2024.06 Heart Failure for Primary Care

1) Signs/Symptoms
   a) Symptoms:
      i) Shortness of breath with or without activity, PND, orthopnea, edema, nocturia, cough, wheezing, increase in weight (3-5 lbs over 2 days)
   b) Signs of volume overload
      i) Rales, elevated jugular venous pressure (JVP), edema, hepatomegaly, pulsatile liver, pleural effusion, pulmonary edema

2) Diagnosis
   a) Echocardiogram indicating reduced ejection fraction (EF <40% = HFrEF) or diastolic dysfunction (EF >40% = HFpEF)
   b) Chest X-Ray
   c) Evaluate labs: CBC, CMP, TSH, BNP

3) Clinical Evaluation:
   a) Assess body weight over time
   b) Assess volume status
      i) Jugular Venous Pressure (JVP), Edema, Ascites, Pleural effusions
   c) BP and HR (see note below under treatment)
   d) Evaluation for sleep apnea

4) Chronic Treatment
   a) HFrEF
      i) Initiate guideline directed medication therapy (see page 3 for flowchart and details)
         (1) Beta blockers (metoprolol succinate, carvedilol, bisoprolol), ARNI/ACE/ARB and aldosterone antagonist (if CrCl, K+ allow) for all patients
         (2) Titrate to target dose in the absence of intolerance or contraindication, even if symptoms are stable or improving
         (3) Aim for BP as low as possible without causing orthostatic symptoms and target heart rate to less than or equal to 70 bpm.
         (4) Dapagliflozin (Farxiga®), Sotagliflozin (Inpefa®) and Empagliflozin (Jardiance®) are all approved. Sotagliflozin approved for HF in patients with DM.
      ii) Begin volume management with loop diuretics as needed
   b) HFpEF
      i) Begin empagliflozin (Jardiance), Dapagliflozin (Farxiga®), or Sotagliflozin (Inpefa®) for reduction in HF hospitalizations
      ii) Begin volume management with loop diuretics as needed
         (1) Add aldosterone antagonist (if CrCl, K+ allow) if significant edema despite loop.
      iii) Decrease heart rate to goal of <70 bpm with beta blocker or calcium channel blocker (Diltiazem/Verapamil)
      iv) Treat comorbidities accordingly (hypertension, arrhythmias, diabetes, pulmonary conditions)

5) Patient education
   a) Nutrition: salt restriction (<3 grams/day), fluid restriction if hyponatremic, other based on comorbidities (weight loss, glucose control),
   b) Monitor weight daily and check for peripheral edema
   c) Patient education handouts in Epic
   d) Stop Dapagliflozin (Farxiga®), Sotagliflozin (Inpefa®) and Empagliflozin (Jardiance®) at least 3d before surgery.

6) Acute treatment for volume overload to avoid hospitalization
   a) See last page for diuretic adjustment flowchart

7) Post-hospitalization
   a) Office visit for follow up within 7 days of discharge
      i) Assess medication adherence, clinical evaluation focused on volume status
      ii) Follow-up for TCM in 7 days and then as directed
         (1) Reassess volume status, renal function, and electrolytes if titrating diuretics
   b) Cardiac rehab referral for all patients
   c) Advance Care Planning
      i) Consider palliative care consult for appropriate patients (for example 2 HF related admissions in 6 months)
   d) Cardiology referral
      i) All patients should have evaluation and follow-up.
      ii) Cardiology visit within 7 days of discharge if cardiology consulted in hospital
      iii) Consider CardioMEMs for patients with recurrent hospitalizations and/or elevated BNP/NT-pro-BNP
   e) Consider HF clinic referral for education and medication optimization
      i) Patients followed for ~6 months
      ii) Patients on dialysis excluded

8) Advanced heart failure management (cardiologist guided)
   a) Referral for pulmonary artery pressure monitoring
   b) Cardiac resynchronization +/- ICD
   c) Mitra Clip for moderate-severe Mitral regurgitation.
   d) Outpatient continuous IV inotropic therapy
   e) Destination LVAD therapy
   f) Cardiac transplantation

Heart Failure with **Reduced** Ejection Fraction
Medication Management

For ALL patients:
ACE Inhibitor *or* ARB *or* ARNI
AND
Evidence based Beta Blocker
AND
Aldosterone Antagonist (CrCl >30 ml/min, K^+ <5meq/dL)
AND
SGLT2 Inhibitor (eGFR > 20-25ml/min)

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Initiate loop diuretic (dose prn or daily as clinically indicated)

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- **Titrate ACE/ARB/ARNI, BB, Aldosterone Antagonist to target doses**
- Continue diuretic prn or daily
- Follow up symptoms q1-6 months and prn

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Add Hydralazine/ISDN (decrease mortality): self-identified African American or contraindication to ACE/ARB/ARNI

Add Ivabradine (Corlanor®) (decrease time to hospitalization): HR >70 on max tolerated BB and in normal sinus rhythm

Consider addition of Digoxin if patient remains symptomatic despite above therapies or if comorbid atrial fibrillation. Use low dose, ensure K^+ and Mg^+ are WNL

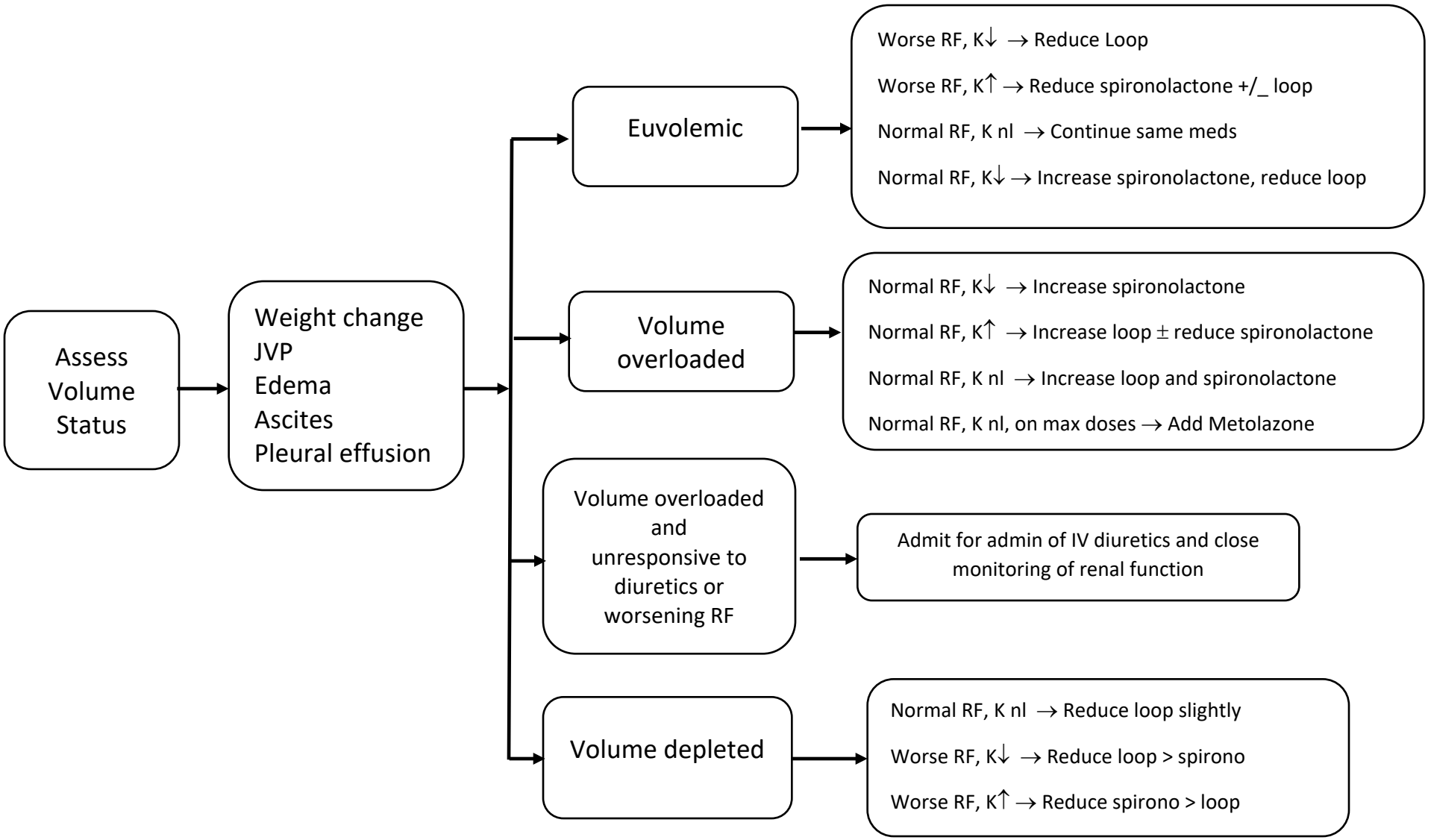
Consider Vericiguat (Verquvo®)(decrease CV death & HF hospitalization): eGFR >15 ml/min, EF <45%, contraindicated in pregnancy

If persistent symptoms, continue to add

	Starting Dose	Target Dose
ARNI: **starting dose and timing dependent on current ACE/ARB dose*		
Sacubitril/Valsartan (Entresto®)	24/26mg twice daily	97/103mg twice daily
ACE Inhibitors		
Enalapril	2.5mg twice daily	10mg twice daily
Lisinopril	2.5mg once daily	20-40mg once daily
Captopril	6.25mg three times daily	50mg three times daily
ARBs		
Valsartan (Diovan®)	20-40mg twice daily	160mg twice daily
Candesartan (Atacand®)	4-8mg once daily	32mg once daily
Losartan (Cozaar®)	25mg once daily	50-100mg once daily
Evidence Based Beta Blockers		
Bisoprolol	2.5mg once daily	10mg once daily
Carvedilol (Coreg®)	3.125mg twice daily	25mg twice daily
Metoprolol Succinate (Toprol XL®)	12.5-25mg once daily	200mg once daily
Aldosterone Antagonist		
Spironolactone	12.5-25mg once daily	25-50mg once daily
Eplerenone (Inspra®)	12.5-25mg once daily	25-50mg once daily
SGLT-2 Inhibitors		
Empagliflozin (Jardiance®)	10mg once daily	--
Dapagliflozin (Farxiga®)	10mg once daily	
Sotagliflozin (Inpefa®) *only with T2DM + HF*	Start 200mg daily	400mg daily after 2wk
Other		
Hydralazine/Isosorbide (BiDil®)	½-1 tab three times daily	2 tabs three times daily
Hydralazine	10-25mg three times daily	75-100mg three times daily
Isosorbide Dinitrate	10-20mg three times daily	40-60mg three times daily
Digoxin (level <1 ng/dl)	0.125mg once daily	0.125mg once daily
Ivabradine (Corlanor®)	5mg twice daily	Target HR <70bpm
Vericiguat (Verquvo®)	2.5mg once daily	10mg once daily

Updated 1.11.2024

Diuretic adjustment per volume status



RF = Renal Function nl = normal Loop = loop diuretic

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