Hemodynamic Management of Cardiomyopathy Patients
(ACE Protocol)

1. Patient taken to procedure room, right heart catheter placed, and patient returns to room. Hemodynamics are examined:
   if \(\text{PCW} > 16\) and/or the \text{cardiac index} < 2.2 \(\text{L/min/m}^2\) on two sets of hemodynamic measurements obtained in the CCU or ACE unit, the catheter remains in place.

2. If \(\text{SVR} < 1300\), \(\text{PCW} > 20\) mmHg, \(\text{RA} > 10\) mmHg, and \(\text{CI} > 2.2\) \(\text{L/min/m}^2\) then begin diuretics alone and restart previous ACE inhibitors. If the hemodynamics subsequently deteriorate (\(\text{SVR} > 1500\)), discontinue oral vasodilators (except nitrates) and begin Nitroprusside.

3. If the \(\text{SVR} > 1300\) and \(\text{PCW} > 20\) or \(\text{CI} < 2.2\) \(\text{L/min/m}^2\), begin Nipride with the following hemodynamic goals:

   **Hemodynamic Goals**
   - \(\text{SVR} < 1200\),
   - \(\text{PCW} < 15\) mmHg,
   - \(\text{RAP} < 7\) mmHg,
   - while maintaining \(\text{SBP} > 80\) mmHg.

4. If patient has low cardiac index (\(\text{CI} < 1.4\) \(\text{L/min/m}^2\)) consider addition of inotropic agent such as dobutamine. (Patients with low CI or pulmonary HTN may require transfer to the CCU)

5. \text{Nipride} to be ordered as \(100\) mg in \(250\) cc D5W; starting dose of 20 mcg/min titrating upwards by 20 mcg/min q5-10” to a maximum dose of \(300\) mcg/min, or until optimum hemodynamics are achieved. Diuresis with IV \text{Lasix} should also be initiated.

6. Obtain hemodynamic goals on Nipride and IV Lasix. Maintain these optimal hemodynamics for a minimum of 2-4 hours prior to starting oral vasodilators.

7. Start \text{Captopril} as the initial vasodilator in all patients: Captopril 6.25 mg. Increase to 12.5 mg after 2 hours, if tolerated, after an additional 2 hours 25 mg, then increase by 25 mg every 6 hours (e.g. 50 mg, 75 mg, then 100 mg) only as necessary to taper off nitroprusside and match the hemodynamics achieved on nitroprusside, up to a maximum of \(100\) mg PO q6 hours. **Do not continue to titrate captopril dose once off nipride, unless specific indication (e.g SVR > 1500 or SBP >100).** Avoid hypotension or advancing dose despite low SVR due to risk of renal failure.

8. \text{Isordil} to be started with initial unloading therapy in patients with coronary artery disease (10 mg or their admission dose of Nitrates). For patients without coronary artery disease, once Captopril dose has reached 25 mg and still on nipride or for elevated filling pressures despite diuresis, Isordil to be started at \(10\) mg tid. If tolerated, may be titrated, but only if indicated by high filling pressure or SVR. Do not increase nitrates beyond \(20\) mg tid, unless indicated. If tolerated and indicated may increase by \(10-20\) mg q 8 hours, as tolerated to a maximum of \(80\) mg tid.

9. If optimum hemodynamics are achieved and sustained for 6-8 hours (absolute minimum 4 hours) on Captopril or Captopril/Isordil regimen, Swan can be discontinued.

10. If optimum hemodynamics are not achieved on Captopril/Isordil regimen or if Captopril is not tolerated due to serious side effects (severe symptomatic hypotension, renal insufficiency, allergic reaction) the decision regarding the addition of \text{Angiotensin Receptor Antagonist} or \text{Hydralazine} or \text{Doxazosin} should be made by the CCU attending in conjunction with the Cardiomyopathy staff member. Continue Captopril at the greatest tolerated dose (usually \(100\) mg q6 hours). Hydralazine is started at \(25\) mg, after 2 hours \(50\) mg, then \(50\) mg q 6 hours, increase by \(25\) mg every 6 hours (e.g. \(75\) mg, \(100\) mg, then \(150\) mg) as needed to maximum \(150\) mg PO q 6 hours. Isordil is to be continued or started.

11. \text{Digoxin} is indicated if patient remains symptomatic from heart failure. Start at 0.125 mg qd or continue outpatient dose. Check level when at steady state (aim for level 0.5 to 1.1 ng/ml)

12. Diuresis is of utmost importance in these patients; \text{Lasix} should be given 2 to 4 a day with supplemental potassium. I/O
13. Potassium and magnesium to be closely followed. K+ should be kept 4.0-4.8 meq/dl. Mg+ should be kept \( \geq 1.8 \) meq/dl.

14. Patients should receive a 2 gram sodium diet and 1500 to 2000 liter fluid restriction.

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