NURS 821
Vascular and Cardiac Disorders

Women and Heart Disease and other Risk Factors

Lecture 6, Part 2

Women and Heart Disease

- Leading mortality in women
  - 1994-45.2% all deaths-more than all forms of cancer
- African Americans-69% higher death rate
- 1 in 2 vs. 1 in 25 breast cancer deaths
- Estrogen protection starts at puberty, ends at menopause
  - Decreased total cholesterol and LDLs, higher HDLs (Mosca et al., 1996;1999)

Women's Cardiovascular Physiology

- Smaller stature, heart, CA
- Single vessel disease more prevalent
- Manifestations start 1-20 years after men's
- Chest pain-
  - Angina presenting symptom of CAD
  - More vasospasm
  - More atypical chest pain
  - More variant angina

Women's Unique CVD Risk

- DM-powerful factor-inc. risk 3-7 fold compared to 2-3 fold in men
- Low HDL predictive; stronger risk factor >age 65.
- Women have higher HDL (estrogen mediated).
- Triglycerides- significant predictor, especially in older women. Women have higher levels.
- First CV events often fatal in women!!!
- (Mosca et al., 1999)

Women and HD Contributing Risk Factors

- Smoking rates declining less for women
- obesity increasing
- 25% report no physical activity
- 52%>age 45 have hypertension
- 40%> age 55 have high cholesterol
  - (Mosca et al., 1999)

DM, Estrogen, and HD

- Estrogen effects not well understood, **DM** may:
  - Enhance:
    - platelet aggregation
    - oxidative stress
    - growth factor stimulation
  - Increase coagulation and decrease fibrinolysis
  - (Sowers, 1998)

DM Impact on Estrogen

Produce:

- Lipoprotein abnormalities
- Endothelial dysfunction
- Vascular protein glycation
- (Sowers, 1998)

DM, Estrogen, and HD

- DM eliminates estrogen's protection
- DM Women, aged 50-59, have greater HD risk factors, even correcting for other risks
- DM HD risk 2x>than women without DM
- Women w/ DM are more likely to die post-MI than those without
- (Sowers, 1998)

Hyperglycemia and Estrogen Effects

- Estradiol mediates nitric acid production by vessels and platelets
- Nitric oxide production reduces vascular tone, platelet aggregation, vascular growth
- Hyperglycemia may negate these positive effects

(Sowers, 1997)

Exercise and CVD Risk

- Regular aerobic exercise-primary and secondary prevention
- Increases CV functional capacity
- Decreases myocardial oxygen demand in healthy and CVD patients
- Can help control lipids, diabetes, obesity, hypertension
- (Fletcher et al., 1996)

CV Benefits of Exercise

- Increases CV Efficiency
- Increases MS efficiency
- Increases HDLs, Decreases TC, tryglycerides
- Improves BG metabolism
- Decreases body fat
- Fibrinolysis
- Decreases stress and effects

Couch Potato CV Risks

- Inactivity-
  - Sedentary persons have highest all-cause CVD mortality
  - Independent risk factor
  - Major risk factor for children

Smoking and Heart Disease

- 30% of HD related to smoking
- Dose-related effect
- Acts synergistically
- Single most alterable risk factor
- 430,000 deaths annually
- Cessation- steep decline in mortality
  - Benefits even after many pack years and after other diseases have developed
- 50% decrease in cardiac complications if D/C after MI (Ockene et al., 1997)

Cigarettes and CV Disease

- Atherogenic
- Vasospastic
- Stimulate catecholamine release
- Increase CO levels and decrease O2 levels
- Smokers less likely to engage in aerobic exercise