

### Conduction Disturbances

**Sick Sinus Syndrome** Causes: Digitalis (reversible), CCBs, sympatholytics, antiarrhythmic drugs, coronary dz

**AV block** Refractory conduction of impulses from the atria to the ventricles through the AV node/bundle of HIS

**First degree** PR Interval of 0.4 sec or more

**Second degree** Mobitz Type I (Wenckebach) & Mobitz Type II

**Third degree** Complete dissociation from atria to ventricles

**Treatment** Permanent pacing

### Supraventricular Arrhythmias

#### Sinus bradycardia

HR < 60 bpm. Sinus node pathology, increased risk of ectopic rhythms.

#### Sinus tachycardia

HR > 100 bpm. Occurs with fever, exercise, pain, emotion, shock, thyrotoxicosis, anemia, heart failure, drugs.

#### Atrial premature beats

Usually benign

#### PSVT

Most common paroxysmal tachycardia. Usually benign.

#### Atrial fibrillation

Most common chronic arrhythmia, "holiday heart" when caused by EtOH or withdrawal

#### Atrial flutter

Usually in pts. with normal hearts, or with myocarditis, CAD, or dig toxicity

#### Clinical features

Palpitations, angina, fatigue

#### Treatment--PSVT

Adenosine, verapamil. Prevent with diltiazem, B-blocker.

### Supraventricular Arrhythmias (cont)

#### Treatment--Acute Afib

Electric cardioversion, rate control, prevent thromboembolism

#### Treatment--Chronic Aflutter

Amiodarone

### Ventricular Arrhythmias

#### Ventricular premature beats

May be benign or lead to sudden death if underlying heart disease

#### Ventricular tachycardia

3 or more ventricular premature beats in a row. Complication of MI and dilated cardiomyopathy. Sustained or unsustained.

#### Torsades de Pointe

A polymorphic VTach. Happens spontaneously, or from hypokalemia, hypomagnesemia, or QT-prolonging drugs

#### Long QT Syndrome

Congenital or acquired, recurrent syncope. Interval 0.5-0.7 sec. Can get ventricular arrhythmias and sudden death.

#### Brugada's syndrome

Genetic disorder, Asians and men, causes syncope, Vfib, sudden death.

#### Ventricular fibrillation

No cardiac output, associated with sudden death, more in early morning.

#### Treatment--Vfib

B-blockers if symptomatic

#### Treatment--Vtach

Synchronized cardioversion if severe hypotension or LOC. Rx: lidocaine, amiodarone, magnesium.

#### Treatment--Chronic sustained Vtach, congenital long QT, Brugadas

Implantable defibrillator

#### Treatment--Torsades de Pointe

B-blockers, magnesium, temporary pacing

### Ventricular Arrhythmias (cont)

**Treatment: if identifiable site of arrhythmic origin**

Radiofrequency ablation

### Cardiomyopathies

#### DILATED Cardiomyopathy

Can't squeeze/contract, most common\*, reduced strength or ventricular contraction and dilation of left ventricle.

#### Etiology

Genetic (most common), EtOH, chemo, idiopathic

#### Takotsubo

Type of dilated cardiomyopathy, occurs after major catecholamine discharge, sx similar to acute MI, "broken heart syndrome"

#### Clinical features

Sx of CHF, \*dyspnea. Possibly S3 gallop, rales, JVP.

#### Treatment

Abstain from ThOH, treat underlying disease, supportive tx for CHF.

#### HYPERTROPHIC Cardiomyopathy

Can't fill/too tight, hypertrophy of septum and left ventricle, diastolic dysfunction

#### Etiology

Almost exclusively \*genetic

#### Treatment

B-blockers, CCB or disopyramide (negative inotrope)

#### Sudden cardiac death

from hypertrophic cardiomyopathy occurs in patients <30yo 2-3% yearly

#### RESTRICTIVE Cardiomyopathy

Heart fibers of ventricle all scrambled up, mildly reduced function of L ventricle. Pulmonary HTN.

#### Etiology

From fibrosis or infiltration from diabetes, radiation, amyloidosis



### Cardiomyopathies (cont)

#### Treatment

Diuretics may be helpful.

### Pericardial Disorders

#### Pericarditis

Inflammation of the pericardium most often from infection, autoimmune, s/p radiation/chemo, drug toxicity.

#### Clinical Features

Pleuritic substernal pain, friction rub, pain relieved by sitting upright and leaning forward, fever if infectious

#### Pericardial Effusion

Secondary to pericarditis/uremia/cardiac trauma. Produces restrictive pressure on the heart

#### Clinical Features

Painless or painful (dyspnea and cough)

#### Cardiac Tamponade

Occurs when fluid compromises cardiac filling and impairs cardiac output

#### Clinical Features

Tachycardia, tachypnea, narrow pulse pressures, pulses paradoxes

#### EKG Signs

Electrical alternans

#### Treatment

If hemodynamic compromise-->pericardiocentesis to relieve fluid accumulation. O/W just NSAIDs if strictly inflammatory or abx if infectious



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