thank you for your attention!