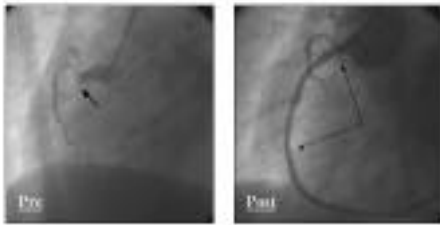


## Diagnosis and Treatment of Coronary Artery Disease in Women

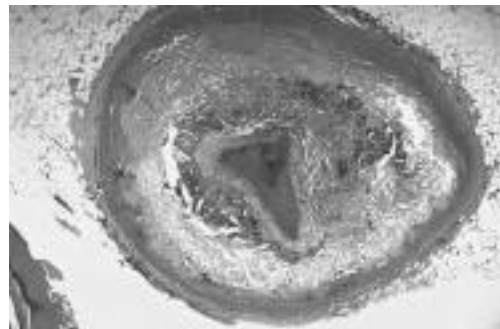
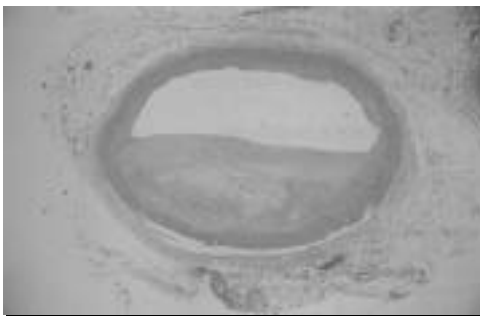
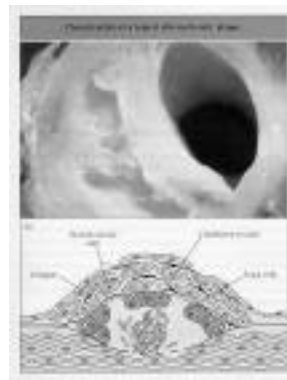
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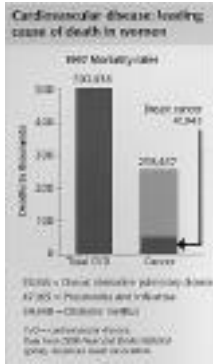
## Overview

- What is coronary artery disease (CAD)?
- Diagnosis
- Outcomes of angioplasty and surgery in women
- Management of heart attack in women
- Medical therapies



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Combined mortality rate in women of cancer, emphysema, influenza, and diabetes is 373,126. Less than the mortality rate from cardiovascular disease.

## Epidemiology

- One in five American women have some form of CAD.
- Women develop angina as their initial presentation more than men, who more often present with MI.
- Women present ~10 years older than men with heart disease.

## Epidemiology

- Since women are older, care is complicated by other medical illnesses.
- After a first heart attack (MI), 38% of women die within 1 year, as opposed to 25% of men.
- Within 6 years of MI, 46% of women are disabled by heart failure, as opposed to 22% of men.
- Therefore, when women do develop a heart attack, their outcomes are generally worse.

## Angina

- Women more likely to present with angina than heart attack (MI).
- Women are >6 times less likely to be hospitalized for anginal-type symptoms than men.
- Difference partly due to increased rate of atypical symptoms.

## EKG

- Younger women presenting to ED with chest pain are less likely than men to get an EKG.
- All patients, regardless of age or gender, presenting with chest pain should receive an EKG.

## Chest Pain Characteristics and Prevalence of CAD

	Women (%)	Men (%)
Definite angina	68	95
Possible angina	30	71
Nonspecific chest pain	6	18

Redberg RF, Shaw LJ. Progress in CV Diseases, 2003

## Diagnostic Testing

- Women overall are less likely to have severe CAD.
- However, when women have CAD, their prognosis is similar or worse.
- This makes diagnostic testing more challenging.

## Treatment of Unstable Angina

- Multiple recent trials have evaluated the use of early catheterization versus a conservative approach to patients with unstable angina.
- As with men, high-risk women with unstable angina benefit from an early invasive approach with early intervention.



## Outcomes After Coronary Intervention

- Women have higher rate than men of short and long-term death, nonfatal MI, and emergency bypass surgery.
- The difference in rate of adverse outcomes between women and men has lessened over time.
- Appears to be somewhat related to factors such as delayed onset of disease, older age, smaller body surface area, and comorbidities.

## Vascular Complications

- The use of smaller catheters and less aggressive anticoagulation has decreased the overall rate of complications.
- Vascular complications, particularly bleeding, are still 1.5 to 4 times more likely in women than men.

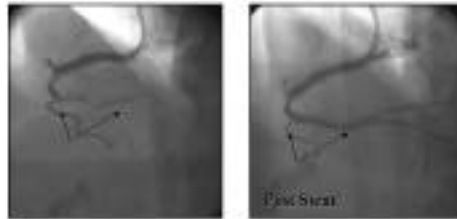
## Medical Therapy After Intervention

- All should receive aspirin and Plavix. Duration of Plavix therapy based on type of stent received, and patient's risk profile.
- Peri-procedural anticoagulation is standard, with heparin, low molecular weight heparin, or bivalirudin. GP IIb/IIIa inhibitors should be used for high-risk patients.

### **Medical Therapy After Intervention**

- Need to always be aware that women are at higher risk of bleeding complications.

### **Acute MI Intervention**



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### **Myocardial Infarction (MI)**

- Chest pain is most common presenting symptom.
- Women more likely to have atypical findings, such as nausea and chest pain.
- 50% of MIs are unrecognized in women, versus 33% in men.

### **Treatment of Acute MI**

- Heart attacks - treat with intervention or thrombolytic therapy.
- As in men, interventional therapy results in a lower death rate than thrombolytic therapy.
- Since women have a higher overall risk, the benefits of interventional therapy is even higher in women than in men.

### **Coronary Artery Bypass Graft Surgery (CABG)**

- In most studies, women are older, and have diabetes, hypertension, severe symptoms, and are more impaired.
- In low and moderate risk groups, women have increased mortality from CABG.
- In the high risk group, the mortality from surgery was equivalent between men and women.

### **Medical Therapy of Coronary Disease**

- Aspirin - ~20% reduction in events in high-risk women or with known CAD.
- The use of  $\beta$ -blockers following MI reduces risk of death by 20-25% in both women and men.
- The use of ACE-Inhibitors in heart failure and after MI reduces mortality rate in both genders.
- Nitrates do not reduce mortality rates in either group.

### **Summary**

- **Women present with CAD 10-20 years later than men.**
- **Women are more likely to have atypical symptoms of CAD - this may lead to delayed diagnosis and treatment.**
- **Women are more likely to present with angina than MI.**
- **Imaging (nuclear or echo) used along with functional capacity improves the accuracy of exercise testing.**

### **Summary**

- **Women more likely to die after MI than men.**
- **Primary angioplasty improves outcomes compared with thrombolytic therapy in both women and men.**

### **Summary**

- **Women have higher adverse event rates after intervention and bypass than men, likely related to comorbidities.**
- **However, women often derive greater benefit from therapies, because of their baseline greater risk.**