1.0 Policy statement

Patients admitted on hydroxyurea shall not be given hydroxyurea prescription on discharge. **Haematology is to prescribe in order to monitor blood work.**

2.0 Definitions

- **Hydroxyurea (HU)** is a chemotherapy medicine that has been used to treat many disorders, including sickle cell disease (SCD). Research has shown that patients with sickle cell disease who take hydroxyurea are admitted to hospital because of painful events only half as often as patients who do not take hydroxyurea, have fewer acute chest crises and have less need for blood transfusions if they are admitted to hospital. Please see [www.aboutkidshealth.ca](http://www.aboutkidshealth.ca).

- **Maximum Therapeutic Dose (MTD)** is maximum dose or clinical efficacy achieved.

- **Transcranial Doppler (TCD)** is a non-invasive ultrasound used to screen for strokes measuring the rate of blood flow through the large vessels on both sides of the brain.

- **Vaso-Occlusive Crises (VOC)** are blockages of the blood vessels anywhere in the body by deformed red blood cells. This causes a lack of oxygen in the affected area of the body. Symptoms depend on where the blood vessels are blocked.
3.0 Guideline

Pain assessment and consult completed of child with Sickle Cell Disease (SCD)

Does child meet indications to start hydroxyurea?

NO YES

Discuss and decide on an alternative therapy with child and caregivers

Hematology team to obtain agreement from child and caregivers

Does child and/or caregivers agree to initiate hydroxyurea?

NO YES

Prior to initiating hydroxyurea please ensure the following is completed:

- Pain assessment and consult completed of child with Sickle Cell Disease (SCD)
- Prior to starting hydroxyurea ensure that the following is reviewed:
  - Pain assessment and consult completed of child with Sickle Cell Disease
  - Hematology team to obtain agreement from child and caregivers

Prior to initiating hydroxyurea please ensure the following is completed:

- Discuss alternate therapies if any are available
- Discuss and decide on alternative therapy with child and caregivers
- Hematology team to obtain agreement from child and caregivers
- Does child and/or caregivers agree to initiate hydroxyurea?
- Does child meet indications to start hydroxyurea?

Indications for hydroxyurea

- In child under 18 months of age, children, and adolescents with SCA, offer treatment with hydroxyurea regardless of clinical severity to reduce SCD-related complications. Refer to NIH guidelines
- At least 2 hospitalizations for Vaso-Occlusive Crises (VOC) episodes in a 12 month calendar period
- 5 or more acute chest crises requiring transfusions
- Significant or symptomatic organ damage not due to VOC pain managed at home
- Abnormal Transcranial Doppler (TCD) in patient relating translation therapy
- Chronic nausea
- Low hemoglobin <70g
- High conditional TCD velocities
- Prior to starting hydroxyurea ensure that the following is reviewed:
  - Evidence of organ damage – TCD velocities, proteinuria, hypoxemia, academic performance
  - Does the patient have sleep apnea?
  - Psychosocial issues which might impact compliance with treatment regimen such as transportation, finances for drug or insurance
  - Document growth and development
  - Respiratory function
  - Neural growth and development

Red blood cell (RBC) count

- 80 – 120 million/L

Hematologic toxicity and beneficial effects

- Review of VOC episodes with family
- Document growth and development
- Peer support
- Social support
- Education of parents and patient
- Time to Vaso-Occlusive Crises (VOC) pain managed at home

Ongoing monitoring of bloodwork

- Bi-monthly CBC, diff, retics, ALT, AST, BUN
- Hb analysis
- LDH, ferritin, transferrin, MCV, MCH, MCHC
- Platelet count
- Retic count
- Differential count
- Morphology

If Hematologic Toxicity Occurs

- Discontinue hydroxyurea until counts recover usually 4-7 days
- Restart at same dose: If threshold is again reached, reduce to previous dose and that is maximum therapeutic dose
- Patient and Family Involvement

- Clinical effect
- Review of VOC episodes with family
- Side effects
- Hematologic toxicity and beneficial effects
- Keep patient in regular care management. This improves compliance and instills confidence in taking the drug
- Celebrate beneficial effects, and be open when toxicities occur. Show graphs of response e.g. MCV, Hb F%

4.0 Related Documents

Dissolve and Dose Drug Administration ==>  
Chemotherapy At Home: Safely Handling and Giving Medicines  
Chemotherapy At Home: Safely Giving Your Child Capsules  
Hydroxyurea Education and Discussions Tip Sheet
5.0 References


7. The effect of prolonged administration of Hydroxyurea on morbidity and mortality in adult patients with sickle cell syndromes; results of a 17-year, single center trial (LaSHS). Blood 2010;115(12):2354-2363


9. Ware, RE. How I use hydroxyurea to treat sickle cell disease. Blood 1 July 2010.Vol 115, Number 26

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Attachments:

- Hydroxyurea Education and Discussions Tip Sheet.pdf
- Revision History.docx
- scd_hydroxyurea_v4_2021.pdf