Heart Disease: Assess Your Risk

Riverside Doctor’s Hospital, Williamsburg
3 April, 2018

Joseph Adinaro, MD FACC
Board Certified Cardiologist
Riverside Medical Group
Cardiovascular Health
757-259-9540
Graduated from EVMS in 2000
Internal Medicine in Dayton (Wright-Patterson)
Cardiology in San Antonio (Wilford Hall)
Brief education in Iraq and Afghanistan
Separated Air Force in July, 2009
5 kids... really
The Kids
The Kids
Overview

- Statistics
- Basic cardiac anatomy and physiology
- How heart attacks happen
- Risk Assessment
- Prevention
- Questions and Answers
Cardiovascular Statistics
World Wide Killers

#1 Ischemic heart disease
   8.9 Million

#2 Cerebrovascular disease
   6.3 Million

Cancer
   8.8 Million

Respiratory diseases
   3.8 Million

WHO Burden of Disease 2015

Dariush Mozaffarian et al. Circulation. 2016;133:e38-e360

Copyright © American Heart Association, Inc. All rights reserved.

Dariush Mozaffarian et al. Circulation. 2016;133:e38-e360

Copyright © American Heart Association, Inc. All rights reserved.
Major causes of death for all males and females (United States: 2013).
Cardiac Anatomy

- Mechanical
- Electrical
- Plumbing
Electrical
Anatomy: Plumbing

Adapted from Oxford Handbook of cardiothoracic surgery 2nd ed
Anatomy: Plumbing

Adapted from Oxford Handbook of cardiothoracic surgery 2nd ed
Case

- 58 y/o man
- No symptoms, exercises, eats right
- Blood pressure controlled with meds
- Total cholesterol 180
- HDL (good cholesterol) 40
- No diabetes, no smoking
Question

- What is his risk for an event over 10 years?
- What about lifetime risk?
- How can we reduce the risk?
How Heart Attacks Happen
Endothelium

- One cell layer between your blood and disaster
- Secretes substances which control artery tone
- Slick when healthy, sticky when not

Cardiosource Images
Atherosclerosis
Heart Attack in 23 Seconds
Endothelial Function

Damaged By

- Nicotine
- Hypertension
- Diabetes
- Cholesterol
- Obesity
- Inflammation

Improved By

- Flow (exercise)
- Medications
  - Aspirin
  - Statins
  - ACE Inhibitors/ARB’s
Do I have any blockages?

- Diabetes?
- Peripheral vascular disease?
- Chronic kidney disease?
  - Then yes.
- Otherwise...
  - Maybe
  - Without symptoms, may not matter
Risk Assessment
Who Should be Evaluated

- Every 3-5 years starting at 20
- Important to have primary care physician
- Goal:
  - Determine best course of action to reduce risk
Risk Factors

Non-Modifiable
- Age
- Family history
  - 1st degree relative with CAD
  - <55y for man
  - <65y for woman

Modifiable
- Smoking
- Diabetes
- Hypertension (Blood pressure)
- Hyperlipidemia (Cholesterol)
- Obesity
- Inactivity
- Diet
Risk Calculator

Risk Estimator
How to Reduce Risk

- Understand risk factors
- Modify the modifiable
- Discuss medications with your provider
Prevention

- Diet
- Exercise
- Smoking cessation
- Statins
DASH Diet

- 4-5 servings of fruit
- 4-5 servings of vegetables
- 2-3 servings of low fat dairy
- <25% fat
- Low in meat, snacks, sweets, saturated fat
- Low sodium (1.2g daily was low in trial)
- Dropped blood pressure 11.5 points
  - In 2 weeks
Mediterranean Diet

- No single definition
- High in fruit, veggie, whole grain, beans, nuts
- Olive oil
- Moderate alcohol
  - No more than 2 drinks per day for men
  - No more than 1 per day for women
    - Can increase breast cancer risk
  - Higher levels increase risk
Exercise

- 120-150 minutes a week of moderate exercise
  - Reduced risk of diabetes by 44%
  - Reduces risk of death by 27% without risk factors
  - Reduces risk of death by 46% with risk factors
  - Lowers blood pressure
  - Lowers CRP

American Heart Association CHD and stroke statistics 2014
Smoking Cessation

- Risk reduced to baseline at 6-12 months
- Vapor, smokeless, gum, patches still not OK
- Community classes available
- Average 4 quits before it sticks
Statins!

- Hydroxymethylglutaryl co-enzyme A reductase inhibitors
- Not really controversial
Four Statin Benefit Groups

1. Individuals with clinical atherosclerotic cardiovascular disease (ASCVD)
   - acute coronary syndromes, or a history of myocardial infarction, stable or unstable angina, coronary or other arterial revascularization, stroke, TIA, or peripheral arterial disease presumed to be of atherosclerotic origin – without New York Heart Association (NYHA) class II-IV heart failure or receiving hemodialysis.

2. Individuals with primary elevations of low-density lipoprotein cholesterol (LDL-C) ≥190 mg/dL.

3. Individuals 40-75 years of age with diabetes, and LDL-C 70-189 mg/dL without clinical ASCVD.

4. Individuals without clinical ASCVD or diabetes, who are 40-75 years of age with LDL-C 70-189 mg/dL, and have an estimated 10-year ASCVD risk of 7.5% or higher.

http://tools.acc.org/ASCVD-Risk-Estimator/#page_statin_infographic
Statins

- Very effective at lowering LDL
- Most common side effect is muscle pain
- Rare liver or serious muscle toxicity
- Proven to reduce risk of stroke, MI and death
- Subject of conspiracy theorists
Statin drug use in the past 30 days

**Men**

- 45–64 years: 3, 15, 18
- 65–74 years: *5, 26, 50
- 75 years and over: *2, 19, 45

**Women**

- 45–64 years: 2, 10, 16
- 65–74 years: *5, 24, 36
- 75 years and over: *2, 18, 39

*Estimates are considered unreliable. Data preceded by an asterisk have a relative standard error (RSE) of 20%–30%. Data not shown have an RSE of greater than 30%.

SOURCE: CDC/NCHS, *Health, United States, 2010*, Figure 17. Data from the National Health and Nutrition Examination Survey.
Death rates among persons 65 years of age and over

2007: 1,755,567 deaths

- Heart disease 28%
- Cancer 22%
- CLRD 6%
- Stroke 7%
- Influenza/pneumonia 4%
- All other causes 27%

NOTE: CLRD is chronic lower respiratory diseases.
SOURCE: CDC/NCHS, Health, United States, 2010, Figure 31. Data from the National Vital Statistics System.
Coronary disease is prevalent
Many risk factors modifiable, several related
Smoking cessation is important
DASH/Mediterranean diet
150 minutes of exercise a week
Statins are effective
Questions?
Resources

https://www.cardiosmart.org/
http://www.heart.org
http://www.webmd.com
http://medlineplus.gov
https://www.mayoclinic.com
http://www.uptodate.com
Heart Disease: Assess Your Risk

Riverside Doctor’s Hospital, Williamsburg
3 April, 2018

Joseph Adinaro, MD FACC
Board Certified Cardiologist
Riverside Medical Group
Cardiovascular Health
757-259-9540