Emergency Medical Services Agency
Bulletin 2021-06   September 30, 2021

PLEASE POST

Protocol # 644 Symptomatic Bradycardia, Procedure #716 Transcutaneous Pacing, and Policy #121 Attachment A

Please see and distribute the attached protocol, procedure, and policy. Protocol # 644 Symptomatic Bradycardia, Procedure # 716 Transcutaneous Pacing, and Policy # 121 Attachment A will go into effect on October 1, 2021, at 0800. Please reread and become familiar with Protocol # 644, Procedure # 716, and Policy # 121.

If you have any questions regarding Protocol #644, Procedure #716, and Policy #121 feel free to contact kparker@co.slo.ca.us

SYMPTOMATIC BRADYCARDIA	
ADULT	**PEDIATRIC (≤34KG)**
BLS	

• Universal Protocol #601
• Pulse Oximetry
   o O₂ administration per Airway Management Protocol #602
	• Same as Adult
	Unstable
	HR <60 bpm and decreased level of consciousness
	• Ventilate with BVM and O2
	• If HR<60 persists despite ventilations
	   o **HPCPR** – High Performance CPR Procedure #712

ALS Standing Orders	

• Obtain 12-lead ECG
• With STEMI contact STEMI base prior to administration of Atropine unless in extremis
 	
Unstable
• **Normal Saline** fluid bolus 500 mL
   o Start concurrently with Atropine administration
 	
• **Atropine** 0.5 mg IV
   o May repeat every 3-5 min (not to exceed 3 mg total)
 	
• **TCP** – TCP Procedure #716
   o **I**nitiate TCP for any of the following:
    ▪ Patient in extremis
    ▪ Refractory to other treatments
    ▪ High-degree AVB with wide QRS complex
    ▪ Inability to rapidly establish vascular access for other treatments
 	
• **Pain Management**
   o If pain is persistent with TCP refer to Pain Management Protocol # 603
	• Obtain 12-lead ECG
	
	Unstable
	• **Epinephrine 1:10,000** 0.01 mg/kg (0.1 ml/kg) slow IV not to exceed 0.3 mg per dose
	   o May repeat every 3-5 min

Base Hospital Orders Only	

• **Calcium Chloride** 1 Gm slow (over 5 min) IV/IO
   o Suspected Hyperkalemia with wide complex bradycardia
 	
• **Atropine** 0.5 mg IV for stable patient or STEMI patient not in extremis
	• **Atropine** 0.02 mg/kg IV (minimum dose of 0.1 mg and maximum dose of 0.5 mg)
	   o May repeat every 3-5 min (not to exceed 1 mg total)
	• **Normal Saline** fluid bolus 20 mL/kg

- **Push-Dose Epinephrine 10 mcg/mL**
  1 mL IV/IO every 1-3 min
  - o repeat as needed titrated to SBP >90mmHg
  - o <u>See notes for mixing instructions</u>
    OR
- **Epinephrine Drip** 10 mcg/min IV/IO infusion
  - o Consider for extended transport
  - o <u>See formulary for mixing instructions</u>

  Suspected Overdose
  (Beta-Blocker, Calcium Channel Blocker,
  Tricyclic, Organophosphate)
- Ingestion/Poisoning/OD Protocol #614

- As needed

Suspected Overdose
(Beta-Blocker, Calcium Channel Blocker,
Tricyclic, Organophosphate)
- Ingestion/Poisoning/OD Protocol #614

- As needed

Notes

- **<u>Mixing Push-Dose Epinephrine 10 mcg/mL (1:100,000)</u>**: Mix 9 mL of **Normal Saline** with 1 mL of **Epinephrine 1:10,000**, mix well
- Pediatric bradycardia is most commonly due to hypoxia. Treatment should focus on ventilation and oxygenation
- Atropine in pediatric patients may cause paradoxical bradycardia
- High degree heart blocks (Second degree type II, and Third degree) may respond poorly to Atropine
  - o Consider obtaining Base Hospital Orders for pressor doses of **Epinephrine**
  - o If unstable proceed directly to **TCP** consider early base notification to STEMI Receiving Center (French Hospital
- Ensure all **Calcium Chloride** is thoroughly flushed from IV tubing prior to administration of **Sodium Bicarbonate**
- Higher doses of **Atropine** may be needed for organophosphate OD

TRANSCUTANEOUS PACING - TCP

BLS

- Universal Protocol #601
- Pulse Oximetry – O$_2$ administration per Airway Management Protocol #602

ALS Standing Orders

- Indications:
  - Symptomatic Bradycardia < 45 bpm with signs of hemodynamic instability:
    - Hypotension (SBP < 90)
    - Signs of poor perfusion
    - ALOC
- Evaluate potential causes of bradycardia:
  - Dysrhythmia
  - Implanted pacemaker failures
  - Acute myocardial infarction (12-Lead EKG)
  - Hypoxia, overdose, electrolyte imbalance, hypothermia
- Transcutaneous Pacing for:
  - Patients in extremis due to symptomatic bradycardia
  - Refractory to other therapies
  - High-degree AV-block (2nd degree Type II or 3rd degree)
  - May attempt trial of **atropine** 0.5 mg IV/IO
- For persistent pain with TCP refer to **Pain Management Protocol (# 603)**
- Place pacing pads on patient per manufacturers recommendations
- Set initial heart rate: 80 beats per minutes (bpm)
- Begin increasing output in increments of 10-20 mA until capture is noticed
- Confirm mechanical capture with palpated pulses, pulse oximetry, and response to procedure
- Increase output by 10mA after confirmation of mechanical capture (palpated pulses)
  - If no mechanical capture (palpated pulses) , consider "false capture." Continue to increase output
  - If mechanical (palpated pulses) capture but no improvement of findings or blood pressure
    - Increase the heart rate by 10 bpm, repeat x1 if needed (max rate of 100 bpm)
    - If continued problems with signs of shock consider vasopressor doses of **epinephrine** as described in **Shock protocol (#619)**
- Discontinue TCP if unable to achieve capture or if innate rhythm override
- After initiation of TCP transport to closest STEMI Receiving Center (French Hospital or Marian)

Base Hospital Orders Only

Contact SLO County STEMI Receiving Center (French Hospital)
- As needed

Notify the appropriate Base Hospital for the following situations:

RECEIVING SLO BASE HOSPITAL

- Notifications
- Medication Requests
- Physician Consultation
- Termination of CPR for cardiac arrests in patients ≤ 34 kg
- Termination of CPR for pulseless arrests not of cardiac origin (i.e. OD, drowning, etc.)
- Stroke Alert
- AMA after ALS procedures performed or indicated

TRAUMA CENTER (Sierra Vista)

- Trauma Alert Step 1 and 2
- Destination Consultation for Trauma Step 3 and 4 including Marian
- Traumatic arrests

STEMI BASE (French Hospital)

- STEMI Alert
- Cardiac arrest orders
- ROSC
- ROSC to MMC if orders required
- 12-Lead Consult
- Termination of CPR for pulseless arrest of cardiac origin (>34Kg)
- After initiation of Transcutaneous Pacing

MARIAN MEDICAL CENTER

When MMC is the intended receiving facility the medic may communicate directly for:

- Notifications
- STEMI Alerts
- Trauma Alerts
- Stroke Alerts
- ROSC – no additional orders needed

For any orders, medication request or consultations the medic shall use the appropriate County of SLO Base or Specialty Care Hospital