

## **Heart Disease and Your Patient's Health**

**Satellite Conference and Live Webcast  
Wednesday, March 10, 2010  
2:00 - 4:00 p.m. Central Time**

Produced by the Alabama Department of Public Health  
Video Communications and Distance Learning Division

## **Faculty**

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## **Objectives**

- **Recognize heart attack symptoms and name actions to take**
- **List two different heart conditions**
- **Describe signs and symptoms of heart conditions**
- **Describe tests used to diagnose heart conditions**

## **Objectives**

- **Name treatment options for heart conditions**
- **State which symptoms need to be reported to the nurse**
- **Describe heart disease progression and disability**

## **Heart Attack (Myocardial Infarction)**

- **According to the AHA Myocardial Infarction is defined as death or damage to part of the heart muscle due to an insufficient blood supply**

## **Heart Attack (Myocardial Infarction)**

- **When the coronary arteries that supply blood to the heart muscle become blocked a heart attack (MI) occurs**
  - **This blockage will cause permanent damage to the heart**

### **Signs and Symptoms of a Heart Attack**

- Pain or discomfort in the jaw, neck, back, or stomach
- Feeling weak, light-headed or faint
- Chest pain or discomfort

### **Signs and Symptoms of a Heart Attack**

- Discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back
- Also can be described as uncomfortable pressure, squeezing, fullness or pain

### **Signs and Symptoms of a Heart Attack**

- Pain or discomfort in arms or shoulders
- Shortness of breath with or without chest discomfort
- Other signs to look for include
  - Breaking out in a cold sweat
  - Nausea

### **Signs and Symptoms of a Heart Attack**

- **NOTE:** Some people may have a heart attack with out having ANY symptoms

### **Action to Take If an MI Is Suspected**

- If you recognize any sign or symptom of an MI you should respond quickly and properly
- **DON'T HESITATE**
- If you suspect an MI or think you may be having one you **MUST** immediately call 911 or your emergency number

### **Take Action**

- Nitroglycerin is classified as a vasodilator
- *Indication*
  - Treatment & prevention of angina, blood pressure control in preoperative hypertension, treatment of CHF & MI

### Take Action

- **Action**
  - Increases coronary blood flow by dilating coronary arteries
- If the person's suspected of having an MI has been prescribed Nitroglycerin, give as instructed while awaiting EMS

### Take Action

- Aspirin (ASA) is classified as an antiplatelet agent, analgesic, & antipyretic
- **Indication**
  - Prophylaxis of MI, CVA, TIA, & unstable angina

### Take Action

- **Action**
  - Inhibits prostaglandin production, producing analgesia
  - Prevention of platelet aggregation
- Give ASA if recommend by a DOCTOR or EMS during possible MI
- Remember if MI is suspected and ASA is given it must be chewed

### CPR

- If necessary be ready to perform CPR until EMS arrives



### Heart Conditions

- Coronary Artery Disease (CAD)
- Congestive Heart Failure (CHF)
- Irregular Rhythms
  - Arrhythmias / Dysrhythmias
  - Bradycardia
  - Tachycardia

### Coronary Artery Disease

- Coronary Artery Disease (CAD) is the result of atherosclerosis on the walls of the coronary arteries
- CAD is the most common type of heart disease
- CAD occurs when a fatty material called plaque (plak) builds up on the inner walls

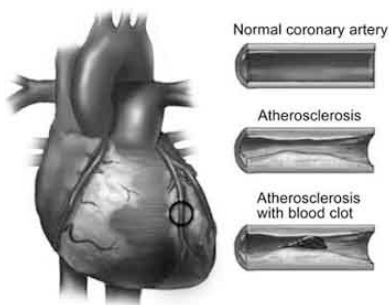
## Coronary Artery Disease

- Plaque causes the coronary arteries to become narrow and stiff
- This leads to a decrease in the amount of oxygen rich blood getting to the heart muscle causing a symptom of CAD called Angina

## Coronary Artery Disease

- Angina
  - Area of pain or discomfort that occurs when an area of the heart muscle doesn't get enough oxygen-rich blood
- 3 types
  - Stable
  - Unstable
  - Variant

## Coronary Artery Disease



## Coronary Artery Disease

- Stable Angina
  - Most Common
  - Occurs when heart is working harder than usual
  - Normal rhythm pattern
  - Usually subsides once heart has rested

## Coronary Artery Disease

- Unstable Angina
  - Does not follow a pattern
  - Occurs with or without exertion
  - Not relieved by rest or medicine
  - Very dangerous and needs emergency treatment

## Coronary Artery Disease

- Variant (Prinzmetal's) Angina
  - Rare and occurs at rest
  - Severe pain usually occurs between midnight and early AM
  - Usually relieved by medicine

### **CAD Risk Factors**

- Risk factors include
  - Uncontrolled hypertension
  - Smoking
  - Stress
  - High fat diet
  - Sedentary lifestyle
  - Uncontrolled obesity
  - Diabetes Mellitus

### **CAD Risk Factors**

- Uncontrollable risk factors
  - Male
  - Age
  - Family history

### **Congestive Heart Failure**

- CHF is defined as the heart isn't pumping blood as it should
- CHF doesn't mean that the heart has stopped beating
- CHF Symptoms usually develop over weeks and months as the heart becomes weaker it pumps less blood than the body needs

### **Congestive Heart Failure**

- When the heart muscle is not pumping enough blood then the blood will back up into the veins
- Fluid builds up causing swelling in the feet, ankles and legs called Edema
- Fluid may also build up in the lungs
  - Pulmonary Edema

### **Congestive Heart Failure**

- Signs and Symptoms
  - Shortness of breath
    - Especially when lying down
  - Tired, run-down feeling
  - Swelling in the feet, ankles and legs
  - Increased weight
    - Because of fluid buildup
  - Confusion or can't think clearly

### **Congestive Heart Failure**

- CHF can be a result of
  - CAD (blockage not allowing enough blood to flow to the heart)
  - Post MI (damaged heart muscle)
  - Increased blood pressure
  - Heart valve disease
  - Disease of the heart muscle
  - Infection

## Congestive Heart Failure

Normal foot

Foot with edema



## Irregular Heart Rhythms

- **NORMAL HEART RATE = 60 – 100 Bpm**
- **An arrhythmia (or dysrhythmia) is an abnormal rhythm of the heart**
- **Arrhythmias are problems that affect the electrical system of the heart muscle, producing abnormal heart rhythms**

## Irregular Heart Rhythms

- They can also cause the heart to pump less effectively
- It may feel like a temporary pause and be so brief that it doesn't change your overall heart rate

## Irregular Heart Rhythms

- **Causes of Arrhythmias**
  - Many arrhythmias have no known cause
- **Risk Factors**
  - CAD
  - Increased BP
  - Diabetes

## Irregular Heart Rhythms

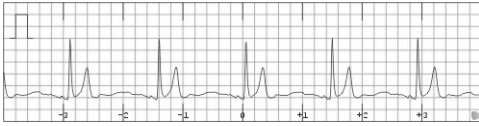
- Smoking
- Excessive alcohol / caffeine
- Drug abuse
- Stress

## Irregular Heart Rhythms

- **Bradycardia = HR <60 Bpm**
- **Treatment is not usually required unless symptoms of**
  - Fatigue
  - Dizziness
  - Lightheadedness
  - Fainting or near-fainting spells

## Irregular Heart Rhythms

- Bradycardia

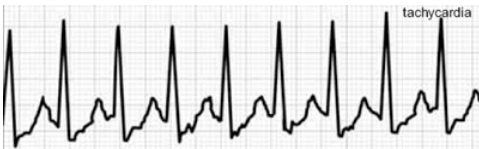


## Irregular Heart Rhythms

- Tachycardia = >100 Bpm
  - Can reduce the heart's ability to pump, causing shortness of breath, chest pain, lightheadedness or loss of consciousness
  - If severe, it can also cause heart attack or death

## Irregular Heart Rhythms

- Tachycardia



## Irregular Heart Rhythms

- Treatments
  - Lifestyle changes
  - Medicine to control HBP, CAD, and CHF
  - Anticoagulants to reduce the risk of blood clots and stroke
  - Pacemaker insertion

## Irregular Heart Rhythms

- Implanted Cardiac Defibrillator (ICD)
- Cardiac Ablation
- Surgery

## Tests

- Vital Signs
  - Temperature
  - Heart Rate (Pulse)
  - Blood Pressure
  - Respiratory Rate

## Tests



## Tests

- **Echocardiogram**
  - A test in which ultrasound is used to examine the heart
  - 2-D Echo is capable of displaying a cross-sectional "slice" of the beating heart, including the chambers, valves and the major blood vessels that exit from the left and right ventricle

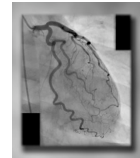
## Tests

- **Chest x-ray**
- **Lab tests**
  - Cardiac enzymes
  - Cholesterol
  - BNP (B-type Natriuretic Peptide)



## Tests

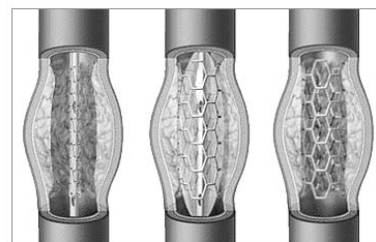
- **Heart catheterization**
- **Stress test**
  - Exercise stress test
  - Nuclear stress test



## Treatment Options

- **Angioplasty and Stent**
  - Angioplasty opens blocked arteries and restores normal blood flow in areas of an artery where atherosclerosis had formed
  - The Stent acts as scaffolding to keep the artery open once the balloon has been deflated and removed

## Treatment Options



Stent insertion

Stent expansion

Stent remains in coronary artery

ADAM.



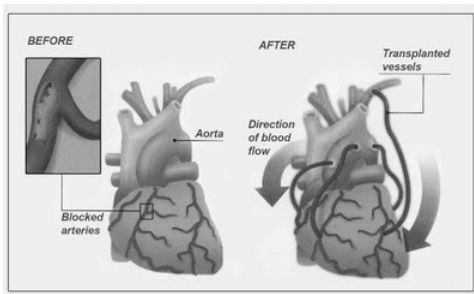
## Treatment Options

- **Coronary Artery Bypass Graft Surgery**
  - This is a type of heart surgery
  - Sometimes called CABG ("cabbage")

## Treatment Options

- The surgery reroutes, or "bypasses," blood around clogged arteries to improve blood flow and oxygen to the heart
- Surgeons take a segment of a healthy blood vessel from another part of the body and make a detour around the blocked part of the coronary artery

## Treatment Options



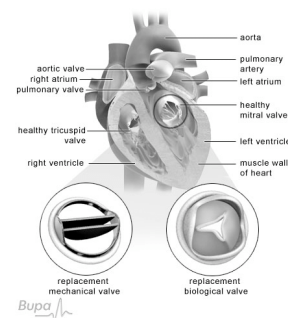
## Treatment Options

- **Valve Replacement or Repair**
  - Heart valve problems make the heart work too hard and can lead to heart failure
  - In some cases, valves
    - Don't open enough
    - Don't let enough blood flow through

## Treatment Options

- Don't close properly and let blood leak where it shouldn't
- **Mitral Valve Prolapse**

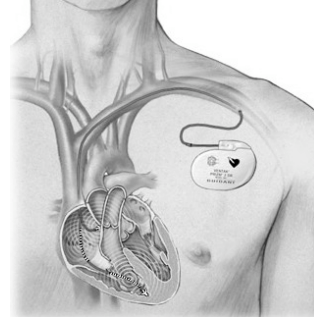
## Treatment Options



## Treatment Options

- **Pacemaker**
  - A pacemaker is a small device that's placed in the chest or abdomen to help control abnormal heart rhythms
  - This device uses electrical pulses to prompt the heart to beat at a normal rate

## Treatment Options



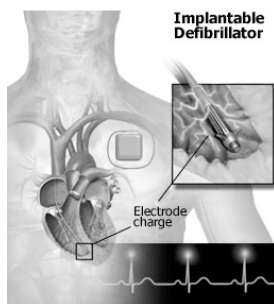
## Treatment Options

- **AICD**
  - An implantable cardioverter defibrillator (AICD) is a device that is implanted in the chest to monitor for and, if necessary, correct episodes of rapid heartbeat

## Treatment Options

- If the heartbeat gets too fast (ventricular tachycardia), the AICD will stimulate the heart to restore a normal rhythm (anti-tachycardia pacing)
- In cases where the heartbeat is so rapid that the person may die (ventricular fibrillation), the AICD will also give an electric shock (defibrillation) to “reset” heartbeat

## Treatment Options



## Treatment Options

- **Cardiac rehabilitation**
  - Cardiac rehabilitation is a medically supervised program to help heart patients recover quickly and improve their overall physical, mental and social functioning
  - The goal is to stabilize, slow or even reverse the progression of cardiovascular disease, thereby reducing the risk of heart disease, another cardiac event or death

### **Symptoms to Watch For**

- Shortness of breath
- Swelling in feet or ankles
- Extreme tiredness (unusual for patient)
- Daily weight gain of greater than 2 pounds
- Weekly weight gain of greater than 5 pounds

### **Heart Disease**

- Progression
- Disability