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

Discuss and decide on alternative therapy with child and caregivers

Hematology team to obtain agreement from child and caregivers

NO

Does child and/or caregiver agree to initiate hydroxyurea?

NO

Discuss alternate therapy if any are available

YES

Prior to initiating hydroxyurea please ensure the following is completed

Prior to starting hydroxyurea ensure that the following is reviewed:

Indications for hydroxyurea

- In initial 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
  - ≤ 3 acute chest episodes requiring transfusions
  - Significant organ damage from hematopoietic stem cell transplant due to VOCs
  - Abnormal Transcranial Doppler (TCD) in patient refusing transfusion therapy
  - Chronic kidney disease
  - Low hemoglobin ≤ 70g/L
  - High N-terminal pro-B-type natriuretic peptide (NT-proBNP)
  - Frequent alloimmunization
  - Poor growth and development

Prior to starting hydroxyurea ensure that the following is reviewed:

- Evidence of organ damage – TCD velocities, protamine, proteinuria, hemolysis, 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 insurance
- Document growth and development
- Thorough physical examination
- Document discussion, history and physical including height and weight, oxygen saturations, and laboratory results

Indications for hydroxyurea

- Hemoglobin threshold ≤ 80g/L
- Hemoglobin A2 > 12
- Retic count < 20,000/μL
- Platelets < 70 x 10^9/L
- Neutrophil ANC < 0.5 x 10^9/L
- Hb F ≥ 6%
- Evidence of organ damage – TCD velocities, protamine, proteinuria, hemolysis, 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 insurance
- Document growth and development
- Thorough physical examination
- Document discussion, history and physical including height and weight, oxygen saturations, and laboratory results

NO

YES

Prior to initiating hydroxyurea please ensure the following is completed:

Refer to "In-Home Hydroxyurea Education" for detailed information:

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

NO

YES

Recurrent monitoring of bloodwork

In the bloodwork below threshold?

Hematologic Toxicity: Discontinue hydroxyurea until counts are recovered

YES

Reduce and/or hold dose

If hematologic toxicity occurs

- Restart at previous dose
- Document discussion, history and physical including height and weight, oxygen saturations, and laboratory results

NO

YES

RMTS or clinical target achieved?

Consider dose escalation. Refer to "In-Home Hydroxyurea Education"

Ongoing monitoring of bloodwork

Printable Version

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

©The Hospital for Sick Children ("SickKids"). All Rights Reserved. This document was developed solely for use at SickKids. SickKids accepts no responsibility for use of this material by any person or organization not associated with SickKids. A printed copy of this document may not reflect the current, electronic version on the SickKids Intranet. Use of this document in any setting must be subject to the professional judgment of the user. No part of this document should be used for publication without prior written consent of SickKids.
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

Revised by:

- Melina Cheong, RN, Nurse Practitioner, Division of Haematology/Oncology
- Melanie Kirby, MD, Staff Physician, Division of Haematology/Oncology
- Marina Strzelecki, Clinical Pharmacist, Pharmacy

Attachments:

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