

COVID-19 Cardiac Stepdown Stabilization Protocols

PURPOSE: The COVID 19 Pandemic may require cardiac protocols in other locations of the organization.

SCOPE:

For patients with the following diagnoses:

1. Atrial Fibrillation/Atrial Flutter with rapid ventricular response, normal LV systolic function or unknown systolic function without evidence of heart failure
 2. Atrial Fibrillation/ Atrial Flutter with RVR, known LVEF <35% or known severe valvular disease
 3. Regular narrow complex supraventricular tachycardia, hemodynamically stable
 4. Stable post radial artery access catheterization, diagnostic and intervention.
 5. High risk, non-ST elevation myocardial infarction
 6. Uncontrolled Hypertension
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- Patient should be on continuous Telemetry monitoring
 - Routine Vital Signs should be taken Q4H
 - Patient must always have one working large bore IV
 - In order to program the pump to run these drips, please choose 'critical care' template
 - Never hesitate to call the Rapid Response RN if you need help with any steps in these processes

Pharmacy must establish stocking process to ensure meds are in Pyxis

- Nitro
- Dilt – pharmacy needs to stock in Pyxis
- Amiodarone
- Adenosine – need to stock 12 vials in each Pyxis
- etc

Atrial Fibrillation/Atrial Flutter with rapid ventricular response, normal LV systolic function or unknown systolic function without evidence of heart failure

1. Target heart rate <110bpm and maintain systolic blood pressure >90mmHg
 - a. Stop following this protocol when the target has been achieved or total number of doses are exceeded
2. Obtain new baseline ECG
3. Ensure that the patient has one large bore peripheral IV (18G if possible). Ideally patient will have 2 large bore peripheral IVs.
4. Check CBC, BMP, TSH (if not already done within the past 48 hours).
5. Call Primary Medicine (Teaching or Non-teaching) Team to the bedside.
6. Administer either:
Metoprolol 5mg IV Q5min x3 **OR** Diltiazem 10mg Q5min x3?
 - Repeat cuff blood pressure at 4min prior to administration or next dose
 - Do not give repeat dose if decrease in systolic BP <90mmHg OR greater than 25% from baseline
7. Once target heart rate (<110bpm) is achieved, immediately administer equivalent oral medication load:
 - Diltiazem 60mg PO, plan for Q6hr dosing
 - Metoprolol tartrate 25mg PO, plan for Q6hr dosing
 - Obtain post rate control (HR <110bpm) ECG
8. If patient is not anticoagulated, start weight based low molecular weight heparin
9. If desired hemodynamic response NOT achieved, have primary medicine team call cardiology fellow on call
10. Indications for transfer to ICU: systolic blood pressure <90mmHg following medication administration or unable to obtain heart rate <110 bpm

Atrial Fibrillation/ Atrial Flutter with RVR, known LVEF <35% or known severe valvular disease

1. Target heart rate <110bpm and maintain systolic blood pressure >90mmHg
2. Obtain new baseline ECG
3. Ensure that the patient has one large bore peripheral IV (18G if possible). Ideally patient will have 2 large bore peripheral IVs.
4. Check CBC, BMP, TSH, BNP (if not already done)
5. Call Primary Medicine Team (Teaching or Non-teaching) to the bedside to assess volume status, if patient has a known history of atrial arrhythmia, and if they have been on anticoagulation for the past 30 days (If patient does not meet these parameters, please use **Atrial Fibrillation/Atrial Flutter with rapid ventricular response, normal LV systolic function or unknown systolic function without evidence of heart failure**)
6. If patient meets the above parameters, have primary medicine team Call cardiology fellow on call (use AmION)
7. At the direction of the Primary Medicine Team or cardiology fellow, you may be instructed to attempt one dose of IV metoprolol or administer an amiodarone bolus followed by infusion – please see below:
8. IF Metoprolol, administer 5mg IV x1. Repeat complete vital signs after 10min
9. IF Amiodarone
 - a. Administer 150mg IV bolus over 10 minutes. Repeat vitals after infusion complete.
 - b. Following bolus, start Amiodarone 1mg/min for 6 hours
 - c. After 6 hours, decrease Amiodarone to 0.5mg/min for 18 hours

Regular narrow complex supraventricular tachycardia, hemodynamically stable

1. Target, restoration of sinus rhythm
2. Obtain new baseline ECG
3. Ensure that the patient has one large bore peripheral IV (18G if possible). Ideally patient will have 2 large bore peripheral IVs.
4. Call Primary Medicine Team (Teaching or Non-teaching) to evaluate the ECG.
5. Attempt Valsalva maneuvers
6. Using a 3-way stopcock, administer adenosine 6mg IV, followed by 12mg IV if unsuccessful, and then 18mg IV if SVT continues. Follow the adenosine policy. Successive doses of adenosine may be administered every 1-2 minutes.
7. If underlying rhythm is determined to be atrial flutter or atrial fibrillation, refer to those protocols

Stable post radial artery access catheterization, diagnostic and intervention.

These will be patients who undergo diagnostic coronary angiography as well as percutaneous coronary intervention who are hemodynamically stable at the conclusion of the procedure. Many of these patients will be returning to the floors they were admitted to prior to the procedure.

1. Patients will have orders placed prior to leaving the cardiac catheterization laboratory including:
 - a. Access site monitoring
 - b. Instructions for radial arm band removal
 - c. IV fluid administration
 - d. Antiplatelet orders. All patients will be administered a loading dose in the cardiac catheterization lab unless otherwise noted.
2. Post catheterization vital sign monitoring (Patients are to be initially housed in the Cath Lab or PACU until recovered from conscious sedation. Floor RN to continue this monitoring process from where it was left off prior to transfer) :
 - a. Assess vitals, bleeding, and neurovascular check of the accessed arm place O2 sat probe on thumb or index finger of access site arm and assure pleth waveform.
 - b. Every 15min x4
 - c. Every 30min x2
 - d. Every hour until radial band is removed
 - e. If no bleeding 30min after band removed, resume floor level monitoring
 - f. Remain in bed 1hr post sedation
 - g. No blood pressure on accessed arm for 48hr. Place pink restricted band on affected arm.
3. Radial band air removal process:
 - a. 2 hours after the band was placed, begin removing air. Remove 3-5ml air (Max inflation 20mls) every 15 minutes until all air has been removed.
 - b. If bleeding occurs during removal, replace enough air to obtain hemostasis. Place O2 sat probe on thumb or index finger of access site arm and assure pleth waveform Wait 30 minutes and repeat step a.
 - c. Once all air has been removed and hemostasis confirmed, remove band and apply sterile dressing with 2x2 and tegaderm
 - d. Continue Q4hr vitals with site checks on the wrist to assess for hematoma and/or neurovascular compromise (numbness, tingling, peripheral color changes, etc) for 12 hours.
 - e. RN to notify cardiology fellow or interventional cardiology attending with any evidence of forearm hematoma or neurovascular compromise and immediately place manual pressure proximal to the armband or arteriotomy. Call the rapid response team to assist with hemostasis.

High risk, non-ST elevation myocardial infarction

Definition: Patients presenting with typical angina chest pain symptoms, ECG without acute STEMI, and elevated serum biomarkers (regardless of level). Patients may be admitted to the floor who are hemodynamically stable defined as a HR<110bpm and SBP>100mmHg

1. Optimal medical management will be initiated in the emergency department. All patients should have aspirin 324mg upon arrival, baseline ECG, chest X-RAY, hs-troponin, bmp, cbc completed prior to transfer to the floor.
2. Unless directed otherwise by cardiology, patients should receive a heparin bolus and be started on weight based heparin infusion.
3. Check hs-troponin every 6hr or until peak. ECG should be repeated 6hr after the initial ECG and at any point with clinical change.
4. Nitroglycerin 0.4mg SL should be administered x3 to achieve pain free status if patient is NOT on nitroglycerine infusion.
5. Blood pressure should be repeated prior to each dose of SL nitroglycerin. Repeat dose should NOT be administered for systolic blood pressure<90mmHg or systolic blood pressure decreases by 25%
6. If patient has ongoing chest pain despite administration of 3 doses of sublingual nitroglycerin in the Emergency Department, a nitroglycerin infusion should be initiated and up titrated to achieve a chest pain free state prior to admitting the patient to the medical floor.
7. Should chest pain recur, nitroglycerin infusion may be increased by 10mcg/min every 5 minutes until chest pain free. Check BP prior to any increase. If systolic blood pressure <90mmHg do not titrate and call the Primary Medicine Team to the bedside.
8. There will be a low threshold to activate the cardiac catheterization lab for these patients. The primary medicine team will notify cardiology fellow or interventional cardiology attending if patient:
 - a. Requires more than 5 dose adjustments to be made in 2 hours.
 - b. The patient is not chest pain free at a dose of 100mcg/min
 - c. SBP<90mmHg and not chest pain free
 - d. Has concerning evolving ECG changes

Uncontrolled Hypertension

Definition: Patients with severe hypertension who are admitted to an acute medical unit AND have severe hypertension, defined as a systolic BP>180mmHg.

Goal: Increase availability of IV antihypertensive agents to manage uncontrolled hypertension in admitted patients.

1. Complete baseline vitals should be obtained.
2. Patients should receive all of their regularly scheduled baseline antihypertensive agents unless there are contraindications as assessed by their primary physician (renal failure, electrolyte abnormalities, NPO, etc). If able baseline oral doses should be up titrated per the primary medical service.
3. Intravenous medication may be administered to acutely lower the blood pressure <180mmHg. Either medication or BOTH may be used. MAXIMUM dosing for all medications is 6 IV pushes in a 24 hour period OR 4 IV pushes in a 6 hour period.
 - a. Hydralazine IV:
 - i. Hydralazine 10mg IV. Repeat vitals after 15min
 - ii. If systolic blood pressure remains >180mmHg, administer Hydralazine 20mg IV. May repeat 20mg dose after 20min if persistently hypertensive for a total of 3 doses.
 - b. Labetalol IV
 - i. Do not administer if baseline heart rate<60bpm
 - ii. Labetalol 10mg IV. Repeat vitals after 15min
 - iii. If systolic blood pressure remains >180mmHg and heart rate>60bpm, administer Labetalol 20mg IV. May repeat 20mg IV after 20min if persistently hypertensive for a total of 3 doses.
4. For patients with baseline severe hypertension (systolic blood pressure >180mmHg) who are NPO and unable to take usual oral medications:
 - a. Schedule metoprolol 2.5-5mg IV Q6hr (Hold for heart rate<60mbpm). Complete vital signs should be assessed 30min following the initial dose. If no significant bradycardia, patient can be monitored with routine vital sign monitoring (Q4hr).
 - b. Hydralazine 5-20mg IV TID prn may be used for additional control (this will be given IN ADDITION to metoprolol). Follow the above vital sign protocol in section 3a.