Clinical Guideline
Sickle Cell Vaso-occlusive Crisis (VOC)

Pediatric Emergency Medicine & Hematology-Oncology

Inclusion criteria: Age 2-18 years, Diagnosis of Sickle Cell disease, Presenting with VOC

Exclusion Criteria: Hypoxia, Fever, Splenomegaly, Uncharacteristic pain

Place PIV and check chart for individualized pain plan (IPP)
To find IPP in Cerner, extend date range, go to: Clinical notes > Other documentation > IPP

Individualized Pain Plan?
Yes

In the next 30 minutes:
• Compete full assessment
• Obtain CBC w/diff, retic, T&S
• Consider IVF if clinically dehydrated
• Give initial IV Morphine 0.2mg/kg (max 4mg) & Ketorolac 0.5mg/kg (max 30m)

Pain improved?
Yes

Give oral opioid and call fellow to discuss discharge planning

No

Pain score 7 or higher?

• Give third dose of IV morphine 0.1mg/kg (max 4mg)
• Re-evaluate in 30 minutes
• If pain significantly improved, give oral opioid and call fellow to discuss discharge planning

Plan Admission:
• Give third dose of IV narcotic, if not already given
• Call fellow to discuss admission plan
• If pain plan exists, order PCA per recommendations
• If no pain plan, order PCA per dosing chart

Unless pain significantly improved after 3rd dose

In the next 30 minutes:
• Give second dose of IV morphine 0.1mg/kg (max 4mg)
• Re-evaluate in 30 minutes

Pain significantly improved after 2 IV opioid doses according to pain plan?
Yes

Give oral opioid and call fellow to discuss discharge planning

No

Pain improved?

Yes

For patients >10kg, give IN Fentanyl
If pain >5 on presentation, proceed with PIV placement immediately after IN Fentanyl administration

If <10kg or refuses fentanyl

In the next 30 minutes:
• Complete full evaluation
• Obtain CBC w/diff, retic, T&S (if concern for severe anemia)
• Manage according to pain plan

Pain improved?

Yes

Give oral opioid and call fellow to discuss discharge planning

No

In the next 30 minutes:
• Complete full assessment
• Obtain CBC w/diff, retic, T&S
• Manage according to pain plan

Pain significantly improved after 2 IV opioid doses according to pain plan?

No

For questions concerning this guideline, contact: chorclinicalguidelines@vcuhealth.org

Last updated: August 2018
Next expected update: August 2021
On the Floor:

- Use Pediatric Sickle Cell Admission Orders Powerplan
- Continue home medications including Folic Acid and (±) Penicillin
- Continue Hydroxyurea if ANC > 1000 and PLT > 80,000
- Continue Ketorolac 0.5 mg/kg/dose (max dose 30mg) every 6 hours scheduled (after 48 hours, switch to scheduled Ibuprofen)
- Start PCA per Individualized Pain Plan if not started in ED; if no pain plan, use Medication Table below
- Assess patient on arrival to floor – may need opioid bolus while awaiting PCA set up

Dose Adjustment Guidelines:

- If the patient has increased pain scores and is using PCA > 3x/hour, consider giving a bolus dose and increasing basal by 20-25%
- Reassess patient within 1 hour after ANY dose adjustments for sedation and efficacy
- Do not increase basal/PCA dosing more frequently than every 3-4 hours

Side Effect Management:

- Bowel Regimen scheduled: MUSH (Docusate/Miralax) + PUSH (Senna) ± Lactulose as needed
- Itching relief with ORAL Diphenhydramine, Hydroxyzine, or Cetirizine as needed
- Nausea relief with Ondansetron as needed

Other:

- Continuous Pulse Oximetry on all PCA patients for the first 48 hours and with any PCA dose escalation
- IV Fluids should be based on oral intake and clinical hydration status. Goal: achieve & maintain euvolemia.
- If patient is unable to eat or drink, maintenance fluids should be maxed at 1 x maintenance fluid rate.
- Incentive Spirometry – ensure equipment at bedside and within reach of patient; monitor usage
- Consider PT consult after 24 hours, if specific movement issue identified
- Up & Ambulate at least 2x per shift (mandatory)
- Labs: CBC with Retic at attending/fellow discretion

Medication table

*Ranges listed indicate starting doses for opioid-naive patients

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>MAX INITIAL DOSE</th>
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| Oxycodone            | \( \leq 6 \text{ months } \text{PO: 0.025-0.05 mg/kg/dose every 4-6 hours} \)  
|                      | \( >6 \text{ months } \text{PO: 0.1-0.2 mg/kg/dose every 4-6 hours} \)  | PO: 5 mg - 10 mg |
| Morphine             | PO: 0.1-0.3 mg/kg/dose every 3-4 hours  
|                      | IV: 0.1-0.2 mg/kg/dose every 3-4 hours                                 | PO: 15 mg        |
| Hydromorphone        | PO: 0.03-0.08 mg/kg/dose every 3-4 hours  
|                      | IV: 0.015 mg/kg/dose every 3-4 hours                                   | PO: 2 mg         |
| Morphine PCA (1st line) | Continuous rate: 0.01-0.03 mg/kg/hour  
|                      | PCA dose: 0.02 mg/kg/every 10 in  
|                      | Clinician bolus: 0.05 mg/kg                                           | IV: 0.6 mg       |
| Hydromorphone PCA    | Continuous rate: 0.001-0.003 mg/kg/hour  
|                      | PCA dose: 0.002 mg/kg every 10 min  
|                      | Clinician bolus: 0.005 mg/kg                                          |
Sickle Cell Vaso-occlusive Crisis Guideline

Executive Summary

Children’s Hospital of Richmond at VCU Sickle Cell VOC Workgroup

Pediatric Hematology-Oncology Owner: Matt Schefft, MD
Pediatric Emergency Medicine Owner: Adam Bullock, MD
Pediatric Hematology-Oncology: Cady Noda, PharmD, BCPS
Pediatric Emergency Medicine: Christina Kirshenbaum, MS, RN, CPN
Pediatric Emergency Medicine Nursing Practice Council (consulting): Celia Hanson, RN, CPEN

Approved (August 2018)

Pediatric Emergency Medicine Quality Committee: Rashida Woods, MD

Chief of Emergency Medicine: Harinder Dhindsa, MD, MPH, MBA, FACEP, FAAEM

Interim Chief of the Division of Pediatric Hematology and Oncology: John McCarty, MD

References


Citation

Title: Sickle Cell VOC Guideline

Authors: Matt Schefft, MD  Cady Noda, PharmD, BCPS  Celia Hanson, RN, CPEN  Adam Bullock, MD  Christina Kirshenbaum, MS, RN, CPN

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Retrieval website: http://www.chrichmond.org/clinicalguideline-sicklecellVOC

Example: