

Preprinted Order Name: <b>Critical Care Therapeutic Temperature Management (Arctic Sun) OrderSet - COOLING</b>		
Approving Individual/Group <b>Critical Care/Dr Campo</b>	Reviewed: <b>9/09</b> Revised: <b>9/10</b>	Page <b>1 of 7</b>

**PATIENT CARE**

- Insert central line.
- Insert arterial Line
- Consult immediately:
  - Pulmonologist/Critical Care Medicine
  - Admitting MD
  - Neurologist
  - Cardiologist

- |  |
|--|
| <input checked="" type="checkbox"/> Scan orderset to pharmacy<br><br><input checked="" type="checkbox"/> Fax first page to trauma office: 4191 |
|--|

- Obtain and record an accurate weight. Height: \_\_\_\_\_ (cm) Weight: \_\_\_\_\_ (kg)
- Place CritiCore foley for core temperature management.
- Insert oral gastric tube.
- Sequential compression devices (SCD's).
- Begin Sedation & Analgesia PRIOR to applying cooling pads to patient.

**LABORATORY**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> CBC with Diff   | <input checked="" type="checkbox"/> CMP                                    |
| <input checked="" type="checkbox"/> Magnesium   | <input checked="" type="checkbox"/> Phosphorus                             |
| <input checked="" type="checkbox"/> Lipase  | <input checked="" type="checkbox"/> PTT                                    |
| <input checked="" type="checkbox"/> PT-INR  | <input checked="" type="checkbox"/> Troponin                               |
| <input checked="" type="checkbox"/> CPK-MB  |  |
| <input checked="" type="checkbox"/> D-Dimer   | <input checked="" type="checkbox"/> Beta-HCG (if female, childbearing age) |
| <input checked="" type="checkbox"/> ABG with ionized calcium and lactic acid  |  |
| <input checked="" type="checkbox"/> If temperature > 38° C (100.4° F), obtain: <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Two peripheral blood cultures</li> <li><input checked="" type="checkbox"/> Sputum culture</li> <li><input checked="" type="checkbox"/> UA with culture and sensitivity</li> </ul> |  |

**DIAGNOSTIC TESTING**

- 12 lead EKG every 8 hours

Physician Signature: \_\_\_\_\_ MD/DO

Date: \_\_\_\_\_ Time: \_\_\_\_\_

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**MEDICATIONS**

**ANALGESIA**

- fentanyl (Sublimaze PCA Adult 1500 mcg/30 mL) Fentanyl 20 mcg/hour, may give 25 mcg IVP q 30 min if needed to obtain adequate sedation, may increase hourly infusion rate by 10 mcg q2h if patient requires more than 2 IVP bolus doses in previous 2 hours.

**SEDATION**

- propofol (Diprivan) 1 Gm IV drip 100 mL. Begin continuous infusion at 5 mcg/kg/min. Titrate upward in 5 mcg/kg/min increments every 10 minutes until desired level of sedation is achieved.
- midazolam (Versed) 50 mg in NS 50 mL. begin continuous IV infusion at 2 mg/hr and titrate until desired level of sedation is achieved

**SEIZURE CONTROL**

- LORazepam (Ativan) 1 – 4 mg IV once PRN to stop seizure activity, may repeat in 5 minutes as needed to stop seizure activity and notify MD.
- phenytoin (Dilantin) 20mg/kg (\_\_\_\_\_ mg) IV once PRN loading dose. Max rate 50 mg/min THEN phenytoin (Dilantin) 100 mg every 8 hours if patient continues to seize.
- fosphenytoin (CereBYX) 20mg/kg (\_\_\_\_\_ mg) IV one PRN loading dose over 30 minutes THEN phenytoin (Dilantin) 100 mg every 8 hours if patient continues to seize.
- levetiracetam (KEPpra) 1000 mg IV once PRN loading dose over 30 minutes, then levetiracetam (KEPpra IV) 500 mg IV every 12 hours.

**BLOOD PRESSURE MANAGEMENT**

- Do not discontinue sedation if patient develops hypotension.
- norepinephrine (Levophed) 8 mg/D<sub>5</sub>W 250 ml. Start IV infusion at 4 mcg/min and titrate to achieve a MAP of 70 mmHg.
- DOPamine (Intropin) 400 mg/ D<sub>5</sub>W 250 ml. Start IV infusion at 2 mcg/kg/min and titrate to achieve a MAP of 70 mmHg.
- nitroglycerin (Tridil) 100 mg/ D<sub>5</sub>W 250 ml. Start IV infusion at 5 mcg/min and titrate to achieve a MAP of \_\_\_\_\_ mmHg. (Max 200 mcg/min.)
- NICARDipine (Cardene) 20 mg/NS 200 ml. Start IV infusion at 5 mg/hour and titrate by 2.4 mg every 10 minutes to a maximum of 15 mg/hour to maintain MAP of \_\_\_\_\_ mmHg.

**DVT PROPHYLAXIS**

- hePARIN 5000 Units subCUTaneously Inj Every 8 hours
- dalteparin (Fragmin) 5000 units subCUTaneously Syr Every 24 Hours

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**Tallahassee Memorial  
Hospital**

Tallahassee Memorial HealthCare

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**STRESS ULCER PROPHYLAXIS**

- eSOMeprazole (Nexium) 40 mg IV Inj Every 24 hours
- Other \_\_\_\_\_

**SHIVERING SUPPRESSION**

- buspirone (BuSpar) 30 mg OG every 8 hours until rewarmed to target temperature and then discontinue.
- meperidine (Demerol PCA 300 mg/30 mL) in addition to BuSpar if shivering score still • 1, Administer 25 mg bolus loading dose followed by continuous infusion If shivering score is 1 or greater. Start infusion at 12.5 mg/hour. If shivering continues after 15 minutes may rebolus with 25 mg and titrate infusion up to 25 mg/hr.
- magnesium sulfate 2 Gm/NS 100 mL IV every 2 hours PRN shivering inspite of BuSpar and Demerol. If shivering score still • 1, Start at 1 Gm/hour and titrate to serum magnesium of 3 mmol/L. Check serum magnesium level every 2 hours while infusing. (use concurrently with BuSpar and Demerol)
- fentanyl (Sublimaze PCA Adult 1500 mcg/30mL) IV. If shivering score still • 1, Administer 25 mcg bolus dose followed by 50mcg/hour continuous infusion and titrate to 150 mcg/hr. (use concurrently with BuSpar, Demerol and magnesium)

**PARALYSIS INDUCTION** (if continues to shiver with medications listed above)

- vecuronium (Norcuron) 20 mg/NS 100 ml – 0.1 mg/kg bolus; then after 20 – 30 minutes start 1 mcg/kg/minute IV infusion to prevent shivering. Discontinue when core temperature is 36°C.
- rocuronium (Zemuron) 250 mg/NS 250 mL. Start 10 mcg/kg/minute IV infusion to prevent shivering. Discontinue when core temperature is 36°C.
- Other: \_\_\_\_\_

**MISCELLANEOUS MEDICATIONS**

- Ocular lubricant (Lacrilube SOP ointment) 1 app both eyes Opth Oint every 8 hours while receiving paralytics.

**COOLING TREATMENT**

**PATIENT CARE**

- Assure patient's head, hands, and feet are covered with warm towels or blankets to help prevent shivering.
- Place Equator warming blanket on patient if shivering score greater than 1 at any time.
- Train of Four (TOF) monitoring, using Peripheral Nerve Stimulation on all patients receiving a continuous infusion of a neuromuscular blocking agent.
- Insert CritiCore temperature foley if not already done. Place patient on Arctic Sun cooling unit.

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- Set target temperature for post cardiac arrest set target temperature of 33 ° C (91.4 ° F)
- Activate Automatic Mode on the cooling unit.
- Document patient temperature, Artic Sun water temperature, Basic Shivering Assessment Score (BSAS), and vital signs on the Artic Sun flow sheet.
- Notify MD for uncontrolled shivering or if water temperature drops >10°C after target temperature achieved.
- Document date and time target temperature achieved: Date \_\_\_\_\_ Time: \_\_\_\_\_
- For post cardiac arrest initiate Critical Care Therapeutic Temperature Management (Arctic Sun) – Re warming Orderset 24 hours after target temperature is reached
- Document:
  - Time cooling is started
  - Temperature every 15 min during induction of hypothermia, then 30 min x 2, and then every hour.
  - Intake and Output every hour
  - Vital Signs & Arctic Sun Water Temperature every hour
  - Cardiac rhythm every shift and prn changes
  - End tidal CO2 every hour
  - Train of Four to be checked every 2 hours when neuromuscular blockade is given.
  - Shivering every hour using Bedside Shivering Assessment Score (BSAS). If BSAS is 1 or more initiate Shivering Suppression Protocol
  - Skin checks every 6 hours. Apply tegaderm or Mepilex border to areas of breakdown prn
- Notify MD for:
  - Inability to reach target temperature within 8 hours
  - Electrolyte abnormalities not responding to treatment
  - Shivering uncontrolled with medication
  - Arrhythmias
  - Hemodynamic changes unresponsive to intervention
  - Urine output < 30cc/hr x 2 consecutive hours OR > 200cc/hr x 2 consecutive hours
  - Skin breakdown

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**LABORATORY**

- To be drawn every 6 hours during cooling
  - BMP
  - ABG with ionized Calcium and Lactic Acid
  - Phosphorus
  - Magnesium
  - Troponin
  - CPK-MB

- To be drawn every 12 hours during cooling
  - CBC
  - PT/INR
  - PTT

- Dilantin level daily if receiving Dilantin
- Serum potassium 1 hour after supplement given
- Serum magnesium 1 hour after supplement given
- Serum calcium 4 hours after supplement given
- Serum Phosphorous 1 hour after supplement given

**DIAGNOSTIC TESTING**

- 12 Lead EKG every 8 hours while patient cooled

**MEDICATIONS**

- potassium chloride (KCL) 20 mEq/100 ml Premixed IV PRN
  - Give 40 mEq IV over 2 hours q 3 hours PRN potassium 3 – 3.5 mEq/L.
  - Give 60 mEq IV over 3 hours q 4 hours PRN potassium 2.5 – 3 mEq/L
  - Give 80 mEq IV over 4 hours q 5 hours PRN potassium less than 2.5 mEq/L
  - Recheck potassium value 1 hour post infusion.
- magnesium Sulfate 2 Gm/100 mL IV q 2 hours PRN over 1 hour for magnesium less than 1.8 mg/dL.
  - Recheck magnesium value 1 hour post infusion
- calcium chloride 1 Gm IV q 4 hours PRN ionized calcium less than 0.9 mg/dL Recheck calcium value 4 hours post infusion.
- sodium phosphate IV PRN
  - 10 mMol IV over 2 hours q 3 hours PRN phosphorus 2 -2.5 mg/dL.
  - 20 mMol IV over 4 hours q 5 hours PRN phosphorus less than 2 mg/dL
  - Recheck phosphorus value 1 hour post infusion.

**INFUSION**

- NS bolus (sodium chloride 0.9%) \_\_\_\_\_ liters (30 ml/kg up to 3 liters maximum) IV once if not done already
- Use refrigerator cooled Normal Saline
- Use room temperature Normal Saline
- NS (sodium chloride 0.9%) 1000 ml at \_\_\_\_\_ ml/hour with NO BOLUS.

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