



RETROSPECTIVE ASSESSMENT AND MANAGEMENT OF NEONATAL JAUNDICE CASES IN GOVERNMENT HOSPITAL TIRUPPUR

¹Dr. R. Senthilselvi, M.Pharm. Ph.D, ^{2*}Anees Rahmant, ³S. Rajarajan, M.Pharm,
⁴Dr. J. Nandhakumar, M.Pharm., Ph.D. and ⁵Dr. V. Ganesan, M.Pharm, Ph.D.

India.

Article Received on
23 May 2018,

Revised on 13 June 2018,
Accepted on 03 July 2018

DOI: 10.20959/wjpps20188-12024

***Corresponding Author**

Anees Rahmant

India.

ABSTRACT

The aim of this study is provides recommendations aimed to improve management of neonatal hyperbilirubinemia in infants. The role of developmental assessment is to see that the child is progressing as per norms set by a large majority of children of the same age. It is by no means a predictor of future intelligent quotient and any deviation from the normal is brought to the notice of the parents, only in reassuring ways. The cause and effect relation between developmental deficits and risk factors can be much more complicated than we imagine. We

cannot presume that neonatal jaundice will lead to mental retardation, fine and gross motor abnormalities, hearing loss and vision problems. But most of the children have developmental disabilities after neonatal jaundice. Phototherapy (PTx) remains the mainstay of treating hyperbilirubinemia in neonates. PTx is highly effective and carries an excellent safety track record of over 50 years. It acts by converting insoluble bilirubin (unconjugated) into soluble isomers that can be excreted in urine and feces. Many review articles have provided detailed discussion on phototherapy related issues. The bilirubin molecule isomerizes to harmless forms under blue-green light (460 to 490 nm); and the light sources having high irradiance in this particular wavelength range are more effective than the others.

KEYWORDS: Hyperbilirubinemia, jaundice, phototherapy.

INTRODUCTION

Jaundice is a common and mostly benign condition in neonates. Neonatal it is a yellowish discoloration of the white part of the eyes and skin in a newborn baby due to high bilirubin

levels. Other symptoms may include excess sleepiness or poor feeding. Complications may include seizures, cerebral palsy, or kernicterus). A bilirubin level more than 34 $\mu\text{mol/l}$ (2 mg/dL) may be visible. Concerns, in otherwise healthy babies, occur when levels are greater than 308 $\mu\text{mol/L}$ (18 mg/dL), jaundice is noticed in the first day of life, there is a rapid rise in levels, jaundice lasts more than two weeks, or the baby appears unwell. In those with concerning findings further investigations to determine the underlying cause are recommended. In 1986, Maisels and Gifford reported 6.1% of infants with serum bilirubin levels of more than 220 $\mu\text{mol/L}$ (12.9 mg/dL). In a 2003 study in the United States, 4.3% of 47,801 infants had total serum bilirubin levels in a range in which phototherapy was recommended by the 1994 American Academy of Pediatrics (AAP) guidelines, and 2.9% had values in a range in which the 1994 AAP guidelines suggest considering phototherapy. In some LMICs, the incidence of severe neonatal jaundice may be as much as 100 times higher than in higher-income countries. Incidence varies with ethnicity and geography. Incidence is higher in East Asians and American Indians and lower in Africans. Greeks living in Greece have a higher incidence than those of Greek descent living outside of Greece.

Incidence is higher in populations living at high altitudes. In 1984, Moore et al reported 32.7% of infants with serum bilirubin levels of more than 205 $\mu\text{mol/L}$ (12 mg/dL) at 3100 m of altitude.^[14] The incidence of neonatal jaundice is increased in infants of East Asian, American Indian, and Greek descent, although the latter appears to apply only to infants born in Greece and thus may be environmental rather than ethnic in origin. African infants are affected less often than non-African infants. Risk of developing significant neonatal jaundice is higher in male infants. This does not appear to be related to bilirubin production rates, which are similar to those in female infants. The risk of significant neonatal jaundice is inversely proportional to gestational age.

In babies whose bilirubin blood levels reach risky levels, bilirubin may cross the blood brain and cause reversible damage (called early acute bilirubin encephalopathy) or permanent damage (called kernicterus). Although phototherapy and in case of very high serum bilirubin levels, blood transfusion has been used, but these method prove to have side effects (Maisels and Newman, 2005). mostly phototherapy is used to neonatal jaundice.

METHOD AND MATERIALS

Study site: The study is conducted in Government district headquarters hospital, Thirupur district, Tamil Nadu.

Study period: November 2017 - June 2018

Study type: Retrospective study

Sample size: 80 patients

Study population: Babies attended in neonatal intensive care unit, case sheets from medical record department.

Inclusion criteria

- New birth babies diagnosed with neonatal jaundice
- Patients those willing to give their consent.

Exclusion criteria

- Patient above 6 month years old.
- Adult.

Study procedure

The present study was conducted at Government district headquarters hospital, Thirupur for the retrospective assessment of neonatal jaundice cases The study involves mainly 3 steps.

1-Collection of the prescriptions

The prescriptions were collected from the neonatal intensive care unit, medical record department of Government district headquarters hospital, Thirupur. For a period of 6 months that is from Sep 17 to feb 2018. The study was conducted in retrospective manner, The data was collected from the respective departments of the hospital on proforma.

2-Analysing the prescription

The Collected data from the prescription were entered in to proforma were analyzed. The phototherapy, its duration and other important parameters are noted.

3-Statistical analysis

The data's were collected according to the proforma and was entered in separate excel sheets in respective of their proformas or the parameters and they were analysed for the outcomes of the individual parameters like gender, age groups, others by making a table first and then followed by a graphical representation of the data.

The study was designed in a Retrospective manner. It was conducted in babies neonatal Intensive care unit of Government district headquarters hospital, Thirupur district (Tamilnadu) from sep 2017-feb 2018.

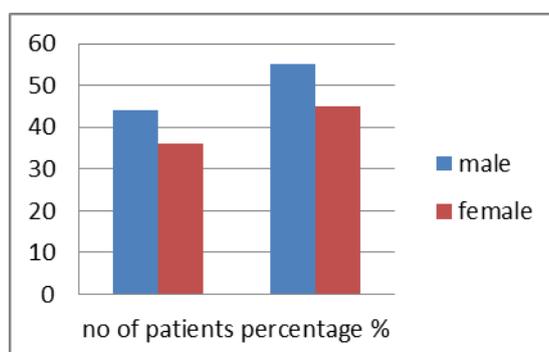
A study population of 80 patients (new babies and diagnosed with neonatal jaundice) was selected. The study population consisted of both sex.

Prescriptions were collected from the respective departments of the hospital. Collected Data were recorded using a predesigned proforma and entered in to Microsoft Excel worksheets. Appropriate tests were applied for analysis.

Prevalence of neonatal jaundice risk factors and, phototherapy frequency were noted.

RESULTS

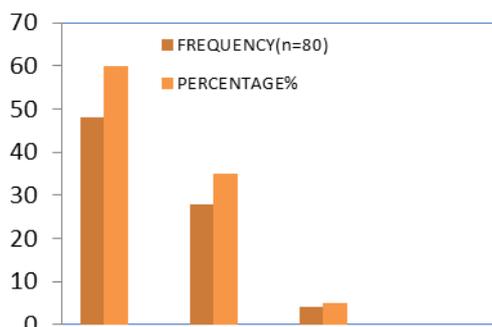
80 patients were selected for the retrospective study. The study population consisted of 44 male infants (55%) and 36 female infants (45%).



	NO OF PATIENTS	PERCENTAGE %
MALE	44	55 %
FEMALE	36	45 %
TOTAL	80	100 %

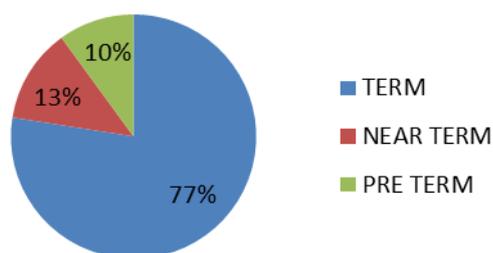
Neonates selected for the study had different body weight. It includes. Study population includes normal body weight neonates (60%), low body weight neonates (35%) and very low birth weight neonates (5%). Infants with normal bodyweight found to be more susceptible to neonatal jaundice. And the low birth weight neonates are risk factor of neonatal jaundice.

BODY WEIGHT	FREQUENCY (n = 80)	PERCENTAGE %
NORMAL BODY WEIGHT	48	60%
LOW BODY WEIGHT	28	35%
VERY LOW BODY WEIGHT	4	5%



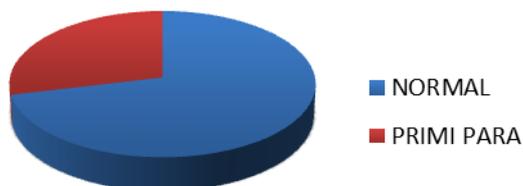
The total infants are categorised on the basis of gestational weeks such as term (77.5%), near term (12.5%) and pre term (10%). The neonatal jaundice is mostly effected category is normal infants.

GESTATIONEL AGE	FREQUENCY (n = 80)	PERCENTAGE %
TERM(> 35 WEEKS)	62	77.5 %
NEAR TERM(35-37 WEEKS)	10	12.5 %
PRE TERM(<35 WEEKS)	8	10 %



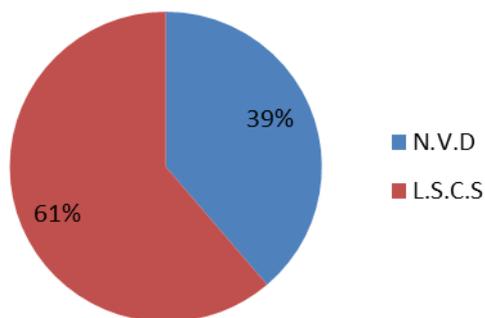
The primi para mother is the one of the risk factor of neonatal jaundice. The primi para mother have totally 23 present the total case. That is the 30% neonatal jaundice affected in the case of primi para mother.

TYPE OF MOTHER	FREQUENCY (n = 80)	PERCENTAGE %
NORMAL	57	71.2 %
PRIMI MOTHER	23	28.8 %



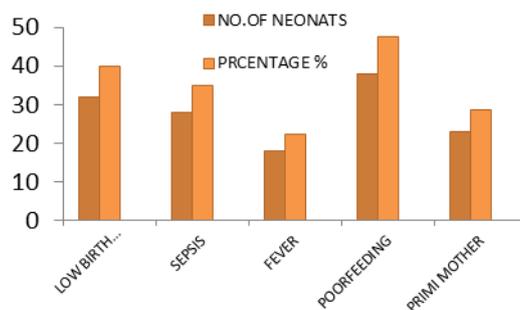
61.3% of study population contain caesarean type delivery(LSCS). and 38.7% of mother in normal delivery (NVD). The caesarean infants are mostly effected neonatal jaundice than normal delivery infants. LSCS is also a risk factor of neonatal jaundice.

TYPE OF DELIVERY	FREQUENCY(N=80)	PERCENTAGE %
NVD	31	38.7%
LSCS	49	61.3%



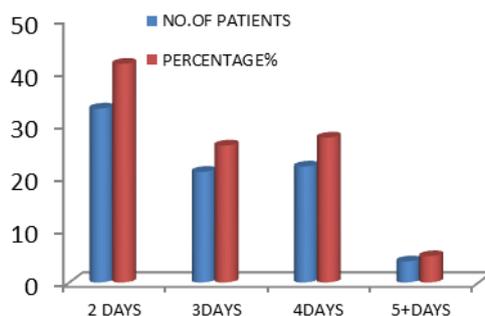
Among the study population, the most prevalent risk factor was found to be poor feeding (47.5%) followed by low birth weight (40%) and effect of sepsis (35%). 28% of mothers are primi para type. 22.5% of infants effected in fever.

RISK FACTER	NO.OF NEONETES	PERCENTAGE %
LOW BIRTH WEIGHT	32	40%
SEPSIS	28	35%
FEVER	18	22.5%
POOR FEEDING	38	47.5%
PRIMI MOTHER	23	28.8%



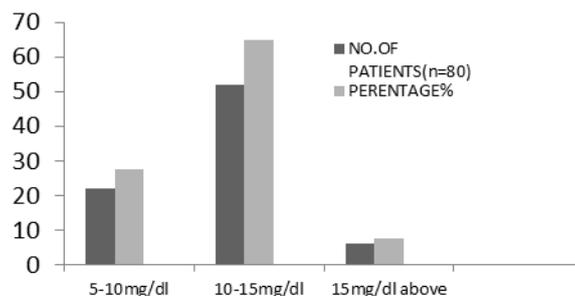
Phototherapy treatment is the commonly used treatment of neonatal jaundice mainly the duration is mostly preferred to two days (41.5%) normally followed by four days (27.5%) and three days (26%). The duration depend up on the severity of jaundice. Only 5% is preferred to more than four days.

DURATION (DAY)	NO.OF PATIENTS	PERCENTAGE
2 DAYS	33	41.5%
3 DAYS	21	26%
4 DAYS	22	27.5%
5+ DAYS	4	5%



The bilirubin concentration is the main diagnostic tool of neonatal jaundice. The 27.5% of the neonates contain bilirubin range is 5-10mg/dl most of the neonates (65%) contain the range of 10-15 mg/dl. Only 7% neonates is the higher bilirubin concentration level. That is mostly the bilirubin level is medium concentration.

T.S.B CONCENTRATION (mg/dl)	NO.OF PATIENTS (n=80)	PERCENTAGE %
5-10	22	27.5%
10-15	52	65%
15 above	6	7.5%



DISCUSSION

Based on our findings, Neonatal jaundice was found to be more prevalent in male infants compared to females. This reflects male gender is an important risk factor for neonatal jaundice.

The primipara mother is one of the most risk factor of neonatal jaundice. Near 50% of infants found to be poor feeding. That is the main symptom of neonatal jaundice.

Sepsis effected to 35% of the neonates. That is it's also one of the most risk factor of neonatal jaundice.

Most of the infants about 65% of neonates effected to medium level of neonatal jaundice the range of bilirubin concentration is shown in to 10-15 mg/dl.

Birth weight of infants are affected. low birth weight of infants are also one of the risk factor. And gestational age of infants is effected rarely only 10% of pre term neonates are effected neonatal jaundice.

Bilirubin concentration is a highly sensitive parameter in detection of cases of neonatal jaundice.

Recommendation for the duration of photo therapy can be decided based on the results of visual assessment and total serum bilirubin concentration.

The phototherapy is the main treatment method of neonatal jaundice. It is an effective treatment method normally.drugs is not ordinarily used.

ACKNOWLEDGEMENTS

This work was supported by the my respected guide Prof. Dr.R.Senthilselvi., M.Pharm., Ph.D., professor, Department of Pharmacy Practice, The Erode College of pharmacy, for giving his valuable suggestions, guidance and constant encouragement throughout the project work.

REFERENCES

1. Lippincott's illustrated Reviews pharmacology, 4th edition, pg no 567-571.
2. <http://medical-dictionary.thefreedictionary.com/retrospective+study>
3. A prospective study of ant platelet agents &community illness of hospital management: October-December 2010. Pgeno: 78-85.
4. Young Infants Clinical Signs Study Group. Clinical signs that predict severe illness in children under age 2 months: a multicentre study. *Lancet*, 2008; 371: 135-42.
5. Madan A, Mac Mohan JR, Stevenson DK. Neonatal Hyperbilirubinemia. In: Avery's Diseases of the Newborn. Eds: Taeush HW, Ballard RA, Gleason CA. 8th edn; WB Saunders., Philadelphia, 2005: pp 1226- 56.
6. Maisels MJ, Gifford K: Normal serum bilirubin levels in newborns and effect of breast-feeding. *Pediatrics*, 1986; 78: 837-43.
7. Neonetal hyper bilirubinemia. merck. manuals professional edition august 2015.
8. Woodgate P, Jardine LA. Neonatal jaundice: phototherapy. *BMJ Clin Evid*. 2015 May 22. 2015.
9. Maisels MJ, Newman TB. The epidemiology of neonatal hyperbilirubinemia. Stevenson DK, Maisels MJ, Watchko JF. *Care of the jaundiced neonate*. New York: McGraw-Hill, 2012; 97-113.
10. Maisels MJ, Gifford K. Normal serum bilirubin levels in the newborn and the effect of breast-feeding. *Pediatrics*., 1986 Nov.; 78(5): 837-43.