1.0 Introduction

The cause of vaso-occlusive crisis (VOC) is believed to be ischemic tissue injury from the obstruction of blood flow by sickled erythrocytes. Reduced blood flow causes hypoxia and acidosis. This further increases the sickling process, leading to further hypoxia and acidosis—a cycle that eventually leads to ischemic tissue injury. Each VOC varies in intensity and duration. Infection, fever, acidosis, hypoxia, dehydration, sleep apnea, and exposure to extremes of heat and cold can precipitate crises. Often, no cause is identified.

Painful VOC is the most frequent complication of Sickle Cell Disease. Common sites of pain include bone (extremities, dactylitis or hand/foot syndrome, back) and abdominal pain. Bone pain, the most common type of VOC, may or may not be accompanied by swelling, low-grade fever, redness, and warmth. It may be symmetrical, asymmetrical, or migratory. Dactylitis is a common presentation in infants and toddlers; back and abdominal pain are more common in older children. Abdominal pain in children with sickle cell disease is usually a simple VOC, but other diagnoses may present similarly (splenic sequestration, liver sequestration, appendicitis, pancreatitis, biliary colic and cholecystitis, urinary tract infection, pelvic inflammatory disease, etc.) and should be ruled out. In addition, pneumonia and chest crisis may present as, or accompany abdominal pain. During a severe painful crisis, a patient may also develop an acute chest syndrome, or a CNS event.

Pain should be treated early and aggressively. No laboratory features are pathognomonic of VOC; diagnosis is based strictly on the history and physical examination. When treating a painful crisis, the Healthcare Provider needs to be aware that concurrent illnesses such as an acute sequestration, priapism, aplastic episode, or fever/sepsis (see other protocols) may also occur, which must be dealt with concurrently.

This clinical practice guideline has been developed for the management of sickle cell patients with an acute painful episode who present to the emergency department and/or inpatient units.
2.0 Clinical Practice Recommendations for Management of Vaso-occlusive Crisis

Child with Sickle Cell Disease (SCD) presents to ED with acute painful episodes (vaso-occlusive crisis).

ED Initial Assessment and Management:

- Place a child with suspected Vaso-occlusive crisis in LR (if possible) or higher immediately into a team. Administrator is responsible for notifying Child Life Specialist, Social Work and/or Family Navigator prior to starting measures.
- Perform initial assessment, including history and physical exam.
- Complete a physical exam to include:
  - Localizing signs of infection
  - Neurologic exam
  - Spleen size
  - Associated symptoms
- Complete the following tests and labs:
  - CBC
  - Serum electrolytes
  - Creatinine, glucose, VBG
  - Request blood cell counts
  - Determine risk for readmission
- If child has painful episode WITHOUT fever:
  - Place child in LR to monitor and manage pain
  - Refer to Acute chest Syndrome Guidelines
  - Consider physical or psychological interventions such as heating pads, massage, warm baths, etc. and other opioids.
  - Place child's family to consult with CCAC for follow up instructions.
- Child discharged home with appropriate follow-up instructions. Provide medication management and return to care instructions.

ED Discharge Medication Management and Follow-up:

- All patients at high risk for readmission must be referred for CCAC for follow-up instructions.
- All patients at high risk for readmission should be seen by the Pediatric Intake physician and/or Pediatric Hematologist.
- Parent(s)/guardian(s) should be reminded to be seen with child at Brampton Civic Hospital or Rough Valley Centenary.
- Place child's family to consult with CCAC for follow up instructions.

3.0 References


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4.0 Related documents
- Acute Chest Syndrome or Pneumonia: Guidelines for Management in Children with Sickle Cell Disease
- Pain Assessment Policy
- Pain Management Clinical Practice Guideline

Attachments:
- Discharge Criteria 2021 FINAL.pdf
- ED medication management.pdf
- Inpatient Management 2021 FINAL.pdf
- Revision History.docx
- SC_Clinic Follow Up Revised 2021_FINAL.pdf
- SCD pain plan_july 2015.pdf
- VOC Care pathway 2021 FINAL.pdf