(e) ISSN Online: 2321-9599
(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

PREVALENCE OF HYPERBILIRUBINEMIA & CAUSATIVE FACTORS AMONG NEONATES: A CLINICAL STUDY

Ashvini Kumar, Shaksham Srivastava

Associate Professor, Department of Pediatrics, Mayo Institute of Medical Sciences, Barabanki, U.P., India

ABSTRACT:

Background: Hyperbilirubinemia is the most common in newborn. Jaundice is observed during the 1st week of life in approximately 60% of term infants and 80% of preterm infants. The present study was carried out to evaluate the causes and risk factors of neonatal hyperbilirubinemia. **Materials & Methods**: This study was conducted in Pediatric department in 2016. This consisted of 120 cases whose bilirubin was >10mg/dl out of 1610 babies was included. Detailed antenatal, natal and postnatal history was taken. Clinical examination of every baby was done and bilirubin estimation was done by transcutaneous bilirubinometry. If values found above normal limits serum bilirubin levels estimated, serum bilirubin estimation was done by Van den Bergh method. All the necessary investigations such as Haemoglobin percentage, peripheral smear, reticulocyte count, Serum bilirubin (total, direct, indirect), blood grouping and Rh typing of baby and mother, Coomb's test – direct and indirect, VDRL, TORCH titre and T3, T4 & TSH levels and chest X–ray was done. **Results:** 50 were male and 70 were female. The difference was non significant (P-0.1). Out of 120 cases, 58 were term babies and 62 were preterm babies. Of the preterm babies, 21 (male- 7, female- 14) were between 33 to 36 weeks gestational age and 24 (male- 8, female- 16) were between 31 to 32 weeks and 17 (male- 5, female- 12) were between 28 to 30 weeks. Weight of neonates were >3000 grams (13), 2501-3000 grams (30), 2000- 2500 (24), 1501- 2000 grams (15), 1001-1500 grams (36) and <1000 grams (2). The difference was significant (P <0.05). Among various causative factors for Neonatal hyperbilirubinemia. 60 cases were due to physiological jaundice. 3 were due to neonatal hepatitis and 2 were due to galactosemia. 6 were due to birth injuries. 7 were due to Rh- haemolysis. 18 cases were due to ABO –hemolysis, of which 6 were preterm. 24 cases were due to septicemia, of which 19 were preterm, 3 had birth asphyxia and 8 had respiratory distress. **Conclusion:** Author concluded that physiological causes were main cause of neonatal hyperbilirubinemia. Prematurity and low birth weights were among aggravating factors for Jaundice. Therefore proper mother care is necessary to ensure child birth after 37 weeks to reduce the chances of neonatal hyperbilirubinemia.

Key words: Haemoglobin, neonatal hyperbilirubinemia

Corresponding Author: Dr. Ashvini Kumar, Associate Professor, Department of Pediatric, Mayo Institute of Medical Sciences, Barabanki, U.P., India

This article may be cited as: Kumar A, Srivastava S. Prevalence of hyperbilirubinemia & causative factors among neonates: A clinical study. J Adv Med Dent Scie Res 2016;4(6):179-181.

Access this article online	
Quick Response Code	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2016.4.6.43

INTRODUCTION

Hyperbilirubinemia is the most common in newborn. Jaundice is observed during the 1st week of life in approximately 60% of term infants and 80% of preterm infants. The incidence of neonatal jaundice is increasing day by day. Extreme hyperbilirubinaemia is rare in developed countries it is still quite rife in developing countries often resulting in kernicterus with its attendant medical, economic and social burden on the patient, family and society at large. The main causes of severe neonatal jaundice is G6PD deficiency, consumption of herbal medications in pregnancy, application of dusting powder on baby, use of camphor balls to store baby's clothes that mainly constitute the aetiology in developing countries.[1] Some of these factors such as maternal age, labour induction with oxytocin, maternal diabetes, male sex, prematurity; birth asphyxia and neonatal sepsis are known to predispose to hyperbilirubinemia in neonates.

Depending on age of onset, severity, evolution and associated risk factors, neonatal jaundice is divided into two types ie physiological and pathological. The main complication of jaundice in neonates is bilirubin

encephalopathy.[2] Acute bilirubin encephalopathy may develop during hazardous hyperbilirubinemia and evolve into chronic adverse neuro developmental sequelae of kernicterus. It has great morbidity and mortality. Survivors are left with severe neurological handicaps like cerebral palsy, gaze palsies, deafness and other cranial nerve palsies.[3]

The present study was carried out to evaluate the causes and risk factors of neonatal hyperbilirubinemia.

MATERIALS & METHODS

This study was conducted in Pediatric department in 2016. This consisted of 120 cases whose bilirubin was >10mg/dl out of 1610 babies was included. Detailed antenatal, natal and postnatal history was taken. Clinical examination of every baby was done and bilirubin estimation was done by transcutaneous bilirubinometry. If values found above normal limits serum bilirubin levels estimated, serum bilirubin estimation was done by Van den Bergh method.

All the necessary investigations such as Haemoglobin percentage, peripheral smear, reticulocyte count, Serum bilirubin (total, direct, indirect), blood grouping and Rh typing of baby and mother, Coomb's test – direct and indirect, VDRL, TORCH titre and T3, T4 & TSH levels and chest X–ray was done.

Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that among the 120 new borns with neonatal hyperbilirubinemia, 50 were male and 70 were female. The difference was non significant (P-0.1). Table II shows that, out 120 cases, 58 were term babies and 62 were preterm babies. Of the preterm babies, 21 (male- 7, female- 14) were between 33 to 36 weeks gestational age and 24 (male- 8, female- 16) were between 31 to 32 weeks and 17 (male- 5, female- 12) were between 28 to 30 weeks. Graph I shows that weight of neonates were >3000 grams (13), 2501-3000 grams (30), 2000- 2500 (24), 1501- 2000 grams (15), 1001-1500 grams (36) and <1000 grams (2). The difference was significant (P <0.05). Graph II shows various causative factors for Neonatal hyperbilirubinemia.

60 cases were due to physiological jaundice. 3 were due to neonatal hepatitis and 2 were due to galactosemia. 6 were due to birth injuries. 7 were due to Rh- haemolysis. 18 cases were due to ABO –hemolysis, of which 6 were preterm. 24 cases were due to septicemia, of which 19 were preterm, 3 had birth asphyxia and 8 had respiratory distress.

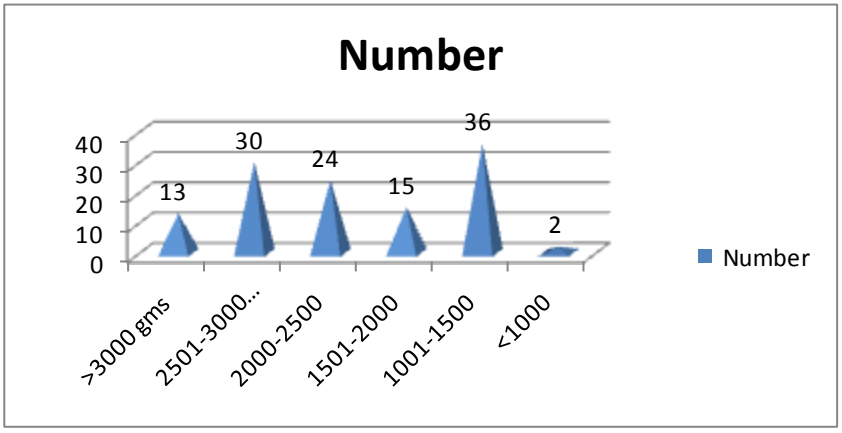
Table I Gender distribution of patients

Total- 120			
Gender	**Male**	**Female**	**P value**
Number	50	70	0.1

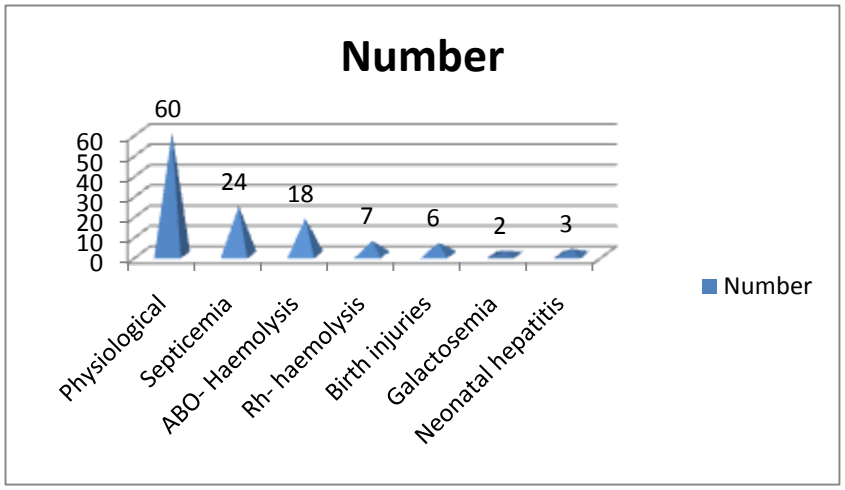
Table II Distribution of neonates according to gestational age

Gestational age	Male	Female	P value
>37 weeks	30	28	0.1
33-36	7	14	0.02
31-32	8	16	0.02
28-30	5	12	0.01
Total	50	70	

Graph I Distribution of neonates according to weight



Graph II Causative factors



DISCUSSION

Neonatal hyperbilirubinemia is a common finding in 60% of neonates. The reasons can be physiological or pathological. Africa and South Asia were reported as the leading contributors to an estimated 1.1million babies who would develop severe hyperbilirubinemia worldwide every year.

The present study was carried out to evaluate the causes and risk factors of neonatal hyperbilirubinemia. In our study, males were 50 and females were 70. Our results are in contrast to the result of Kulkarni et al[4] who reported male predominance in her study. The prevalence rate was 7.5% (120/1610). Our results are in agreement with Anil Narang et al.[5] However Henry reported 4.6%. Out 120 cases, 58 were term babies and 62 were preterm babies. Of the preterm babies, 21 were between 33 to 36 weeks gestational age and 24 were between 31 to 32 weeks and 17 were between 28 to 30 weeks. Bedowra Zabeen et al[6]. reported that preterm babies constituted 73.3% of hyperbilirubinemic babies. In 50% of case, the reason was physiological. Our results are in agreement with Nahla et al.[7] Septicemia was present in 24 cases in the present study. Amar shah[8] reported the incidence of septicemia to be 26.7%. 18 cases were due to ABO –hemolysis. Choudary et al[9] reported 11.3%. Among other causes, 3 were due to neonatal hepatitis and 2 were due to galactosemia. 6 were due to birth injuries. Our results are in agreement with the results of Ahmed H et al.[10]

CONCLUSION

Author concluded that physiological causes were main cause of neonatal hyperbilirubinemia. Prematurity and low birth weights were among aggravating factors for Jaundice. Therefore proper mother care is necessary to ensure child birth after 37 weeks to reduce the chances of neonatal hyperbilirubinemia.

REFERENCES

1. Avery's Diseases of the Newborn 9th ed – Eds: Jon F. Watchko – Neonatal Indirect Hyperbilirubinemia and Kernicterus: page 1123 – 1142.
2. Nelson Text Book of Paediatrics, 19th ed – Eds: Namasivayam Ambalavanan and Waldemar A. Carlo – Jaundice and Hyperbilirubinemia in the Newborn. 603 -608.
3. Meharban Singh Care of the Newborn - 7th ed . 254 – 274.
4. Kulkarni SK, Dolas AL, Doibale MK: Profile & Causes of Neonates with Indirect Hyperbilirubinemia in a Tertiary Care Centre: International Journal of Basic and Applied Medical Sciences. 2002; 4: 10-15.
5. Narang A, Gathawala G, Kumar P; Neonatal Jaundice – An analysis of 551 cases Indian Paediatrics. 1997; 34: 429 – 432.
6. Bedowra Zabeen, Jebun Nahar, N Nabi, A Baki, S Tayyeb, Kishwar Azad, NazmunNahar: Risk Factors And Outcome Of Neonatal Jaundice In A Tertiary Hospital. Ibrahim Med. Coll. J. 2010; 4: 70-73.
7. Nahla I. Al-Gabban, Haider Nadhim Abd, Essam Ahmed Abd: Unconjugated Neonatal Hyperbilirubinemia: Evaluation and Treatment. Iraqi J. Comm. Med. 2010; 2: 1-7.
8. Amar Shah, C K Shah, Venu Shah et al: Study of Hematological Parameters among Neonates admitted with Neonatal Jaundice. Journal of Evolution of Medical and Dental Sciences. 2012; 3: 203–208.
9. Choudhury, Habibur Rasul, Md Abul Hasan, Farhana Yasmin: Outcome of Neonatal Hyperbilirubinemia in a Tertiary Care Hospital in Bangladesh Malaysian J. Med. Sci. 2010; 17: 40-44.
10. Ahmed H, Yakubu AM, Hendrickse RG. Neonatal jaundice in Zaria, Nigeria. West Afr. J Med. 1999; 15-23

Source of support: Nil **Conflict of interest:** None declared