Original Article

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Neonates with Jaundice A Clinical Profile

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Abstract

Background: In the first week of child birth, neonatal jaundice is the most common problem which leads to delayed hospital discharge and re-admissions. Recognising early neonatal hyperbilirubenemia plays a pivotal role in preventing serious complications. The aim of this study was to study the clinical profile and the aetiological factors leading to neonatal jaundice in rural areas. **Subject and Method:** This study is a prospective observational study conducted in neonatal intensive care unit (NICU) and post natal ward . This study was conducted during the period of February 2017 to July 2017. Total 400 neonates were admitted in NICU and post natal ward during this period. Out of them, 100 newborns were having jaundice (Serum bilirubin > 10 mg/dl). 100 cases in total were enrolled in the study. **Result:** In this study, out of 100 neonates, 70% were males and 30% were females. , 92 were born at term (92%) and remaining 10 were preterm babies (10%). Physiological jaundice constituted 45%, followed by ABO incompatibility constituted 25%, followed by sepsis(1%), Rh incompatibility (8%), idioapathy (8%), prematurity (5%), cephalhematoma (4%), breast feeding (2%), haemolytic anemia (2%) were diagnosed as hereditary spherocytosis. **Conclusion:** Physiological jaundice is the most common cause of neonatal jaundice followed by ABO incompatibility, sepsis, Rh incompatibility and idiopathic cases. Cephalhematoma, breast feeding jaundice and haemolytic anaemia are the less common causes. Hence, it is required to monitor neonates more appropriately and accurately.

Keywords: Physiological Jaundice, Rh incompatibility.

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Introduction

In first week after child birth, Jaundice is the most common problem. 60% of full term infants have jaundice and 80% of preterm babies have jaundice in the first week.[1] For delayed hospital discharge and re-admissions in the first week of life, jaundice is the commonest reason. Severe neonatal jaundice has the potential to cause bilirubin encephalopathy which can further increase to permanent and chronic neurologic sequelae. Survivors suffer from severe neurological handicaps, such as cerebral palsy, gaze palsies and deafness.[2,3] Sequela is not reversible but it is prevented by early diagnosis and appropriate neonatal jaundice management. Identification of etiological and risk factors is of utmost importance for the management of neonatal jaundice. The neonatal jaundice's incidence, etiological and contributory factors vary according to ethnic and geographic differences.[4] As a result of racial, cultural and environmental differences, in developing countries, these factors may be different from those of developed nations. To identify additional risk factors that may be particular, the need for more robust epidemiological studies in low and middle income studies was highlighted.[5] The aim of this study was to study the clinical profile and the aetiological factors leading to neonatal jaundice in rural areas.

Subjects and Methods

This This study is a prospective observational study conducted in neonatal intensive care unit (NICU) and post natal ward. This study was conducted during the period of February 2017 to July 2017. Total 400 neonates were admitted in NICU and post natal ward during this period. Out of them, 100 newborns were having jaundice (Serum bilirubin > 10 mg/dl). 100 cases in total were enrolled in the study. Babies attending outpatient department were excluded from study. By clinical methods, jaundice was determined and biochemical tests confirmed this. Van der Bergh method was used to estimate serum bilirubin. Inclusion criteria was that all babies with serum bilirubin value of greater than 10 mg/dl. Detailed history was obtained, physical examinations and other relevant examinations were carried out. Age, birth weight, age of jaundice detection, breast feeding status, family status of jaundice was documented. On babies who were having physiological jaundice, investigations were not carried out. For baby and mother, blood grouping and Rh typing were done. For Rh incompatibility, cord blood bilirubin, haemoglobin, direct coombs test and bilirubin monitoring

was done. Other investigations like haemoglobin level, peripheral smear and reticulocyte count were done. By using fluorescent technique, G6PD was done. For sickling test, 2% metabisulphite was used. Using serial dilutions of sodium chloride, osmotic fragility test was performed. Neonates suspected to have sepsis were investigated by complete blood count, septic screen and blood and urine cultutes. In all neonates, thyroid function tests were carried out. Informed consent was obtained from parents of all babies. Statistical data was analysed. Percentages and ratios were calculated.

Results

Results were expressed as percentages and ratios. Out of 100 neonates, 70% were males and 30% were females.

Table 1: Distribution according to gestational age

Gestational Age (Weeks)	Number	Percentage
≥37	92	92
34-36	7	7
30-34	1	1
Total	100	100

Table 1 shows that out of 100 jaundiced neonates, 92 were born at term (92%) and remaining 10 were preterm babies (10%).

Table 2: Distribution based on birth weight

Birth Weight (Grams)	Number	Percentage
1000-1500	1	1
1501-2000	5	5
2001-2500	8	8
2501-3000	60	60
>3000	26	26
Total	100	100

Table 2 shows that among 100 neonates, majority of the babies had birth weight between 2501-3000 grams (60%), 14 babies had birth weight less than 2500 grams (14%).

Table 3: Neonatal jaundice aetiology

Aetiology	Number	Percentage
Physiological Jaundice	45	45
ABO incompatibility	25	25
Sepsis	1	1
Rh incompatibility	8	8
Idiopathy	8	8
Prematurity	5	5
Cephalhematoma	4	4
Breast feeding	2	2
Haemolytic Anaemia	2	2
G6PD deficiency	0	0
Hypothyroidism	0	0

Table 3 shows that physiological constituted 45%, followed by ABO incompatibility constituted 25%, followed by sepsis(1%), Rh incompatibility (8%), idioapathy (8%), prematurity (5%), cephalhematoma (4%), breast feeding (2%), haemolytic anemia (2%) were diagnosed as hereditary spherocytosis.

Discussion

Majority of babies with neonatal jaundice were of term gestation in the present study. Only 10% were preterm babies. A higher percentage of premature babies were seen in Bhutani et al study.[6] The higher percentage of term babies is because of low to moderate risk pregnancies and hence majority of the babies were of term or near term gestation in our study. In our study, out of 100 patients, 70% were males and 30% were females. Similar results were observed in Narang et al[7], Effiong et al[8] and Korejo et al[9] studies in which majority of babies were males. Among 100 neonates, majority of the babies had birth weight between 2501-3000 grams (60%), 14 babies had birth weight less than 2500 grams (14%).In the present study, physiological jaundice was observed in majority of babies (45 out of 100 babies). This is similar to previous studies. In Bahl et al[10] study, the physiological jaundice contributed majority of patients (63.8%) studied. High incidence of physiological jaundice was also observed in Singhal et al[11] (16.7%) and Merchant et al[12] (25.3%). This was followed by ABO incompatibility which constituted 25% as the next leading cause for neonatal jaundice. Similar findings were observed in studies of Verma et al[13] and Merchant et al[12] (22.6%). In Bahl et al[10] study, higher incidence of OA incompatibility was observed (60%) where as in Bajpai PC et al[14] study, a higher incidence of OB incompatibility was observed. In present study, the number of OA and OB incompatibility was equal. Sepsis contributed 1% in the present study. In Merchant et al[12] study, 8% of the neonates had sepsis, 11.6% in Verma et al[13] study and 9.6% was observed in Narang et al[7] study. Rh incompatibility was observed in 8% of the patients, in Bajpai PC et al[14] study, 1.6% of the patients had Rh incompatibility. In Verma et al[13] study, it was observed in 9.8% of cases. In Singhal et al[11] study, it was present in 8.1% of neonates. Idioapathy (8%), prematurity (5%) was observed in the present study. cephalhematoma (4%) was present in our study whereas in Narang et al[7] study, 6.3% incidence was observed. Breast feeding (2%), haemolytic anemia (2%) were observed in the present study. G6PD deficiency was reported in 2.6% neonates by Merchant et al[12] and 3.4% by Narang et al[7], where as in our study, no case of G6PD was observed. In study conducted by Shemeena Valiyat et al[15] out of 110 jaundiced neonates, 102 (92.5%) were term babies and 8 (7.3%) were preterm, 69 (62.75%) were males and 41 (37.27%) females. Physiological jaundice was seen in 44 (40%) of neonates. Various other aetiologies were ABO incompatibility 24 (21.8%), sepsis 11 (10%), Rh incompatibility 9 (8%), idiopathic 9 (8%), prematurity 8 (7.3%), cephalhematoma 7 (6.4%), breast feeding jaundice 7 (6.4%) and haemolytic anaemia 1 (0.9%).

Conclusion

It can be concluded that physiological jaundice is the most common cause of neonatal jaundice followed by ABO incompatibility, sepsis, Rh incompatibility and idiopathic cases. Cephalhematoma, breast feeding jaundice and haemolytic anaemia are the less common causes. In identifying the neonatal group who require intensive monitoring and timely management, understanding the aetiology and risk factors for neonatal jaundice is of a priority.

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