Inpatient Hyperbilirubinemia Management

Introduction

Hyperbilirubinemia also known as neonatal jaundice is a common condition affecting approximately 60% of term and 80% of pre-term babies in the first week of life. Hyperbilirubinemia occurs due to the shorter red blood cell lifespan, higher red blood cell concentration and slower metabolism and excretion of bilirubin which leads to higher levels of unconjugated bilirubin circulating. In most of these infants the condition will resolve without any need for intervention. However, for some, there is a risk of developing severe hyperbilirubinemia which can lead to acute bilirubin encephalopathy (kernicterus). Severe hyperbilirubinemia has been on the rise in North America and Europe, with increasing frequency in term and near-term infants. The goal of early identification and intervention is to decrease potential morbidity and mortality associated with bilirubin encephalopathy and to minimize disruption to exclusive breastfeeding and parent-child bonding in the neonatal period.

This approach for early detection and intervention for hyperbilirubinemia in the newborn is recommended by the Clinical Expert Advisory group for the Ministry of Health and Long-Term Care Quality-Based Procedure on Hyperbilirubinemia in Term and Late Pre-Term Infants, as well consensus from the guideline group.

Purpose:

1. improve early identification of infants at risk for severe hyperbilirubinemia and to decrease potential associated morbidity and mortality;
2. enhance the quality of care delivered by streamlining treatment management;
3. promote exclusive breastfeeding; and
4. enhance appropriate utilization of community resources and ensure appropriate follow up.

Target Patient Population

- previously healthy infants
- age <14 days
- born at or ≥ 35 weeks gestational age

Exclusion Criteria:

- With conjugated hyperbilirubinemia defined as > 18 µmol/L or greater than 20% of the TSB concentration;
- Meeting NICU direct admission criteria for exchange transfusion or IVIG administration;
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- With suspected acute bilirubin encephalopathy or displaying clinical findings associated with acute bilirubin encephalopathy such as hypotonia, weak suck or high pitched cry; and
- Suspected sepsis, history of fever or ill-appearing upon assessment.

Inpatient Management of Hyperbilirubinemia management pathway

**Clinical Signs and Symptoms**
- Jaundice
- Anorexia
- Fatigue

**Management Strategy**
- Initiate standard Intensive Phototherapy protocol
- Initiate exchange transfusion if TSB >17 mg/dL (240 μmol/L) and meets exchange transfusion criteria

**Measurement**
- TSB levels measured every 6 hours until discontinuation of phototherapy
- For infants <14 days old, previously healthy, and born at ≥ 35 weeks gestational age admitted to Pediatric Medicine

**Baseline Laboratory and Diagnostic Tests**
- Complete blood count
- Blood electrolytes
- Serum glucose
- Stool for occult blood
- Obtain DAT
- Conjugated bilirubin

**Major Risk Factors for Severe Hyperbilirubinemia**
- History of jaundice in previous sibling
- Family history of previous siblings needing phototherapy
- Prenatal: history of Rh incompatibility
- Postnatal: signs of sepsis
- Temperature instability
- Jaundice in first 24 hours of life
- Historically jaundice above 5 mg/dL
- Jaundice in previous sibling
- Jaundice in sibling with encephalopathy
- Jaundice in sibling with hypotonia

**Laboratory and Diagnostic Tests**
- Complete blood count
- Serum electrolytes
- Urinalysis
- Stool for occult blood
- Total serum bilirubin
- Conjugated bilirubin
- Trypsinogen activity
- Blood genotyping

**Management Pathway**
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Implementation and Evaluation Plan

Implementation Plan

- Inpatient Medical Director to communicate updates in practice to the Division of Paediatric Medicine;
- Resident chiefs to communicate updates in practice to the resident group; and
- Education and awareness building by the guideline group during resident/fellow orientation, resident educational rounds, and nursing orientation/staff meetings/situational bedside teaching

Evaluation Plan

- Monitor average length of stay
- Monitor # of infants admitted with hyperbilirubinemia who had rebound bilirubin level checked prior to discharge

Guideline Group

1. Iris Liu, Nurse Practitioner, Division of Paediatric Medicine
2. Dr. Beth Gamulka, Staff Physician, Division of Paediatric Medicine
3. Dr. Janaki Vallipuram, Staff Physician, Division of Paediatric Medicine
4. Aliya Jaffer, Nurse Practitioner, Division of Paediatric Medicine
5. Fatma A. Rajwani, PT, Quality Management

Internal Reviewers

1. Shawna Silver, Staff Physician, Division of Paediatric Medicine
2. Carolyn Beck, Staff Physician, Division of Paediatric Medicine

References

3. Fetus and Newborn Committee, Canadian Paediatric Society. Guidelines for detection, management and prevention of hyperbilirubinemia in term and late preterm newborn infants (35 or more week’s gestation). Paediatric Child Health 2018; 12(Suppl B):1B-12B

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Attachments:

care pathway_march 27.pdf

hyperbilirubinemia_newborn_fig3.pdf

hyperbilirubinemia_intensive phototherapy.pdf

Isolette Tip Sheet.docx

COMMUNITY HOSPITAL CONTACTS.pdf