Epidemiology of Cardiovascular Diseases

Robert J. Straka, Pharm.D.
Associate Professor
University of Minnesota

The following slides are based primarily on data from American Heart Association 2003 Heart and stroke Statistics
(http://www.americanheart.org/presenter.jhtml?identifier=1928)

Intersection of Various CV Diseases

- HTN - A measurement
- CHF - A Syndrome
- CAD - A Chronic Disease

Prevalence of Cardiovascular Disease by Type

- Prevalence:
  - Greater than 61.8 million have some form of CVD (about 1 out of 5 Americans)
- Breakdown of Prevalence
  - High blood pressure - 50,000,000
  - Coronary heart disease - 12,900,000
    - Myocardial Infarction - 7,900,000
    - Angina Pectoris - 6,600,000
  - Stroke - 4,700,000
  - Chronic heart failure 4,900,000

Misconceptions of CVD:
"Heart disease no longer represents a serious threat."

- Mortality:
  - An American dies of CVD every 33 seconds
  - Approx. 40% of all deaths are due to CVD
  - If CV diseases were eliminated, life expectancy would increase by 10 years
  - CVD claims more lives each year than the next 5 leading causes of death combined

Five Leading Causes of Death: Men and Women

United States: Final Data for 2000

- A- Total CVD
- B- Cancer
- C- Accidents
- D- Chron Low Resp Dis
- E- Pneumonia/lnfl.
- F- Diabetes Mellitus

American Heart Association, 2003 Heart and Stroke Statistics
Percentage Breakdown of Deaths From Cardiovascular Diseases

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD</td>
<td>54%</td>
</tr>
<tr>
<td>Stroke</td>
<td>18%</td>
</tr>
<tr>
<td>Other</td>
<td>13%</td>
</tr>
<tr>
<td>Rheumatic Fever/Rheumatic Heart Disease</td>
<td>0.5%</td>
</tr>
<tr>
<td>Congenital Cardiovascular Defects</td>
<td>0.5%</td>
</tr>
<tr>
<td>Diseases of the Arteries</td>
<td>4%</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>5%</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>13%</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>54%</td>
</tr>
<tr>
<td>Stroke</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source: CDC/NCHS and the American Heart Association Stats Update 2003

Estimated Prevalence of Cardiovascular Diseases (% of Population) in Americans Age 20 and Older by Age and Sex

- CHD 54%
- Other 13%
- Stroke 18%
- HTN 5%
- CHF 5%


---

Cardiac Anatomy and Physiology
Robert J. Straka, Pharm.D.

Lecture Objectives:
- Review basics of the anatomy and physiology of the circulatory system.
- Review functional anatomy of the heart.
- Discuss the conduction system of the heart and the basis for the EKG.

---

Coronary Artery Distribution and Major Branches

- Right Coronary Artery
- Left Coronary Artery
- Circumflex Branch
- Anterior Descending Branch
- Septal Branches
- Marginal Branch
- Posterior Descending Branch

---

Blood leaving ventricles

- Superior vena cava
- Arch of aorta
- Right pulmonary artery
- Pulmonary trunk
- Left pulmonary veins
- Right atrium
- Left atrium
- Right ventricle
- Left ventricle
- Inferior vena cava
- Aorta
- Fat deposits
Cardiac Conduction System

- Sinus node
- Internodal pathways
- AV node
- Bundle of His
- Left Bundle Branch
- Right Bundle Branch
- Purkinje Fibers
- Post. Division
- Ant. Division

Electrocardiographic Waves, Intervals, and Segments