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.

- **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 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:

- Discuss alternate therapies if any are available
- NO
- NO
- YES

Refer to tip sheet on Hydroxyurea Education

Initial dose at home

Write prescription

Patient education and ensure there is an ongoing discussion

Bloodwork

Prior to starting hydroxyurea ensure that the following is reviewed:

- Hemoglobin
- Platelets
- Retic count
- Neutrophil ANC

Ongoing monitoring of bloodwork

In the bloodwork below threshold?
  - NO
  - YES

HMTD or clinical target achieved?
  - NO
  - YES

Reduce and/or hold dose

Consider dose escalation. Refer to HMTD

Continue with same dose

Indications for hydroxyurea

- In child up to 4 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.
- If 2 hospitalizations for Vaso-Occlusive Crises (VOC) episodes in a 12-month calendar period
- 5+ acute chest episodes requiring transfusion
- Significant level of pain or suffering from sickle crises
- Evidence of organ damage due to uncontrolled sickle crises
- Abnormal Transcranial Doppler (TCD) in patient failing transfusion therapy
- Chronic hypoxemia
- Low hemoglobin <7g/dL
- High conditional TCD velocities
- Proteinuria, evidence of chronic kidney damage
- Poor growth and development

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, and finances for drug or manage

Indicators for dose reductions

- Neutrophil ANC <9.0 x 10^9/L
- Ratio count <8.8 x 10^9/L
- Platelets <150 x 10^9/L
- Hemoglobin <7.0 g/L

Therapeutic Toxicity Overview

- Discontinue hydroxyurea until counts recover (usually 7-10 days)
- Restart at same dose

If threshold is again reached, reduce to previous dose and that is maximum therapeutic dose

Pediatric and Family Involvement

- Clinical effect
- Review of VOC episodes with family
- Side effects
- Hematologic toxicity and beneficial effects
- Keep potential therapy unique from 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

Printable Version

4.0 Related Documents

Dissolve and Dose Drug Administration ——> Chemotherapy At Home: Safely Giving Your Child Capsules

Chemotherapy At Home: Safely Giving Your Child Capsules

Hydroxyurea Education and Discussions Tip Sheet

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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