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abstract

### The Effect of Phototherapy on Platelet Counts in Neonates with Indirect Hyperbilirubinemia: A Prospective Observational Study

Reashma Roshan

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The Effect of Phototherapy on Platelet Counts in Neonates with Indirect Hyperbilirubinemia: A Prospective Observational Study

Authors: Reashma Roshan

Affiliation: Sher-i- Kashmir Institute of Medical Sciences

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**Introduction:** Neonatal hyperbilirubinemia is a prevalent condition, with many newborns requiring phototherapy to manage elevated bilirubin levels. While phototherapy effectively reduces serum bilirubin, it is associated with potential side effects, including thrombocytopenia. Thrombocytopenia following phototherapy has not been extensively studied despite emerging sporadic case reports. Objective was to investigate the effect of phototherapy on platelet count in neonates with indirect hyperbilirubinemia, and to assess its clinical implications regarding thrombocytopenia.

**Methodology:** A prospective observational study was conducted at the Division of Neonatology, Postgraduate Department of Paediatrics, Government Medical College Srinagar, Jammu & Kashmir, India from November 2022 to May 2024. Neonates with a gestational age greater than 35 weeks and having uncomplicated indirect hyperbilirubinemia requiring phototherapy were included. Platelet count was measured at admission, 24 hours after starting phototherapy and at discharge.

**Results:** A total of 200 neonates (54% male, 46% female) were enrolled, with a mean age of 2.26  $\pm$  1.74 days at admission. The mean duration of phototherapy was 35.04  $\pm$  7.86 hours. Platelet count decreased significantly from 244.09  $\times$  103/µL at admission to 218.99  $\times$  103/µL after 24 hours, and 198.14  $\times$  103/µL at discharge (p < 0.001). However, none of the neonates developed thrombocytopenia, with platelet count remaining within normal limits.

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**Conclusion:** Phototherapy led to a significant but clinically insignificant decrease in platelet counts in neonates with indirect hyperbilirubinemia. Despite decrease, platelet levels remained above critical thresholds, confirming that phototherapy is a safe and effective treatment for neonatal jaundice without posing a significant risk for thrombocytopenia or bleeding. Further studies are needed to explore the underlying mechanisms and long-term haematological effects of phototherapy in neonates.