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 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:

- Bloodwork
- Patient education and ensure there is an ongoing discussion
- Develop a treatment plan
- Write prescription
- Initial dose at home

Discuss alternate therapies if any are available

Ongoing monitoring of bloodwork

In the bloodwork before threshold?

NO

YES

HMTD or clinical target achieved?

NO

YES

Reduce and/or hold dose

Consider dose escalation. Refer to e-formulary

Continue with same dose

Indications for hydroxyurea:
- In child ≤ 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.
- ≥ 2 hospitalizations for Vaso-Occlusive Crises (VOC) episodes in a 12 month calendar period
- ≥ 5 severe short episodes requiring transfusion
- ≥ 4 severe short episodes requiring hospitalization
- ≥ 4 severe short episodes requiring admission to hospital due to VOC pain managed at home
- Abnormal Transcranial Doppler (TCD) in patient failing translation therapy
- Chronic hypoxemia
- Low hemoglobin < 7g/dL
- High cardiac TCD velocities
- Painless cerebral infarct on screening
- 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 issue which might impact compliance with treatment regimen such as transportation, and finances for drug or range
- Thorough physical examination
- Document growth and development
- Patient and family involvement

Threshold for Dose Reductions

- Neutrophil ANC < 1.0 x 10^9/L
- Platelet < 70 x 10^9/L
- Hemoglobin > 4 g/dL

If Hematologic Toxicity Occurs

- Discontinue hydroxyurea until counts recover (usually 5-7 days)
- Restart at same dose, if threshold is again reached, reduce to previous dose and that is maximum therapeutic dose

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

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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