

### Medications

#### Zidovudine (Retrovir):

Oral syrup 20 mg every twelve hours

**Pharmacological:** Nucleoside Reverse Transcriptase Inhibitors

**Therapeutic:** Anti-viral

The patient takes this medication due to maternal exposure to the human immunodeficiency virus. It is used to prevent maternal-fetal HIV transmission in neonates Prior to administration.

#### Prior to administration

Teach the parents about symptoms to watch out for lactic acidosis (Pennington, 2020, p.454).

Have regular blood tests, including viral load, CD4+ cell count and complete blood count as well as monitoring for neutropenia and granulocyte count (Pennington, ,2020, p.454).

### Demographic Data

**Admitting diagnosis:** Neonatal hyperbilirubinemia

**Age of client:** 4 days old

**Sex:** Male

**Weight in kgs:** 4.08

**Allergies:** No known allergies

**Date of admission:** 1/17/23

**Psychosocial Developmental Stage:** Trust vs. Mistrust

**Cognitive Development Stage:** Sensorimotor

### Admission History

The patient is a four-day-old newborn who presented to the ER from the clinic due to neonatal jaundice. Due to total serum bilirubin resulting in 22 mg/dL patient was sent to the emergency room to be seen. Priorly the parents managed the symptoms by taking the newborn to a clinic when jaundice was noted to get checked. The patient has a history of exposure to maternal human immunodeficiency virus.

### Pathophysiology

**Disease process:** The newborn showed hyperbilirubinemia due to the blood incompatibility between the mother and him. The mother presented with O-positive blood, while the newborn had O negative. The mother has had previous pregnancies and miscarriages, causing her to be synthesized and develop antibodies against Rh antigen (Ansong-Assoku et al.,2022, para.7). The liver is not mature enough as a newborn to absorb and metabolize bilirubin. The mother is now producing IgG antibodies which can cross the placenta, causing red blood cells hemolysis in the fetus with Rh-positive blood (Ansong-Assoku et al.,2022, para.7). The mother being Rh negative and the baby being Rh positive will only cause the babies red blood cells to be attacked. Excessive red blood cell breakdown leads to hyperbilirubinemia (Capriotti,2020, p.760). The newborn's liver is not mature enough to absorb and metabolize bilirubin, causing the newborn's total serum bilirubin to be 22 mg/dL.

**S/S of disease:** Hyperbilirubinemia presents with jaundice of the skin and sclera. This disease's progression can have neurological effects such as confusion, lethargy, and stupor to coma, identified as bilirubin encephalopathy (Capriotti,2020, p.774). In this situation, the newborn presented signs and symptoms of jaundice in the face, upper torso, and sclera.

**Method of Diagnosis:** A complete metabolic panel is done to show the liver function, specifically looking at the bilirubin level, which needs to be monitored closely to see the trends. The newborn initial bilirubin read 22 mg/dL; it was rechecked the following day and read 21.4 mg/dL. Since the bilirubin is not in a healthy range yet, close monitoring in the hospital is still in the plan of care. There are additional exams that are recommended to be tested those include maternal/neonatal blood type, Coombs test, complete blood cell (CBC), reticulocyte count, blood smear, and G6PD (Ansong-Assoku et al.,2022, para.40). As previously stated, the mother and newborn had incompatible blood resulting in the baby developing hyperbilirubinemia and jaundice.

**Treatment of disease:** The first treatment to use for Hyperbilirubinemia is photo light therapy. It is precisely what the newborn was being treated with a photo light therapy bed and blanket thirty-five centimeters away from him. It is used in the hope of reducing total serum bilirubin levels. If this treatment does not work out, exchange transfusion would be the subsequent treatment. The exchange transfusion goal is to rapidly remove bilirubin and hemolysis, causing antibodies from circulation (Ansong-Assoku et al.,2022, para.47). Ensuring adequate nutrition is provided to the newborn is also essential due to bilirubin being excreted in the stool and urine. The nurse and doctor educated the parents about the importance of frequent feeding.

**Assessment**

<b>General</b>	Well appearing, hydrated, no acute distress
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<b>Integument</b>	No bruises or masses noted, jaundice on face and upper torso (due to hyperbilirubinemia of 21.4 mg/dL). Normocephalic, anterior fontanelle flat and soft, nares patent, tympanic membrane pearly grey, clear.	<b>Active Orders</b>
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**Relevant Lab Values/Diagnostics**

**Albumin:** 3.5 g/dl (3.8-5.4 g/dL)  
 -Low albumin due to impairment of liver function as newborn was exposed to maternal human immunodeficiency virus and incompatible blood maternally. Malnutrition is a possible reasoning as well.

**Bilirubin:** 21.4 mg/dL (0.2-1.2 mg/dL)  
 -Elevated due to impairment of liver function as newborn was exposed to maternal human immunodeficiency virus and incompatible blood maternally.

**AST:** 37 U/L (5-34 U/L)  
 -Elevated due to impairment of liver function as newborn was exposed to maternal human immunodeficiency virus and incompatible blood maternally.

**Potassium:** 8.4 mEq/L (3.5-5.1mEq/L)  
 -Elevated due to possible dehydration. As mentioned above albumin was low due to possible malnutrition which correlates to dehydration as well causing elevated potassium.

**Diagnostics:** N/A

**Medical History**

**Previous Medical History:** Exposure to maternal human immunodeficiency virus.

**Prior Hospitalizations:** N/A

**Past Surgical History:** Circumcision

**Social needs:** Mother is at advanced maternal age, French interpreter for communication, parental education as it is their first child.

Phototherapy-Bilirubin blanket and bed

-It is related to the diagnosis because it helps the liver to break down and remove the bilirubin from the baby's blood in hopes to decrease bilirubin levels.

Lab draw-Comprehensive metabolic panel -Bilirubin blood test to be collected at 6am.

-To be drawn in the morning to see the trend in the baby's bilirubin to see how affective phototherapy and nutrition has affected the baby. Last bilirubin was 21.4 mg/dL.

Encourage feedings as needed-

-Due to bilirubin being excreted by stools and the more the baby is fed the more stools the baby will have in hopes of lowering the bilirubin levels.

Daily weights

-To make sure the baby is getting enough nutrition and staying at a healthy weight as hyperbilirubinemia can cause weight loss.

<b>Most recent VS (highlight if abnormal)</b>	<b>Time:</b> 11:20 a.m.
	<b>Temperature:</b> 97.1 °F
	<b>Route:</b> Axillary
	<b>RR:</b> 40
	<b>HR:</b> 140 bpm
	<b>BP and MAP:</b> 87/36 mmHg (Blood pressure elevated range for a newborn is 60/40)
	<b>Oxygen saturation:</b> 97% on Room air
	<b>Oxygen needs:</b> N/A

<b>Pain and Pain</b>	2/10 -FLACC
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Scale Used	
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Nursing Diagnosis 1	Nursing Diagnosis 2	Nursing Diagnosis 3
<p>Knowledge deficit related to lack of exposure as evidenced by not feeding frequently.</p>	<p>Neonatal jaundice related to incompatible blood type as evidenced by yellow sclera and a total bilirubin of 21.4 mg/dL.</p>	<p>Risk for impaired skin integrity related to the use of phototherapy as evidenced by hyperbilirubinemia.</p>
<p><b>Rationale</b></p> <p>The diagnosis was chosen due to this being the parent's first newborn child and not knowing the parental measures of how important it is to feed the child frequently. As well as the nurse stating the baby's cries were a result of a lack of feeding.</p>	<p><b>Rationale</b></p> <p>The nursing diagnosis chosen due to the mother has O-positive blood, and the baby has O-negative blood, resulting in incompatible blood. Physical symptoms of jaundice during the assessment include the upper torso, face, and sclera. As well as total bilirubin level elevated at 21.4 mg/dL.</p>	<p><b>Rationale</b></p> <p>This nursing diagnosis seemed adequate for the newborn due to exposure to phototherapy and the potential risk of skin impairment if safety measures are not in place.</p>
<p><b>Interventions</b></p> <p><b>Intervention 1:</b> Educate the importance of feeding since bilirubin will be excreted through urine and stool; this would also help lower the baby's bilirubin.</p> <p><b>Intervention 2:</b> Keep a feeding log to ensure the baby receives adequate nutrition.</p>	<p><b>Interventions</b></p> <p><b>Intervention 1:</b> Performing a complete metabolic panel to keep an eye out on the trends for bilirubin to ensure the newborn's bilirubin is decreasing and take accurate measures to continue to treat it.</p> <p><b>Intervention 2:</b> Ensuring photo light therapy is appropriately placed and safe for the infant.</p>	<p><b>Interventions</b></p> <p><b>Intervention 1:</b> Hourly rounding with skin assessments to check for impaired skin integrity.</p> <p><b>Intervention 2:</b> Protect eyes from light exposure and ensure it stays in place.</p>
<p><b>Evaluation of Interventions</b></p> <p>The family members were engaging and understanding of the education, given they fed the baby frequently. The baby did have several episodes of the output of urine and stool. They could track how much the baby was intaking with the chart, which was beneficial in ensuring adequate nutritional intake.</p>	<p><b>Evaluation of Interventions</b></p> <p>The parents understood why we needed to collect a complete metabolic blood panel and why ensuring the baby spent most of the time under phototherapy was essential. The parents could comply with the interventions the nurse put in place, setting the photo therapy 35 cm away from the infant. The nurse saw an improvement in the newborns decreasing jaundice and bilirubin level.</p>	<p><b>Evaluation of Interventions</b></p> <p>The newborn remained free of skin impairment with proper safety measures, including a safe distance between phototherapy (35cm) and the infant, a protective patch around the eyes, hourly rounding, and skin assessment.</p>

### References (3):

Ansong-Assoku, B., Shah, S. D., Adnan, M., & Ankola, P. A. (2022). Neonatal jaundice. *StatPearls Publishing*.

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Capriotti, T. M. (2020). Davis advantage for pathophysiology introductory concepts and clinical perspectives (2nd ed.). *F. A. Davis Company*.

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Pennington, G.F. S. (2020). Lippincott course point enhanced for Frandsen: Abrams' clinical drug therapy (12th ed.). *Wolters Kluwer Health*.

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