**Heart Failure**

* In US, primary RF are HTN and CAD
* Workup: ECHO, ECG, BNP, CXR, CBC, BMP
  + BNP < 100 unlikely, >500 likely
  + Volume status assessed clinically via orthostatic BP changes, weight, JVP, edema, and crackles
  + PND, orthopnea, swelling
* Treatment
  + Lifestyle, salt restriction <2g, weigh daily, control RF; stop smoking, minimize alcohol, cardiac rehab if symptomatic
* **Systolic = reduced EF < 40**
  + Ischemia, valvular disease, cardiomyopathy
  + Treatment summary:
    - Initial: diuretic as needed for overload, ACE/ARB and BB, hydralazine + nitrate if intolerant to ACE/ARB
    - Secondary: MRA and SGLT2-I
      * Prolong survival: MRA, SGLT2, hydralazine + nitrate
      * Reduce hospitalization and improve symptoms: MRA, SGLT2i, vericiguat, hydralazine + nitrate, ivabradine, digoxin
        + MRA + SGLT2 > hydralazine + N > vericiguat > digoxin
        + Digoxin for class III/IV, EF<25, all other therapies
        + Ivabradine for tachycardia despite max dose BB
  + Treat with comorbid diseases
    - Ischemic: <35 +CAD, surgical revasc
    - HTN: diuretic PRN, AceI/ARB, and BB +/- spiro or hydralazine
    - DM: SGLT2i
  + Arry is most common cause of sudden death in HF
    - ICD in EF <35 decreases SCD
  + Biventricular pacemaker for class III,IV, prolong QRS increased survival/hosp + often with ICD combined
* **Diastolic = preserved EF <50%**
  + Symptoms and RF the same as reduced
  + Treatment - symptomatic
    - High BNP (>100) > MRA + SGLT2, diuretic as needed
      * Empagliflozin or dapagliflozin
    - secondary
      * ACEi/ARBs, BB do not decrease risk of HF hospitalization, but remain first line in DM and CKD or HTN as needed
      * Sacubitril-valsartan for BP control
    - Devices not routinely included

* Class
  + 1 = 1 no symptoms
  + II = symptoms with ordinary activity
  + III = symptoms with less than ordinary activity
  + IV = symptoms at rest