VOLUME - 12, ISSUE - 09, SEPTEMBER - 2023 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Pulmonary Medicine

JAUNDICE AMONG NEW BORN BABIES

Rajeswari B — Malakara Orthodox Syrian Church Medical College Hospital, Kolenchery 682 310, Kerala State, India

Skandhan KP — Sree Narayana Institute of Medical Sciences, Chalakka 683 594 Eranakulam, Kerala State, India

KEYWORDS :

INTRODUCTION

Jaundice is the most common abnormal physical finding in the neonatal period. In newborns, jaundice is visible when the maximum bilirubin concentration crosses 5 mg/dl (Kliegman, St. Geme 2019).

Neonatal jaundice is very common. Approximately two thirds of all infants are affected. The prognosis in the absence of complicating conditions is benign (Hervieux 1847). Johannes Orth and Christian Georg Schmorl observed an eaxcessive rise in serum bilirubin level is a cause of concern because unconjugated bilirubin is neuorotoxic and may result in death or life long neurological sequelae (Hansen 2000). In physiological Jaundice, the unconjugated bilirubin in umbilical cord serum is 1-3 mg/dl and rises at a rate of <5 mg/dl/day. In most cases peak reaches between 2nd and 4th day at 5-6 mg/dl and decreasing to below 2 mg/dl between 5th and 7th day. In most infants with Total Serum Bilirubin (TSB) levels of less than 15 mg/dl (257μmol/L), non-invasive Transcutaneous Bilirubin (TcB)- measurement devices can provide a valid estimate of the TSB level. (AAP guidelines 2004)

In this context the aim of this study was to find out the pattern of jaundice according to sex, birth weight and if the baby is term or preterm born.

MATERIALS AND METHODS

This study was carried out in Malankara Orthodox Syrian Church Medical College Hospital, Kolenchery 682 310, Kerala from April 2006 to June 2006. All neonates born during three months period were subjects of this study. Any whose case record was incomplete was excluded. A total number of 745 newborns were included in this study.

All of them were routinely subjected to TcB test before they were discharged on 3rd or 4th day of birth. It was done also on those who showed any clinical evidence of jaundice. If any of the TcB value was found to be above 13mg%, the TSB was done. The mean value was calculated from the TSB values of the first 3 days, 4th – 6th day and 7 or more days.

RESULTS

In this study 10% of new born babies were preterm. A total number of 313 of them showed minimum TcB value above 13mg/dl (Table 1, Figure 1). Their TSB values were categorized according to the sex, birth weight and whether the baby was term or preterm.

The study showed the maximum number of babies (106) with TcB> 13mg/dl belonged to 2.5 – 3 Kg birth weight group (33.9%) followed by 3 – 3.5 Kg birth weight group (30.7%) (Figure 1). Table 1 shows a sloping pattern of TcB towards both extremes of birth weight.

An interesting observation was the mean value of TSB was found to increase as birth weight increased (Table 2). Of all new born babies, 165 were males and 148 were females. Their TSB values are shown in Table 3 and 4.

Table 1 Showing Mean TSB in each birth weight groups number of neonates with TcB> 13mg%

Birth Weight in Kg	No. of babies with TcB>13mg%	Mean TSB (mg/dl) in		
		1 – 3 days	4 – 6 days	7 or more days
<1	5	_	2.1	_
1 – 1.5	13	4.95	7.34	6.2
1.5 – 2	18	14.33	11.79	12.81
2- 2.5	39	16	13.39	11.18
2.5 – 3	106	16.16	13.23	13.35
3 – 3.5	96	14.14	13.79	14.03
3.5 – 4	33	18.8	13.76	13.83
> 4	3	_	15.2	13.20

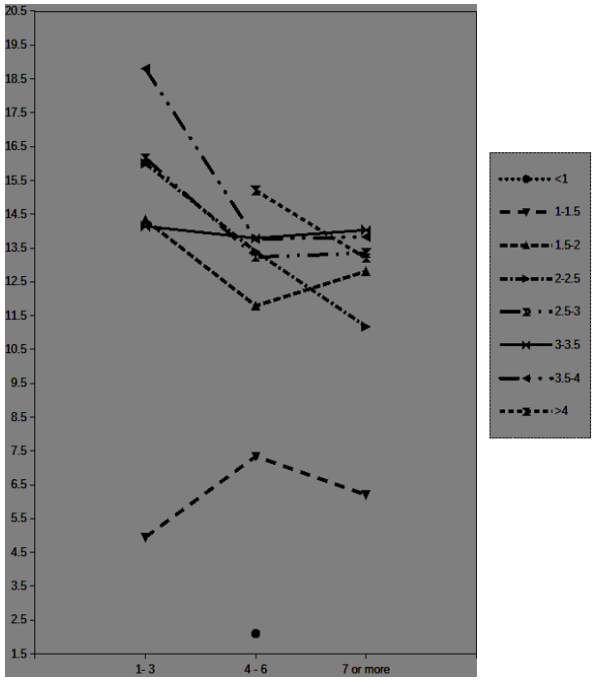

Fig 1. Showing mean TSB values observed in total study. Only one value was recorded for 5 babies weighing < 1Kg

Table 2 showing mean TSB values (mg/dl) of babies <2.5kg and >2.5kg

Birth weight group	Mean TSB		
	1-3 days	4-6 days	7 or more days
<2.5kgs	13.75	11.54	14.28
>2.5kgs	16.78	14.4	13.05

Table 3 Showing mean TSB of male babies in each birth weight group

Birth Weight in kg	Mean TSB Values (in kg/dl)					
	1-3 Days		4-6 Days		7 or more days	
	Number of babies	Mean TSB	Number of babies	Mean TSB	Number of babies	Mean TSB
<1	-	-	-	-	-	-
1 – 1.5	1	9.9	3	8.2	1	3.5
1.5 – 2.0	5	13.86	9	11.87	4	12.85
2.0 – 2.5	1	16.0	13	13.80	8	11.97
2.5 – 3.0	4	17.62	40	12.53	23	14.0
3.0 – 3.5	3	13.87	35	14.20	25	13.66
3.5 – 4.0	1	18.5	15	14.42	8	13.45
> 4.0	-	-	3	15.2	1	13.2

Table 4 Showing mean TSB of female babies in each birth weight group

Birth Weight in kg	Mean TSB Values (in kg/dl)					
	1-3 Days		4-6 Days		7 or more days	
	Number of babies	Mean TSB	Number of babies	Mean TSB	Number of babies	Mean TSB
<1	-	-	-	4.2	1	-
1 – 1.5	-	-	7	6.57	4	8.9
1.5 – 2.0	1	14.8	4	11.7	3	12.77
2.0 – 2.5	1	16	13	12.98	11	10.38
2.5 – 3.0	4	14.7	41	13.92	20	12.7
3.0 – 3.5	3	14.4	29	13.37	20	14.39
3.5 – 4.0	1	19.1	6	13.1	3	12.2
> 4.0	-	-	-	-	-	-

DISCUSSION

Babies with jaundice have a yellow coloring of the skin and eyes. Jaundice is observed in many new born babies where bilirubin level crosses 5mg/dL. Normal level of Direct (also called conjugated) bilirubin is less than 0.3mg/dL (less than 5.1 μmol/L) and total bilirubin is 0.1 to 1.2mg/dL (1.71 to 20.5 μmol/L).

We have under taken this study to get the knowledge of jaundice among new born babies within 24 hrs after birth. Present study included new born babies having birth weight less than 1 Kg to more than 4 Kg (Table 1, Figure 1). Our study showed that TSB value increased as birth weight increased (Table 2); which decreased among male (Table 3) and female babies (Table 4) from 1st day to 7th day after birth. Study showed male babies were more prone to pathological jaundice than female babies. It was seen mainly in babies who were delivered at full term.

Johannes Orth, a German Pathologist (1847 – 1923), documented intense yellow staining of the basal ganglia, hippocampus, the third ventricle and parts of Cerebellum, during autopsy of a jaundiced baby (Schmaus, Thayer 2015). Christian Georg Schmoral (1861 -1932) was a German Pathologist who coined the term "Kernicterus" (Jaundice of the basal ganglia) for the yellow staining phenomenon of basal ganglia also (Springer 2014)

Infant jaundice usually occurs because of baby's liver isn't mature enough to get rid of bilirubin in the blood stream. In some babies, an underlying disease may cause infant jaundice. Most infants born between 35 weeks and full term gestation need no treatment for jaundice.

Baby's liver will take only a few days to process bilirubin properly. Frequent feeding with more milk cause more bowel movements which lead to elimination of more amount of bilirubin in baby stool. It is advised 8-12 feedings per day for the first few days.

Photo therapy is the most common treatment in Moderate jaundice. Sunlight leads to easy break down of bilirubin most effectively. it is advisable to expose the baby in indirect sunlight every day.

The present study shows importance of measuring level of bilirubin among new born babies who are likely to have jaundice.

Summary

The prevalance of hyperbilirubinemia among new borns in MOSC Medical College Hospital was studied on neonates who were born in the months of April, May, June 2006. This showed that 42% of neonates were pathologically jaundiced.

A study was done to assess the relationship of bilirubin levels to that of sex, birthweight and prematurity revealed that male babies were more prone to pathological jaundice than female. The study also showed that bilirubin level increased with increase in birth weight. Pathological jaundice was observed mainly in term babies.

REFERENCES

1. Hansen TWR, Pioneers in the scientific study of Neonatal Jaundice and Kernicterus. Pediatrics (2000) 106(2): e 15 http://doi.org/10. 1542/peds. 106.2.e15
2. Hervieux JFE. On the Jaundice of Newborn. Paris, France, University of Paris, Doctoral Thesis 1847
3. Kliegman RM, St. Geme JW. Nelson Text Book of Paediatrics, Elsevier Health, Vol 2, Edition 21, 2019
4. Schmaus H, Thayer AE. A Text Book of Pathological Anatomy, Creative Media Partners, LLC,2015. P105
5. Springer SC. Kernicterus, Medscape New York 2014