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Original Research Paper

Pathology

STUDY OF HEMATOLOGICAL PROFILE IN NEONATAL JAUNDICE

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INTRODUCTION

Neonatal jaundice is among the most common conditions requiring medical attention in newborns. It affects nearly 60% of term and 80% of preterm neonates in the first week of life, with approximately 10% of breastfed infants remaining jaundiced at one month of age [1]. The yellow discoloration of the skin and sclera results from elevated serum bilirubin, known as hyperbilirubinemia.

In most cases, neonatal jaundice is physiological, caused by transient immaturity of hepatic conjugation mechanisms. However, it is important to distinguish it from pathological causes such as sepsis, Rh or ABO incompatibility, G6PD deficiency, and red cell membrane defects [2,3]. Laboratory investigations, especially hematological parameters, play a vital role in identifying these variations. The present study aims to assess hematological changes in neonates presenting with physiological jaundice.

METHODOLOGY

The study was conducted in the Department of Pathology, ESIC Medical College & Hospital, Alwar,Rajasthan, over a period of six months in 2025. A total of 100 neonates admitted with clinical evidence of jaundice were included. Venous blood samples were collected, and hematological parameters-Hemoglobin (Hb), Total Leukocyte Count (TLC), and Absolute Neutrophil Count (ANC)-were analyzed using standard laboratory techniques. Normal neonatal reference ranges were taken as Hb: 16–18 g/dL, TLC: 16,000-18,000 cells/cu.mm, and ANC: 3,000–6,000 cells/cu.mm. Data were analyzed descriptively and represented in tabular form to evaluate the frequency and proportion of hematological deviations.

RESULTS

The study included 100 neonates diagnosed with physiological jaundice. Hemoglobin, total leukocyte count, and absolute neutrophil count showed characteristic patterns of variation, as summarized below.

Table 1: Distribution Of Hemoglobin Levels In Neonatal Jaundice (n = 100)

Hemoglobin Level	Number of Cases	Percentage (%)
Increased	42	42%
Normal	36	36%
Decreased	22	22%

Normal neonatal Hb range: 16–18 g/dL

Table 2: Distribution Of Total Leukocyte And Absolute Neutrophil Counts (n = 100)

Parameter	Increased	Normal	Decreased
Total Leukocyte Count (TLC)	6 (6%)	14 (14%)	80 (80%)
Absolute Neutrophil Count (ANC)	40 (40%)	44 (44%)	16 (16%)

The results show a predominance of decreased total leukocyte count (80%) and increased absolute neutrophil count (40%). Elevated hemoglobin levels were observed in 42% of neonates, suggesting an adaptive response to neonatal physiology.

Statistical Analysis

Descriptive statistics were applied to summarize the data. Frequencies and percentages were calculated for each hematological parameter. The pattern showed that mild increases in hemoglobin and ANC, coupled with decreased TLC, were the most common findings. Though no inferential statistical tests were applied, the frequency distribution indicated consistent hematological trends in physiological jaundice. These findings are in accordance with previous studies by Jyoti et al. [1] and Vikram et al. [3], supporting the diagnostic relevance of simple hematological investigations in neonatal jaundice.

CONCLUSION

The study concludes that most neonatal jaundice cases are physiological, exhibiting mild hematological variations without evidence of underlying pathology. Increased hemoglobin and absolute neutrophil count, along with decreased total leukocyte count, were the most frequent findings.

Hematological screening thus serves as a rapid, cost-effective, and non-invasive tool for differentiating physiological from pathological jaundice in neonates, enabling timely intervention and improved neonatal care.

REFERENCES

1. Jyoti P, Jayati M, Rajesh K, Soumya M, Magna M. Haematological profile in neonatal jaundice. J Basic Clin Physiol Pharmacol. 2013; DOI: 10.1515/jbpp-2013-0087.
2. Christiana A, Jeffrey B, Sally C, Karen F. Neonatal Jaundice Full Guidelines. RCOG Press; Feb 2010.
3. Vikram R, et al. Study of Haematological Indices in Neonates Admitted with Non-obstructive Jaundice and Its Outcomes in a Tertiary Care Hospital. Int J Contemp Pediatr. 2017; 4(5):1827–1832.
4. Eric C, Annie R, Camilia R, Ann R. Cloherty and Stark's Manual of Neonatal Care. 8th ed. Wolters Kluwer; 2016.
5. Sahoo M, Arigela V, Pramitha L, Sudarsini P, Rao KU. Study of Neonatal Jaundice in a Tertiary Care Centre of South India. Int J Pediatr Res. 2016;3(8):589–592.