Arrhythmia Facts

- During a 24-hour period, about 20% of healthy adults are likely to have frequent or multiple types of premature ventricular heartbeats.

- Each day the average heart beats (expands and contracts) 100,000 times and pumps about 2,000 gallons of blood. In a 70-year lifetime, an average human heart beats more than 2.5 billion times.

- In the United States more than 850,000 people are hospitalized for an arrhythmia each year.

- Atrial fibrillation is the most common sustained heart rhythm disorder and increases the risk for heart disease and stroke.

- > 100 thousand Americans have an implantable defibrillator (ICD).
Arrhythmias
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Arrhythmias: Agenda

- What is normal rhythm?
- What symptoms can arrhythmias cause?
- How can arrhythmias be diagnosed?
- How can arrhythmias be treated?
Arrhythmias

• The normal heart is an amazing muscle with a ‘built-in’ electrical system that controls rhythm and rate
• This allows the 4 heart chambers to beat in a co-ordinated fashion
• In 24 hours, the typical heart beats 100 thousand times*

*2.5 billion times in the average lifetime
Normal rhythm

- A normal rhythm is sinus rhythm at 60 - 100 beats per minute (BPM)
- Sinus rhythm originates from the **sinus node** – a nest of cells in one of the upper pumping chambers of the heart (right atrium)
Normal rhythm

- From the Sinus Node the impulse travels to the AV node, and then the lower pumping chambers (ventricles)
Diagnosis: How can arrhythmias be diagnosed?

- **Symptoms** – you may experience palpitations, ‘flutters’ lightheadedness, dizziness, fatigue, black-outs

- **Exam** – your doctor will examine you for characteristic findings

- **Tests**
  - Your doctor may do a 12 lead ECG (electrocardiogram)
  - You may undergo stress testing
  - You may be given a portable monitor (ambulatory monitor)
Diagnosis: Ambulatory monitors

- **Holter monitor** 24 – 48 hours
  - Using a tape /digital recorder
  - 3-5 surface leads recorded continuously
  - Useful for frequent symptoms (several times/day)
  - Can provide accurate information about rate control
Diagnosis: Ambulatory monitors

- **Loop Recorder** 30 days
  - Using digital recorder with a loop buffer
  - Few seconds to minutes of single channel recording
  - Useful for infrequent symptoms (few times a month)
  - Requires patient activation
Diagnosis: Ambulatory monitors

- **Implantable Loop Recorder**
  - 14 months
  - Small device with integrated leads
  - Simple surgical implantation
  - Auto and patient activated
  - For infrequent episodes
Types of arrhythmia

• Slow heart rhythms
  – Bradycardia
  – ‘Blocks’

• Fast heart rhythms
  – ‘Upper pumping chamber’ rhythms
    • SVT, Atrial flutter, atrial fibrillation
  – ‘Lower pumping chamber’ rhythms
    • VT, ventricular fibrillation
Bradycardia

- Slow heart beat can occur because of disease of the **sinus node** or **AV node** (and some other medical conditions)
Bradycardia: Treatment

• Without symptoms – probably nothing
• With symptoms (fatigue, lightheadedness, dizziness, blackouts)
  – Tests (e.g. thyroid function, ecg)
  – Possibly reduce / stop some medicines
  – May need pacemaker
Bradycardia: Treatment

Pacemaker

Sometimes a pacemaker is necessary for bradycardia.

This is a device that helps to normalize slow electrical activity.
Pacemaker Placement

Tachycardia

• **Risk of developing tachycardia (fast heart rhythm) can be dependent on:**
  – Abnormal cells in the heart
  – Abnormal electrical connections
  – Heart disease
  – Medicines
  – Abnormal blood chemistry
  – Hormones
  – Family history
Tachycardia

• Fast heart rhythms – usually > 150 bpm
  – Upper chamber rhythms
    • SVT, atrial flutter, atrial fibrillation
Tachycardia

- **Treatment - SVT**
  - You may be shown how to ‘bear down’
  - Medications may be prescribed
  - You may need an Electrophysiology study (EPS) and have treatment with a catheter (ablation)
  - Most SVT’s are rarely life-threatening
Tachycardia

• Treatment – Atrial flutter / atrial fibrillation
  – You may be asked to start blood thinning medication (warfarin / coumadin, aspirin)
  – You may be started on medicines to control your heart rate (heart rate control strategy)
  – You may be started on medicine to keep you in normal rhythm (rhythm control strategy)
  – You may be referred for EPS / ablation
Tachycardia

- Fast heart rhythms – usually > 150 bpm
  - Lower chamber rhythms
    - VT, ventricular fibrillation
- Typically life threatening
- Often treated with a defibrillator

Arrhythmias: What can I do?

- Heart healthy lifestyle
- Maintain a healthy weight
- Stop smoking and avoid second hand smoke
- Avoid / limit intake of caffeine / alcohol
- Seek treatment for underlying health problems that contribute to heart disease
- See your medical professional about heart rhythm problems

http://www.hrspatients.org/patients/risk_factors/default.asp
Arrhythmias: Review

• What is normal rhythm?
• What symptoms can arrhythmias cause?
• How can arrhythmias be diagnosed?
• How can arrhythmias be treated?
Sources for further information

www.hearrhythmfoundation.org

www.americanheart.org

www.nlm.nih.gov/medlineplus

www.dhmc.org

Have a great day