

**ORIGINAL ARTICLE**DOI: <https://doi.org/10.3329/mediscope.v11i2.76381>**Clinical profile of neonatal jaundice patients admitted in a tertiary care hospital in Khulna, Bangladesh*****MB Ali¹, S Sen², PK Das³, S Islam⁴****Abstract**

Background: A significant proportion of term and preterm infants develop neonatal jaundice. Jaundice in an otherwise healthy term infant is the most common reason for readmission to the hospital. Therefore, it is necessary to evaluate different aspects of neonatal jaundice in our clinical setup. **Objective:** The objective of this research was to find out different associated causes, clinical features, and treatment options for neonatal jaundice. **Methods:** A cross-sectional study was conducted in Gazi Medical College Hospital (GMCH), Khulna, Bangladesh with a total number of 140 neonates with jaundice from January 2018 to January 2021. All data were collected and analyzed prospectively. Convenient purposive sampling was the sampling method. **Results:** In this study, 79.2% of neonates were full-term and 20.8% were preterm neonates. Physiological jaundice (33.5%) was found as the commonest type. Jaundice with infection was associated with 32.8% of cases. Jaundice with umbilical redness, discharge, and/or foul-smelling (17.9%), and reluctance to feed were commonly associated symptoms. Hepatomegaly and splenomegaly were detected in 7.1% and 3.6% neonates respectively. Phototherapy was given in 61% of cases and 17.8% (25) cases exchange therapy was required. In neonates with physiological jaundice, phototherapy was recommended for most of the cases. In the case of ABO and Rh incompatibility, exchange therapy was required most often along with phototherapy. **Conclusion:** Physiological jaundice is the most common pattern of neonatal jaundice. Most often, neonatal jaundice may co-exist with neonatal infections. In most cases, phototherapy is required along with or without exchange therapy, depending upon the associated causes and conditions.

Keywords: Neonatal jaundice, Clinical profile, Treatment.

Introduction

Neonatal jaundice is a common cause of newborn hospital admission. The risk factors, characteristics and treatment related to neonatal jaundice in Bangladesh have not been studied so far adequately. Neonatal jaundice is estimated to occur in 60% of term newborns in the first week of life¹, and < 2% reach total serum bilirubin (TSB) levels of 20 mg/ dL.² In rare instances, the TSB reaches levels that can cause kernicterus, a condition characterized by bilirubin staining of neurons and neuronal necrosis involving primarily the basal ganglia of the brain and manifested in athetoid cerebral palsy, hearing loss, dental dysplasia, and paralysis of upward gaze.³ Risk factors recognized to be associated with severe hyperbilirubinemia in newborns have jaundice in the first 24 hours of life. Glucose- 6-phosphate

dehydrogenase (G6PD) deficiency, ABO incompatibility, low birth weight and sepsis are the common causes of neonatal jaundice in Asian and Southeast Asian regions, but there is a group of babies whose cause of neonatal jaundice has yet to be found. Genetic factors and unidentified environmental factors may also play a role in the prevalence of neonatal jaundice.⁴

In clinical research in BIRDEM Hospital, Dhaka, Bangladesh in 2010, it has been observed that a substantial number of neonatal jaundice had a history of lower gestational age in Bangladeshi newborns; and the lower gestational age is significantly associated with septicemia and possibly with hyperbilirubinemia. Different clinical aspects of neonatal jaundice have been depicted in this research.⁵ From the Child Health Outpatient Department of the Korle-Bu Teaching

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Hospital, Ghana, almost no day passes without a baby coming in with neonatal jaundice.⁶ In a retrospective study conducted by Onyearugha et al.^{7,8} in Nigeria, 35% of neonates managed at a neonatal intensive care unit during 24 months were affected with jaundice.

Regarding the clinical presentation, possible causes and conditions, treatment options, etc. we have less authentic data so far in our clinical context. This current research aims to explore those aspects in GMCH, a tertiary-level corporate hospital in the southern region of Bangladesh.

Materials and methods

This cross-sectional study was conducted in Gazi Medical College Hospital, Khulna, Bangladesh, with a total number of 140 cases of neonatal jaundice from January 2018 to January 2021, based on inclusion & exclusion criteria. All data were collected and analyzed prospectively- such as patients' detailed history, clinical & investigational findings, etc. Convenient purposive sampling was used as the method of selecting the study sample. In this study, computer-based statistical analysis of the data was done. Data were entered and then checked with the SPSS (Statistic Package for Social Science) computer package program. The results were expressed using descriptive statistics, such as; mean, standard deviation (SD), percentage, etc. Ethical clearance was taken from the ethical review committee of GMCH and informed written consent was obtained individually from patients' guardians.

Results

The sex distribution of a total of 140 neonates is shown in figure 01, and the birth history of the cases is depicted in figure 02.

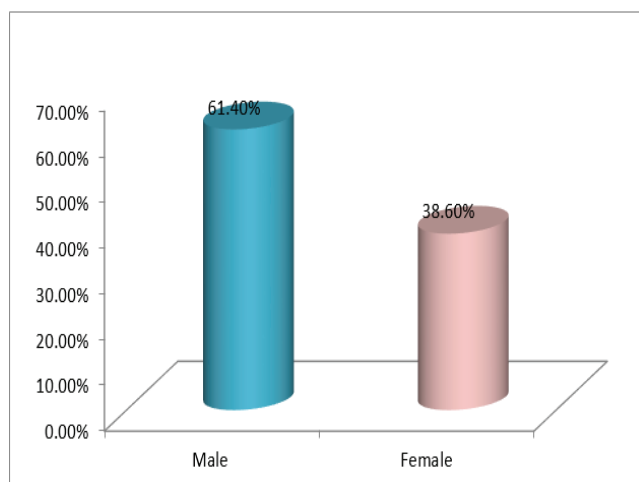


Figure 01: Sex distribution of the study population.

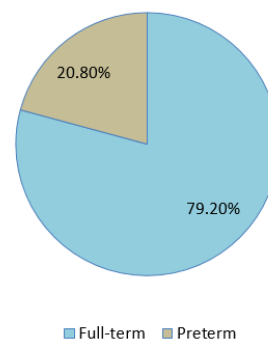


Figure 02: Birth history of the study population.

The causes of neonatal jaundice observed in this research are tabulated in table 01. It shows that 33.5% (47 neonates) cases had physiological jaundice.

Table 01: Causes of neonatal jaundice.

Causes		Number	%
01	Physiological jaundice	47	33.5
02	Jaundice with infection:	38	27.1
	• Umbilical sepsis	25	17.9
	• Pyoderma	08	5.7
	• Septicaemia	05	3.6
03	ABO incompatibility	05	3.6
04	Rh incompatibility	10	7.1
05	Jaundice of prematurity	12	8.5
06	ABO and Rh incompatibility	01	0.7
07	Cephal haematoma	02	1.4
08	Neonatal hepatitis	02	1.4
09	Intestinal obstruction	01	0.7
10	Unclassified	22	15.7

Common clinical features associated with neonatal jaundice are represented in table 02.

Table 02: Common symptoms and signs (associated with jaundice).

Symptoms and signs		Number	%
01	Redness around umbilicus	25	17.9
02	Reluctance to feed	21	15
03	Respiratory distress	05	3.6
04	Loose stool with mucus	07	05
05	Fever	07	05
06	Vomiting	05	3.6

Symptoms and signs		Number	%
07	Hepatomegaly	10	7.1
08	Pyoderma	08	5.7
09	Convulsion	06	4.3
10	Cephal haematoma	02	1.4
11	Sclerema	01	0.7
12	Pallor	07	05
13	Splenomegaly	05	3.6

Treatment given in different cases is tabulated in table 03.

Table 03: Treatment given in neonatal jaundice cases.

Symptoms and signs	No	Phototherapy	Exchange therapy	Others
01 Rh incompatibility	10	03 (30%)	07 (70%)	00 (00%)
02 ABO incompatibility	05	01 (20%)	04 (80%)	00 (00%)
03 Physiological jaundice	47	34 (70%)	00 (00%)	13 (30%)
04 Jaundice with infection	34	30 (88%)	00 (00%)	04 (12%)
05 Septicaemia	05	04 (80%)	00 (00%)	01 (20%)
06 ABO and Rh incompatibility	01	00 (00%)	01 (100%)	00 (00%)
07 Jaundice of prematurity	12	07 (53%)	00 (00%)	05 (41%)
08 Cephal haematoma	02	02 (100%)	00 (00%)	00 (00%)
09 Neonatal hepatitis	02	00 (00%)	00 (00%)	02 (100%)
10 Unclassified	22	17 (77.3%)	05 (22.7%)	00 (00%)
Total	140	98 (70.0%)	18 (12.9%)	29 (20.7)

Discussion

Among the total 140 neonates in this research, 86 (61.4%) and 54 (38.6%) cases were male and female respectively. Also, 111 neonates (79.2%) were full-term, whereas, 29 (20.8%) neonates were preterm. Regarding the causes of jaundice, most often it was physiological (47 cases, 33.5%). Jaundice with infection (umbilical sepsis, septicaemia and pyoderma) was associated in 27.1% (38) cases. The incidence of ABO incompatibility and Rh incompatibility was found in 3.6% (05) and 7.1% (10) cases respectively. Prematurity, hepatitis, cephal haematoma, and

intestinal obstruction were observed in a few cases. In a previous study, the incidence of physiological jaundice was 75%, the majority of the neonates were male (66.7%) and 28.8% were preterm neonates.⁹ Another study suggested that the overall incidence of physiological jaundice was 62.8%.¹⁰ In many clinical researches, the association between neonatal jaundice and preterm neonates has been addressed.^{10,11} Other important causes were septicaemia, Rh incompatibility, ABO incompatibility, infections, glucose-6-phosphate dehydrogenase (G6PD) deficiency, etc.¹⁰⁻¹⁴

In the majority of cases, neonatal jaundice was associated with umbilical redness, discharge and/or foul-smelling (17.9%, 25 neonates). Reluctance to feed was the next common associated feature (found in approximately 15% of cases). Hepatomegaly and splenomegaly were detected in 7.1% and 3.6% neonates respectively. In 5.7 % (08) cases, it was associated with pyoderma. Mucus diarrhea, pallor and pyrexia were found in 05% of cases. Other presentations were convulsion, cephal haematoma, sclerema, etc. Respiratory distress was observed in 3.6% (05) neonates. In other studies, pallor, pyrexia, reluctance to feed, and the presence of evidence of infections were the most common clinical presentations. Many neonates presented with hepatomegaly and splenomegaly.¹⁴⁻¹⁶

Regarding the treatment, phototherapy was given for 98 (70.0%) cases. On the other hand, in 12.9% (18) cases, exchange therapy was given. Approximately 88% (30) and 70% (34) cases in case of infection and physiological jaundice respectively received phototherapy. Regarding septicaemic neonates, phototherapy was given in 80% (04) cases. 80.0% (04) and 70.0% (07) cases with ABO and Rh incompatibility (respectively) required exchange therapy. In some clinical research, it has been suggested that phototherapy is the effective treatment in the majority of cases of physiological jaundice. However, in case of Rh and ABO incompatibility, exchange transfusion may be required in a major portion of neonates (approximately 62-75% neonates).^{10,16}

Conclusion

In this research, physiological jaundice was found as the leading presentation of neonatal jaundice where the majority of the cases were recovered with phototherapy. Most often, neonatal jaundice was associated with umbilical sepsis, septicaemia, reluctance to feed and ABO incompatibility. In most of the cases with ABO and Rh incompatibility, exchange transfusion may be required along with phototherapy.

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