Hyperbilirubinemia in the term Newborn.

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ABSTRACT

Neonatal jaundice or Neonatal hyperbilirubinemia is a yellowing of the skin and other tissues of a newborn infant. A bilirubin level of more than 85umol/l (5 mg/dl) manifests clinical jaundice in neonates whereas in adults a level of 34umol/l (2 mg/dl) would look icteric. In newborns jaundice is detected by blanching the skin with digital pressure so that it reveals underlying skin and subcutaneous tissue. Jaundice newborns have an apparent icteric sclera, and yellowing of the face, extending down on to the chest. In neonates the dermal icterus is first noted in the face and as the bilirubin level rises proceed caudal to the trunk and then to the extremities. In neonates the dermal icterus is first noted in the face and as the bilirubin level rises proceed caudal to the trunk and then to the extremities. This condition is common in newborns affecting over half (50-60%) of all babies in the first week of life. This study was conducted to estimate the incidence of Neonatal Hyperbilirubinemia in Bhaskar Medical College and to determine the underlying causes; improved knowledge of which would be valuable to help identify strategies for risk reduction.

Keywords:- Jaundice, Neonatal Hyperbilirubinemia, Kernicterus

INTRODUCTION

Neonatal hyperbilirubinemia, defined as a total Serum bilirubin above 5 mg per dl (85 umol per L) is a problem which is commonly encountered in the hospital practice.

Jaundice results from the deposition of unconjugated bilirubin pigment in the skin and mucous membrane. About 50 to 60% of term Newborns have clinical jaundice in the first week of life, but few of these have any significant underlying pathology[1,2]. But some of these neonates can have major underlying problems such as Hepatic disease, abnormalities of liver, or metabolic disorders, hemolytic disease, endocrine disorders and infections. Depending on the aetiological factor, the jaundice may persist through out the neonatal period.

RISK FACTORS FOR NEONATAL HYPERBILIRUBINEMIA

The risk factors which cause hyperbilirubinemia in the newborn may be maternal factors or foetal factor. As the number of risk factors increases, the potential to develop markedly elevated bilirubin levels also increases [3].

Maternal factors include
1. Rh & ABO incompatibility
2. Breast feeding

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3. Prematurity
4. Certain drugs used – e.g. diazepam

NEONATAL FACTORS: Instrumental delivery leading to bruising of the skin, cephalhaematoma or other birth trauma.

Delayed meconium passage

Drugs e.g: chloramphenicol or erythromycin [4].

If the number of risk factors is more, the newborn is likely to develop markedly increased levels of bilirubin. If there are no risk factors then the serum bilirubin rarely goes above 12 mg per dl.

MATERIALS AND METHODS

The blood for plasma bilirubin was obtained from newborns of day 1 to 30 days of age. Data on term infants with hyperbilirubinemia from the age group of day 1 to day 30 were collected. Blood was collected from a total of 200 newborns.

Infants who are born less than 36 weeks of gestation were excluded from the study.

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

RESULTS: Bilirubin was measured in 200 jaundiced newborns. Overall incidence of Hyperbilirubinemia among 200 newborns was

<table>
<thead>
<tr>
<th>Plasma Bilirubin level</th>
<th>Number of newborns</th>
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<tbody>
<tr>
<td>5-15mg</td>
<td>163 (81.5%)</td>
</tr>
<tr>
<td>15-20mg</td>
<td>30 (15%)</td>
</tr>
<tr>
<td>&gt;20 mg</td>
<td>7 (3.5%)</td>
</tr>
</tbody>
</table>

Rate of plasma bilirubin levels in the range of 5-15mg/dl was noted in 163 neonates (81.5%).

Rate of plasma bilirubin levels in the range of 15-20mg/dl was found in 30 neonates (15%).

Rate of plasma bilirubin levels in the range of more than 20 mg/dl was observed in 7 neonates (3.5%).

DISCUSSION

The management goals are mainly to exclude the pathologic causes of hyperbilirubinemia and initiate treatment to prevent neurotoxicity. The toxic effects of hyperbilirubinemia like kernicterus was found to be associated with total serum bilirubin level above 20 mg/dl. Hence the management guideline mainly is on phototherapy as initial treatment, on exchange transfusion in all newborns with severe hyperbilirubinemia.

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 ExchangeTransfusion is initiated [5].
CONCLUSION

A significant burden of untreated severe neonatal jaundice, causing potential neurological sequelae, exists in developing countries such as India. Early screening and appropriate management as per WHO guidelines are needed for prevention of complications in the newborn. Early screening and appropriate management also decreases neonatal morbidity and mortality.

REFERENCES