Sickle Cell Disease (SCD) Pain Crisis Pathway

Disclaimer: This clinical pathway is provided as a general guideline for use by Licensed Independent Provider’s (LIP) in planning care and treatment of patients. It is not intended to be and does not establish a standard of care. Each patient’s care is individualized according to specific needs.

Purpose Statement

To standardize the care of patients who present to Arkansas Children’s with Sickle Cell Disease-pain crisis.

Goal

To reduce the amount of time from patient presentation to our facility to the time the patient receives pain medication to 30 minutes or less.
Pain ≥ 7 or severe
- Place IV
- Obtain labs: CBC, retic, BMP, urine HCG (females >10 years)
- If febrile or history of fever, obtain blood culture and procalcitonin
- Obtain history and physical
- Give pain medications (narcotic and ketorolac) and IV fluids
- Continuous pulse oximetry

**Purpose:** To administer pain medication within 30 minutes of patient’s arrival to the Emergency Department

**First Line Medications**
- Morphine 0.1 - 0.2 mg/kg/dose IV (max 10 mg)
  OR
- Hydromorphone 0.02 mg - 0.05 mg/kg/dose IV (max 1.5 mg)
  OR
- Fentanyl 1.5 mcg/kg - 2 mcg/kg intranasal (max 150 mcg/dose)
  AND
- Ketorolac* IV 0.5 mg/kg/dose IV (max 30 mg)

If unable to obtain IV access:
- Fentanyl 1.5 mcg/kg - 2 mcg/kg intranasal (max 150 mcg/dose)
  OR
- Oxycodone 0.1 mg/kg PO (max 10 mg)

If no concern for acute chest:
- 20 ml/kg NS bolus over 60 minutes
- D5NS @ 1.5x maintenance

**Contraindications to ketorolac:**
- Pregnancy
- Renal impairment
- Last dose of ketorolac within 5 days
- Last dose ibuprofen within 6 hours

RN to reassess pain 30 minutes after each pain medication administration and notify LIP.

<table>
<thead>
<tr>
<th>0-30 minutes</th>
<th>Pain improved?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>Give second dose of narcotic pain medication</td>
</tr>
<tr>
<td>YES</td>
<td>Nursing standing order if patient is alert and responsive</td>
</tr>
<tr>
<td>YES</td>
<td>Pain improved?</td>
</tr>
<tr>
<td>YES</td>
<td>Pain improved?</td>
</tr>
<tr>
<td>NO</td>
<td>If patient comfortable managing pain at home, discharge home with pain plan/regimen</td>
</tr>
<tr>
<td>NO</td>
<td><strong>If patient not comfortable with at-home management, consult Hematology</strong></td>
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<table>
<thead>
<tr>
<th>31-60 minutes</th>
<th>Pain improved?</th>
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<tbody>
<tr>
<td>YES</td>
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</tr>
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<td><strong>If patient not comfortable with at-home management, consult Hematology</strong></td>
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</tbody>
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<table>
<thead>
<tr>
<th>61-90 minutes</th>
<th>Pain improved?</th>
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</thead>
<tbody>
<tr>
<td>YES</td>
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<tr>
<td>YES</td>
<td>Pain improved?</td>
</tr>
<tr>
<td>YES</td>
<td>Pain improved?</td>
</tr>
<tr>
<td>YES</td>
<td>Give third dose of narcotic pain medication</td>
</tr>
<tr>
<td>YES</td>
<td>Admit to Hematology</td>
</tr>
<tr>
<td>NO</td>
<td>If patient comfortable managing pain at home, discharge home with pain plan/regimen</td>
</tr>
<tr>
<td>NO</td>
<td><strong>If patient not comfortable with at-home management, consult Hematology</strong></td>
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**Acute Chest pathway**

**Decision to admit is made together with the patient and family according to their interpretation of improvement in pain after two doses of pain medication.**
**Inclusion Criteria:**  
Patients with known SCD presenting with pain

**Exclusion Criteria:**  
Monthly apheresis

Assess pain according to age appropriate pain scale

LIP orders Patient-Controlled Analgesia (PCA) and breakthrough pain/itching medications

*Patients who have required a hydromorphone PCA for pain control in the past – Consult Pain Service: Anesthesia Pain Service Consult (Pager # 501-405-6079)

Scheduled for 72 hours  
Administer  
Ketorolac IV 0.5 mg/kg IV Q6 hr (max 30 mg) if >2yrs of age  
OR  
Ibuprofen PO 10 mg/kg Q6 hr (max 600 mg) if >6 months of age for 3 days  
AND  
Acetaminophen PO 15 mg/kg (max 1 gram) Q6 hr

*Hydromorphone PCA Dosing*  
0.002-0.006 mg/kg/hour background  
0.002-0.005 mg/kg/Q10 min bolus

*Morphine PCA*  
0.01-0.03 mg/kg/hour background  
0.01-0.02 mg/kg/Q10 min bolus

**ITCHING**  
1. Diphenhydramine 0.5 mg/kg PO Q6 hr (max 50 mg) PRN (wait 1 hour before moving to Ondansetron)  
2. Ondansetron 0.1-0.15 mg/kg IV/PO Q6 hr (max 8 mg) PRN (wait 30 minutes before moving to Naloxone)  
3. Naloxone 0.001 mg/kg IV Q10 min up to 2 doses

DO NOT order Diphenhydramine IV

Initiate naloxone drip 2 mcg/kg/hr for breakthrough itching, not relieved by Diphenhydramine and/or ondansetron, or 2 bolus doses of naloxone

**NAUSEA/VOMITING**  
1. Ondansetron 0.1-0.15 mg/kg IV/PO Q6 hr PRN (max 8 mg)  
   (wait 30 minutes before moving to diphenhydramine)  
2. Diphenhydramine 0.5 mg/kg PO Q6 hr PRN (max 50 mg)

DO NOT order Diphenhydramine IV

*Administer medications in numerical order  
DO NOT duplicate therapies

**After 72 hours:**  
DISCONTINUE KETOROLAC and  
ADD:  
Acetaminophen PO 15 mg/kg (max 1 gram) Q6 hr scheduled  
AND  
Ibuprofen PO 10 mg/kg (max 600 mg) Q6 hr scheduled

**PURPOSE**  
Multimodal analgesic approach for better pain coverage

**ORDER**  
Incentive spirometer: Q1 hour while awake  
Polyethylene Glycol (Miralax): 0.2 to 0.8 g/kg/day PO (17g/scoop)  
Famotidine Dosing: 0.5 mg/kg Q12 PO (max 40 mg/dose)
Metrics

1. Pathway and order set utilization

2. Time to first pain medication in the ED (ketorolac, morphine, fentanyl, oxycodone, hydromorphone)

3. Time between first and second dose of pain medications in the ED (ketorolac, morphine, fentanyl, oxycodone, hydromorphone)

4. Rate of hospitalization

4. Length of stay
Contributing Members

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Dr. Suzanne Saccente – Hematology/Oncology
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References

