Medical Directive

Directive Number	**18-11**
Publish Date	**30 October 2018**
Effective Date	**30 October 2018**
Subject	**Update Narrow Complex Tachycardia with WPW statement and Open Dell Seton Medical Center at UT for Burn Patients ≥ 15 Years Old**
Update to Clinical Operating Guidelines v 10.01.18	

Credentialed PL 1	**Action**
Credentialed PL 2	**Action**
Credentialed PL 3	**Action**
Credentialed PL 4	**N/A**
Credentialed PL 5	**Action**
Credentialed PL 6	**N/A**
Credentialed EMD	**Action**

In order to facilitate these important updates to the COG they become **effective upon receipt**.

The Medical Directors have continued patient safety concerns regarding the use of Diltiazem in patients with a history of or, ECG indications of WPW. Therefore, have added a statement concerning its use in the appropriate Pearls Section and the Drug Formulary. We also have been advised by Dell Seton Medical Center at UT that they are ready to receive System Transported Burn Patients in accordance to the criteria in Clinical Reference CR-13 Transport Grid. Please review these attached documents and put them into practice immediately.

Thanks for all you do. Questions relating specifically to the COGs can be sent to cogs@austintexas.gov

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ESV# 103018719

Narrow Complex Tachycardia with Pulse (QRS ≤ 0.12 sec)

COG Updated: 10.30.18 (MD 18 – 11)

Assessment:

Pediatric Pearls:
- **< 37 kg**
- Titrate infusions and fluids to maintain a SBP >70 + (age in years x2) mmHg

Signs & Symptoms:
- Pale or Cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered Level of Consciousness
- Pulmonary Congestion
- Syncope

Differential:
- Heart disease (WPW, Valvular)
- Sick sinus syndrome
- Myocardial infarction
- Electrolyte imbalance
- Exertion, Pain, Emotional stress
- Fever
- Hypoxia or Anemia
- Hypovolemia
- Drug effect / Overdose (see Hx)
- Hyperthyroidism
- Pulmonary embolus
- Alcohol Withdrawal

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- **Oxygen**, Target SPO2 92% ↔ 96%
- BLS Airway Management as needed
- 3/4/12 Lead placement/acquisition of ECG
- IV access as needed
- IV fluid with **Isotonic Crystalloid** as needed titrated to SBP ≥ 100 mmHg
- Monitoring & Interpretation of ECG
- Valsalva Maneuver (Adults only)
- Continuous 12 lead ECG during Adenosine admin. If possible
- Adenosine IV (2 doses)
- Diltiazem IV 1st dose (Adults only)
- Sedation: Midazolam IV as appropriate **Do Not admin if <5kg** or Ketamine IM (adult only) as appropriate.
- Synchronized Cardioversion at maximum Joules for Adult
- For Pediatric Cardioversion 0.5 – 1.0 j/kg may repeat if needed at 2j/kg (Pediatric refer to Joule setting dose chart page 9 of 12)
- 12 lead ECG post conversion
-

Consult:

On call **System Medical Director** as needed.

- Diltiazem IV 2nd dose (Adults only)

Pearls:

- **If patient has history of or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer Diltiazem.**
- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Use caution in patient currently on antihypertensive medication
- Adenosine may not be effective in identifiable atrial flutter/fibrillation, but is not harmful.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Continuous pulse oximetry is required for all Atrial Fibrillation Patients.
- Pediatric Pads should be used in children < 10 kg or PEDIA Tape color Purple.
- Narrow complex tachycardia in setting of alcohol withdrawal should be treated aggressively with midazolam **not** diltiazem. If SVT is "exquisitely regular", any heart rate variability should lead you to consider sinus tachycardia or A-Fib.
- Consider a change of vector if initial Cardioversion is unsuccessful to anterior/posterior pad placement
- Sinus tachycardia may be misinterpreted as SVT or A-Fib. Sinus tachycardia rate >150 bpm in the adult patient or >180 in the pediatric patient may be seen in the septic patient.

Diltiazem

Indications

Atrial Fibrillation with RVR, Paroxysmal Supraventricular Tachycardia

Contraindications

- If patient has history of or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer Diltiazem.
- Patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker,
- Patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker,
- Patients with hypotension (less than 90 mm Hg systolic),
- Patients who have demonstrated hypersensitivity to the drug, and
- Patients with acute myocardial infarction and pulmonary congestion.
- Relative Contraindication : Known Sinus Tachycardia

Precautions

Cardiac Conduction: Diltiazem prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction

Pregnancy Category C

Adverse/Side effects

Headache, constipation, rash, nausea, flushing, edema, drowsiness, low blood pressure, and dizziness.

Class

Diltiazem hydrochloride is a calcium ion cellular influx inhibitor (slow channel blocker or calcium antagonist).

Mechanism of Action

Nondihydropyridine calcium-channel blocker: Inhibits extracellular calcium ion influx across membranes of myocardial cells and vascular smooth muscle cells, resulting in inhibition of cardiac and vascular smooth muscle contraction and thereby dilating main coronary and systemic arteries; no effect on serum calcium concentrations; substantial inhibitory effects on cardiac conduction system, acting principally at AV node, with some effects at sinus node. Diltiazem hydrochloride is extensively metabolized by the liver and excreted by the kidneys and in bile.

Diltiazem Dosing Continued

Pedi (< 37kg) Dose **Not administered to Pediatrics**

** Volume in ml to Administer is highlighted in color and, as applies by Approx. Weight at Given Concentration**

Adult Dosing 0.25 mg/kg IV/IO over 2 minutes & BP greater than 90 systolic

Max =20 mg (4 mL)

Second dose after 15 minutes with OLMC

0.35 mg/kg IV/IO over 2 minutes & BP greater than 90 systolic

Max =25 mg (5 mL)

DRUG CONCENTRATION CURRENTLY AVAILABLE	DRUG NAME	40kg (88lbs)	50kg (110lbs)	60kg (132lbs)	70kg (154lbs)	80kg (176lbs)	90kg (198lbs)	100kg (220lbs)	110kg (242lbs)	120kg (264lbs)	130 kg (286lbs)
5mg/1mL	Diltiazem 1st dose	2mL	2.5mL	3mL	3.5mL	! 4mL	! 4mL	! 4mL	! 4mL	! 4mL	! 4mL
5mg/1mL	Diltiazem (OLMC) 2nd dose	2.8mL	3.5mL	4.2mL	! 5mL	! 5mL	! 5mL	! 5mL	! 5mL	! 5mL	! 5mL

	Seton Medical Center Williamson	Round Rock Medical Center	Dell Seton Medical Center at UT	Seton Medical Center Austin	St. David's Medical Center	North Austin Medical Center	Heart Hospital of Austin	South Austin Medical Center	Westlake Medical Center	Seton Northwest Hospital	Baylor Scott & White Hospital Round Rock	Cedar Park Regional Medical Center	Seton Medical Center Hays	Baylor S&W Medical Center-Lakeway	Dell Children's Medical Center	North Austin Medical Center Children's Hospital	Seton Southwest Hospital	Sobering Center	St. David's Cedar Park SED	St. David's Bee Cave SED	St. David's Pflugerville SED
Basic Receiving Facilities																					
All Ages Alpha - Charlie < 20 weeks OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓	✓
All Ages Alpha - Charlie OPEN fractures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓				
Psychiatric ≥ 18 y/o NOT OB			✓																		
ETOH or Narcotic only ODs per COG																		✓			
Comprehensive Receiving Facilities If OB and STEMI, Stroke, Medical ROSC, or Sexual Assault - must go to a Perinatal Facility with those capabilities.																					
≥ 18 y/o Alpha - Echo NOT OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
STEMI Alert NOT OB	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓							
Resuscitation Alert NOT OB	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓							
Stroke Alert < 3 hours, NOT OB, **and** TSP time > 15 min longer to Comp. **or** all T.I.A.	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓							
Stroke Alert ≤ 24 hours **and/or** NOT Stroke Alert **and** NOT OB (Comprehensive Ctrs.)			✓	✓	✓																
Trauma Alert ≥ 15 y/o **OB is OK**	✓	✓	✓					✓					✓								
Sexual Assault ≥ 18 y/o NOT OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓	✓
Burns to: Face, Hands/Feet, Genatalia, Inhalation, Chemical, Electrical and/or ≥ 10% BSA 2nd or 3rd degree ≥ 15 y/o OB is OK			✓																		
Perinatal Centers ≥ 20 weeks OB																					
Alpha - Charlie		✓		✓	✓	✓		✓		✓	✓	✓	✓	✓							
Alpha - Echo		✓		✓	✓	✓		✓		✓	✓	✓	✓	✓							
Pediatric Facilities																					
≤ 17 y/o Alpha-Echo < 20 weeks OB or STEMI, Resusciation Alerts or NOT OB															✓	✓					
≤ 17 y/o Injured **NO** Trauma Alert																✓					
≤ 14 y/o Injured **NO** Trauma Alert															✓	✓					
≤ 14 y/o Injured Trauma Alert															✓						
≤ 17 y/o Stroke Alert NOT OB															✓						
Sexual Assault ≤ 17 y/o NOT OB															✓						