Incidence of hyperbilirubinemia in the newborn in a tertiary care hospital

Siddique Ahmed Khan¹, Mohammad Ibrahim Shaik¹ and K. S. Saraswathi²

¹Department of Biochemistry, Shadan Institute of Medical Sciences and Post Graduate Research Centre, Hyderabad
²Department of Obstetrics & Gynaecology, Shadan Institute of Medical Sciences and Post Graduate Research Centre, Hyderabad

ABSTRACT

About 97% of healthy full term infants have bilirubin values of more than 2 mg% during the first week of life, 65% are clinically jaundiced and this is termed physiological jaundice. However, jaundice in the newborn might signal a serious, potentially treatable illness and may cause neurological damage, if the bilirubin level is very much elevated. This study was conducted to determine the incidence of Neonatal hyperbilirubinemia in Shadan Institute of Medical Sciences & to know the underlying aetiology, so that proper management of Hyperbilirubinemia in the newborn can be done.

Keywords: Neonatal Hyperbilirubinemia, Serum Bilirubin, Jaundice, Kernicterus

INTRODUCTION

Pathologic jaundice is defined as clinical jaundice in the first 24 hrs of life, total serum bilirubin increasing by more than 5 mg/dl per day. Neonatal hyperbilirubinemia, defined as a total Serum bilirubin above 5 mg per dl.

TSB > 12.9 mg/dl in full term infants and > 15 mg/dl in preterm infants. [3]

Conjugated Serum bilirubin > 1.5 mg/dl

Clinical jaundice persisting for > 1 week in full term or > 2 weeks in preterms.

However, in preterms and in low birth weight infants, TSB of even 8-10 mg/dl may be dangerous and can cause neurological damage.

Causes of Neonatal Jaundice:-
1. Physiological causes
2. Prematurity
3. Rh and ABO incompatibility
4. Glucose-6- phosphate dehydrogenase deficiency
5. Intrauterine infections
6. Asphyxia
7. Use of oxytocics during labour
9. Neonatal causes like instrumental delivery leading to birth trauma eg:- Cephalohaematoma.
MATERIALS AND METHODS

The blood for plasma Bilirubin was obtained from 200 newborns of day 1 to 30 days of age; Infants who are born less than 36 wks of gestation were not included in the study.

Diazo method of Pearlman & Lee was performed. Total Bilirubin, Direct Bilirubin and Indirect Bilirubin was assayed.

RESULTS

Overall incidence of Hyperbilirubinemia among 200 newborns was as follows:

<table>
<thead>
<tr>
<th>Plasma Bilirubin level</th>
<th>Number of Newborns</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – 15 mgm</td>
<td>153</td>
<td>76.5%</td>
</tr>
<tr>
<td>15-20 mgm</td>
<td>43</td>
<td>21.5%</td>
</tr>
<tr>
<td>&gt;20 mgm</td>
<td>4</td>
<td>2%</td>
</tr>
</tbody>
</table>

Plasma Bilirubin levels in the range of 5-15 mgm/dl was noted in 153 neonates (76.5%)
Plasma Bilirubin levels in the range of 15-20 mgm/dl was found in 43 neonates (21.5%)
Plasma Bilirubin levels in the range of more than 20 mg/dl was observed in 4 neonates (2%)

DISCUSSION

Treatment is required in babies with Neonatal Jaundice to decrease bilirubin levels, and hence to prevent neurotoxicity. If the total serum Bilirubin levels is above 20 mg % dl the toxic effects of hyperbilirubinemia like kernicterus are seen.

Phototherapy instituted when the total serum bilirubin level is at above 15 mg/dl in infants(257umol per L) 25-48hrs old, 18mg per dl(308umol per L) in infants of 49-72hrs old, 20mg/dl(342umol per L) in infants older than 72 hrs. Jaundice is considered pathological if it presents in first 24 hrs after birth, the TSB level rises more than 5mgm per dl per day or higher than 17 mgm per dl. Exchange transfusion is the most rapid method for lowering serum bilirubin concentrations. This treatment is rarely needed when intensive phototherapy is effective. The procedure removes partially hemolysed and antibody-coated erythrocytes and replaces them with uncoated donor red blood cells that lack the sensitizing antigens.

Complications of Exchange transfusion include air embolism, infection, vasospasm, infarction and even death. Because of the possibility of these serious complication, intensive phototherapy should be given before Exchange Transfusion is initiated [5].

The modalities include – phototherapy, exchange transfusion, immunoglobulins, oral phenobarbitone.

Role of I.V immunoglobulins in the dose of 0.5g/kg to 1 g/kg is to prevent repeated exchanges in jaundiced babies due to Rh –isoimmunisation or proven ABO incompatibility.

CONCLUSION

Jaundice in the newborn may signal a serious, potentially treatable disease and may cause neurological damage, if the bilirubin level is sufficiently elevated. Early Screening and appropriate management as per WHO guidelines is necessary for prevention of complications in the neonate.[6]

Early screening and appropriate management also decreases neonatal morbidity and mortality.

REFERENCES