## **Bradycardia**

This Protocol is intended for symptomatic patients

(e.g. altered LOC, chest pain, pulmonary edema, seizure, syncope, shock, pallor, diaphoresis) Bradycardic individuals who are perfusing well and do not have symptoms usually do not require emergency treatment.

Routine Medical Care confirm HR <60 Trancutaneous pacing (TCP) is Atropine is NOT effective for Mobitz II 2° and 3° AV blocks as a temporizing measure to transvenous pacing and a well as transplanted and total Obtain 12 lead EKG artificial hearts. pacemaker. & identify rhythm Notify receiving hospital of TCP Initiate transcutaneous pacing prior to arrival. immediately. Is patient Yes No adequately perfused? Prepare for trancutaneous pacing (TCP) Support ABCs Consider Atropine 0.5mg IV/IO q3-5 min<sup>1</sup> • Look for & treat reversible (max total dose = 3mg) causes of bradycardia • In periarrest situations<sup>2</sup>, consider **Push Dose** • Treat other complaints per **Epinephrine** (alternative to atropine) 10 mcg appropriate guideline IV/IO q2min to maintain MAP ≥ 65mmHg Monitor/reassess rhythm during transport Initiate TCP if patient remains symptomatic: Premedicate with Midazolam 2.5 – 5 mg IV/IO/IN Set rate between 70-80 bpm Consider Reversible H's & T's Start strength at 50 mA, increase output quickly until complete capture Hypovolemia is achieved (i.e. a wide QRS complex follows every pacer spike) Hypoxemia Confirm capture – palpate pulse and observe HR on pulse oximeter<sup>4</sup> Hydrogen ion (acidosis) As a safety margin, set strength 10mA above amount used to capture Hypo/hyperkalemia Tension pneumothorax • Tamponade, cardiac Toxins (e.g. β or Ca<sup>2+</sup>blockers) Consider **Push Dose Epinephrine** • Thrombosis, pulmonary (PE) If patient still symptomatic: while preparing pressor infusion • Thrombosis, cardiac (MI) Mix in syringe 1ml of 1mg/10ml Consider **Epinephrine drip** Epinephrine with 9 ml of NS

The differential diagnosis for bradycardia is broad - consider MI, hypoxia, pacemaker failure, hypothermia, overdose, cholinergic agents, head injury with increased ICP, stroke, spinal cord lesion, hyperkalemia, sick sinus syndrome, AV blocks, sinus bradycardia, athleticism.

(syringe = 10mcg/ml Epinephrine)

Give 1ml IV/IO q3-5 min prn

2mcg/min IV/IO (max 10mcg/min)

\*titrate to MAP ≥ 65\*

 $<sup>^1</sup>$  Do not delay pacing in order to administer atropine. Caution using atropine in the setting of acute MI; most cases of bradycardia during STEMI are due to heart block and may involve the right ventricle. Pacing +/- epinephrine is preferred in these instances.

<sup>&</sup>lt;sup>2</sup> Bradycardic periarrest occurs when patients are in a decompensated state with progressive instability and deteriorating vital signs. These patients require emergent therapy to avert progression to full arrest. Start with aggressive treatments in these patients.

<sup>&</sup>lt;sup>3</sup> If patient is alert, explain to them the procedure you are about to do. Look for a wide QRS complex with tall, broad T-waves as a sign of successful capture; do not be fooled by pacing artifact and false capture. Document the time, rate, current, and response to treatment.

<sup>&</sup>lt;sup>4</sup> During TCP, the monitor's heart rate reading should not be considered reliable. Use the heart rate on the pulse oximeter. If unable to obtain a heart rate, look for other signs and symptoms to determine if patient's perfusion is improving.