Clinical Pearls: Cardiology

Cardiology I

- In stable ischemic heart disease (not ACS), medical management with antianginal therapy should be the first step.
    - Antianginal medications in this space include beta blockers titrated to a goal HR of 55-60bpm, select calcium channel blockers, long-acting nitrates, and ranolazine.
    - Exceptions to this initial approach of medical therapy include: Large area of reversible ischemic myocardium (as identified on stress test imaging), high-risk criteria on stress testing (should be designated in the stress test report results), significant CAD with reduced LV function, and left main stenosis or equivalent (Lcx + LAD).
- ACS (acute coronary syndrome) is a spectrum of ischemia that ranges from unstable angina to NSTEMI to STEMI. Unless contraindicated, initial management should always include aspirin, p2y-12 inhibitor, oxygen, anticoagulation, beta-blocker, nitroglycerin and high dose statin.
    - The goal is to keep the patient chest pain free, hemodynamically stable and monitor for malignant arrythmias.
    - If there is a STEMI, or the 3 goals outlined are not met, the patient must go for left heart catheterization immediately. Otherwise, the decision for timing of catheterization depends on NSTEMI risk (eg TIMI score).

Cardiology II

- Pericarditis is a clinical diagnosis. There is no imaging that can rule in or rule out.
    - Risk factors and quality of chest pain should raise initial suspicion.
    - Findings on ECG as well as inflammatory markers on laboratory work can help to solidify the diagnosis.
    - High dose NSAID and colchicine therapy is the first line of treatment. Steroids should be avoided unless symptoms are truly recalcitrant.
- Cardiac tamponade physiology is a constellation of hemodynamic changes that occur when there is rapid accumulation of fluid in the pericardial space.

    - Chronic, slow pericardial fluid buildup in the pericardial space on the other hand is less likely to result in tamponade physiology.
    - An echocardiogram can help to assess for early tamponade features as well as be important for planning of pericardiocentesis, but the decision for pericardiocentesis is a clinical one that most importantly relies on a patient's hemodynamic stability.
- Mild valvular disease generally only requires TTE monitoring every 3-5 years. Moderate valvular disease a little more frequent with a TTE every 1-2 years, and severe valvular disease a TTE every 6-12 months.
    - Both valvular stenosis and regurgitation can be very hemodynamically dependent, therefore it is crucial to optimize a patient's blood pressure, heart rate, and volume status before obtaining these TTEs in order to assess the true degree of severity.

Cardiology III

- First degree AV block requires no intervention. It is simply a delay through the AV node, but not representative of heart block. Clinically it does not result in symptoms or hemodynamic consequences.
- In sick sinus syndrome (SSS), also known as sinus node dysfunction, the SA node fails to respond to physiologic demands.
    - In a patient with sinus bradycardia, one of the ways to assess for an aspect of SSS includes placing a pulse oximeter in office and having them walk to assess for adequate increase in heart rate (chronotropic competence).
    - Failure to increase heart rate appropriately may suggest underlying SSS.
- Both chemical and electrical cardioversion for atrial fibrillation or flutter result in an increased risk of stroke in the immediate 4 weeks following restoration of sinus rhythm. This is due to initial atrial stunning as well as synchronized atrial activity that may in theory dislodge a clot more readily.

Cardiology IV

- Unless contraindicated, patients with HFrEF should be started on goal-directed medical therapy if they have Stage B or higher HF. These medications should be titrated to their highest tolerated doses and include: ACE/ARB/ARNI, beta blockers (not initiated in acute decompensated states), aldosterone antagonists, and SGLT-2 inhibitors. Ivabradine and Isosorbide dinitrate-Hydralazine may also be initiated in certain patient populations.

    - Remember, loop diuretics, although they improve symptoms, have no mortality benefit.
- An ICD is indicated if after maximal goal directed medical therapy, a patients LV function remains <= 35% as this is high risk for malignant ventricular arrhythmias.
    - An ICD device provides a shock in the event VT/VF occur.
    - If there is also a LBBB with QRS >=120ms, a CRT-D may be considered. In addition to providing shocking capabilities, this device is also able to resynchronize the RV and LV such that both ventricles depolarize simultaneously rather than dyssynchronously as would be the case with LBBB.
- Diastolic dysfunction (DD) on an echocardiogram does not always mean clinical HFpEF. IF patients experience symptoms with diastolic dysfunction, then a clinical diagnosis of HFpEF can be made (generally seen with higher grades of DD).
    - The mainstays of therapy for HFpEF are reversing underlying causes as well as always maintaining blood pressure control and diuresis.