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

Indications for Hydroxyurea
- In rel. to 6 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 or more acute short visits requiring transfusions
- Significant impact of VOC episodes on quality of life
- Abnormal Transcranial Doppler (TCD) in patient failing or relapsing transfusion therapy
- Chronic hypoxemia
- Low hemoglobin <7.5g
- High conditional TCD velocities
- Evidence of organ damage
- Documentation of clinical improvement
- Neurocognitive decline
- Chronic hypoxemia
- 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, and finances for drug or insurance
- Document growth and development
- Physical examination
- Document discussion, history and physical including height and weight, oxygen saturations, and laboratory reports

Prior to initiating hydroxyurea please ensure the following is completed:
- Refer to ISCHEMIA: 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

Ongoing monitoring of bloodwork
- In the bloodwork before threshold?
- HMTD or clinical target achieved?

If threshold is reached:
- Increase dose and hold dose
- Restart at same dose

If hematologic toxicity occurs:
- Discontinue hydroxyurea until counts recover (usually 5-7 days)
- Restart at lower 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/routine
- SIDE effects
- Hematologic toxicity and beneficial effects
- Keep potentially aggravating factors in check. This improves compliance and instills confidence in taking the drug
- Celebrate beneficial effects, and be open when toxicities occur
- Share 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

©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 the 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