

A Quasi Experimental Study to Assess the Effectiveness of Photo Therapy v/s Photo Therapy and Massage on Reducing Bilirubin Level in Neonates with Jaundice Admitted in NICU, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab

Kaur Jigarjeet¹, Rawat H. C. L.², Sethi Amanpreet³

¹M.Sc. Nursing (Pediatric Nursing), University College of Nursing, Faridkot, Punjab, India

²Principal, University College of Nursing, BFUHS, Faridkot, Punjab, India

³Assistant Professor (Neonatology), Department of Pediatrics, G.G.S.M&H, Faridkot, Punjab, India

ABSTRACT

BACKGROUND: Jaundice refers to the yellow color of the skin and whites of eyes that happens when there is too much bilirubin in the blood. It is a benign transient physiological event in the majority of newborns but can cause irreversible brain damage and kernicterus in infants if the serum bilirubin levels are very high. Phototherapy and massage is used for the treatment when serum bilirubin levels exceed physiological limits. **AIM:** Aim of the study is to assess the effectiveness of photo therapy v/s photo therapy and Massage on reducing bilirubin level in neonates with jaundice admitted in NICU, GGSCM&H, Faridkot, Punjab. **METHODS:** A Quasi-experimental research design was used to conduct the present study. Convenient sampling was used to select 70 neonates having jaundice (35 were in photo therapy group and 35 were in photo therapy and massage group) and randomly allocated in both groups. Sociodemographic profile and Lab Investigations was used to collect the data. **RESULTS:** The present study results revealed that pre intervention mean baseline total serum bilirubin level in photo therapy group was 14.960 ± 2.1868 and 16.043 ± 2.8421 in photo therapy and massage group respectively. Post intervention mean baseline total serum bilirubin level in photo therapy group was 11.991 ± 2.4042 and 10.180 ± 2.4096 in photo therapy and massage group respectively. Paired t-test was applied for statistical analysis. Results showed t value 3.148 at df 68 with p value .002 which is found to be significant at $p < 0.05$. It proved that there is significant difference in baseline mean of reduction in total serum bilirubin level more rapidly in photo therapy and massage than photo therapy alone. **CONCLUSIONS:** The study concluded that Photo Therapy and Massage is more effective in reducing bilirubin level rapidly in neonates than Photo Therapy alone.

How to cite this paper: Kaur Jigarjeet | Rawat H. C. L. | Sethi Amanpreet "A Quasi Experimental Study to Assess the Effectiveness of Photo Therapy v/s Photo Therapy and Massage on Reducing Bilirubin Level in Neonates with Jaundice Admitted in NICU, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab" Published in International

Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-9 | Issue-5, October 2025, pp.832-834,

URL: www.ijtsrd.com/papers/ijtsrd97637.pdf



Copyright © 2025 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



KEYWORDS: Neonatal Jaundice, Neonates, Phototherapy, Massage, Lab Investigations.

Background of study:

Jaundice is a common, temporary condition in newborn infants. It affects both full-term and premature babies, usually appearing during the first week of the baby's life. Jaundice occurs when there is a build-up of a naturally occurring substance in the blood called **bilirubin**. Bilirubin is an orange/red pigment in the blood. Bilirubin is produced by the normal breakdown of red blood cells. It is normal for neonates to have same amount of unconjugated

bilirubin in their blood. As bilirubin begins to build up, it deposits on the fatty tissue under the skin causing the baby's skin and whites of the baby's eyes to appear yellow. High levels of bilirubin can occur in the blood called hyperbilirubinemia. These high levels can be dangerous to a baby. It is important to obtain periodic blood samples to check the bilirubin levels and, if necessary, to treat jaundice to ensure the healthy development of your child. Feed baby after

every 2- 3 hours is recommended to reduce the jaundice levels. If you are breastfeeding, supplementation (ex. with formula via cup feeding, supplemental feeder, or bottle) may be recommended by your paediatrician if the bilirubin will not come down with frequent feedings. Phototherapy with or without a biliblanket is the most common form of treatment for jaundice. This treatment is used for a few days until the liver is mature enough to handle the bilirubin on its own.¹

MATERIAL AND METHODS

Study design: A quasi experimental research design was used to plan and organize the present study.

Study setting: The study was conducted on patients having jaundice admitted in NICU, GGSCM&H, Faridkot, Punjab.

Study subjects: Total 70 neonates having gestational age 34-37 weeks with jaundice under photo therapy and 35 in each group photo therapy and photo therapy & massage and who were meeting the inclusion and exclusion admitted in NICU, GGSCM&H, Faridkot, Punjab.

Inclusion criteria

The study includes the neonates who are:

1. Having jaundice.
2. Gestational age of 34-37 weeks.
3. Admitted in NICU at the time of data collection.
4. Willingness to participate in the study.

Exclusion criteria

The study excludes the neonates who are:

1. Having age less than 34 weeks
2. Where the massage is contraindicated for example neonate on ventilator, shock, any surgical condition.
3. If the bilirubin level is more than 20 mg/dl.

Sampling: Convenient sampling technique was used to select the sample.

Study instrument: Lab Investigations was used to assess the bilirubin level of the neonates having jaundice under photo therapy group and photo therapy and massage group.

Ethical consideration: Ethical clearance was taken from research and ethical committee of University College of nursing, and BFUHS, Faridkot for the study to be conducted. Apart from this, written informed consent was taken from each study subject and permission was taken from authorities of the respected area to collect the data. Confidentiality & privacy of the study subjects was also maintained.

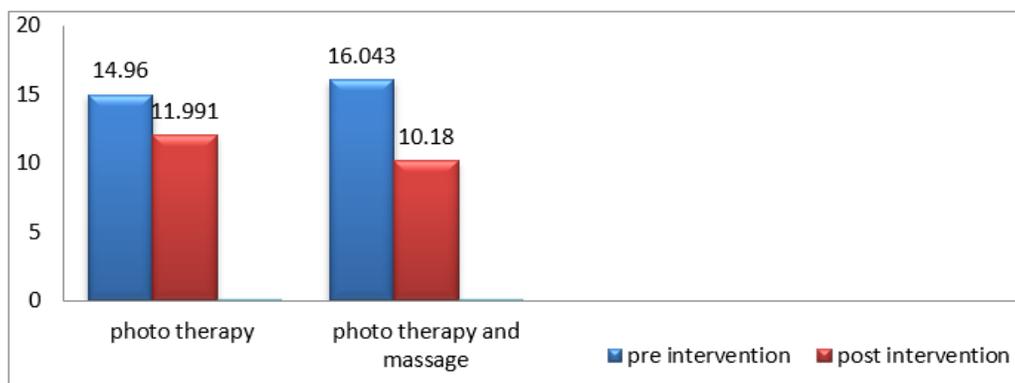
Pilot study:

Pilot study was conducted to ensure the reliability of the tool and feasibility of the study. The pilot study was conducted on 8 subjects. It was conducted in NICU, GGSMC&H, Faridkot, Punjab. 4 study subjects were given photo therapy and 4 given photo therapy and massage.

Data collection: An informed written consent was taken from the parents of the participants. Faridkot Punjab. Convenient sampling technique was used for data collection. Average time for massage was 5 min two times a day.

Data analysis: Analysis of the data was done in accordance with the objectives. It was done by using the descriptive and inferential statistics i.e by calculating frequency, percentage distribution mean and inferential statistics (Chi square test, paired t – test) was used to assess the effectiveness of photo therapy v/s photo therapy and massage in reducing bilirubin level in neonate with jaundice.

Results: The present study reveals that pre intervention mean baseline total serum bilirubin level in photo therapy group was 14.960 ± 2.1868 and 16.043 ± 2.8421 in photo therapy and massage group respectively and post intervention mean baseline total serum bilirubin level in photo therapy group was 11.991 ± 2.4042 and 10.180 ± 2.4096 in photo therapy and massage group respectively. Paired t-test was applied for statistical analysis. Results showed t value 3.148 at df 68 with p value .002 which is found to be significant at $p < 0.05$. It proved there is significant difference in baseline mean of total serum bilirubin level in photo therapy V/S photo therapy and massage group.



CONCLUSION AND RECOMMENDATION

Conclusion of the study: The study concluded that Photo Therapy and Massage is more effective in reducing bilirubin level more rapidly in neonates than Photo Therapy alone.

Recommendations:

- Similar studies can be replicated with large samples with generalisation.
- A comparative study can be conducted to find out the effectiveness of photo therapy versus olive oil in reducing bilirubin level in neonates having jaundice.
- A study can be conducted to evaluate the knowledge and the attitude of nurses regarding photo therapy versus photo therapy and massage.
- An exploratory study can be done at various settings to identify factors influencing to photo therapy and massage.

FINANCIAL SUPPORT AND SPONSORSHIP:

Nil

CONFLICTS OF INTEREST

There are no conflicts of interest.

REFERENCES

- [1] Kosim MS, Soetandio R, Sakundarno M. the effect of phototherapy duration to decrease total serum bilirubin of hyperbilirubinemia.
- [2] Akobeng AK. Neonatal jaundice. American Family Physician. 2005 Mar 1; 71(5):947.
- [3] Scrafford CG, Mullany LC, Katz J, Khatry SK, LeClerq SC, Darmstadt GL, Tielsch JM. Incidence of and risk factors for neonatal jaundice among newborns in southern Nepal. Tropical Medicine & International Health. 2013 Nov; 18(11):1317-28.
- [4] Saini N, Chhabra S, Chhabra S, Garg L, Garg N. Pattern of neonatal morbidity and mortality: A prospective study in a District Hospital in Urban India. Journal of Clinical Neonatology. 2016 Jul 1; 5(3):183.
- [5] Hansen TW, Wong RJ, Stevenson DK. Molecular Physiology and Pathophysiology of Bilirubin Handling by the Blood, Liver, Intestine, and Brain in the Newborn. Physiological Reviews. 2020 Jul 1; 100(3):1291-346.
- [6] Maisels MJ, McDonagh AF. Phototherapy for neonatal jaundice. New England Journal of Medicine. 2008 Feb 28; 358(9):920-8.
- [7] Sawyer L Taylor. "Phototherapy for Jaundice" 2018; Available from <https://emedicine.medscape.com>
- [8] Maisels MJ. Neonatal jaundice. Pediatrics in Review. 2006 Dec 1; 27(12):443.
- [9] Meredith L, Beth LD. Hyperbilirubinemia in the term newborn. Am. Fam. Physician. 2002; 65:599-606.
- [10] Gallagher C." Overview of Lichen Planus of the Skin". 2019. Available from <https://www.verywellhealth.com/phototherapy-overview>.
- [11] Maisels MJ. Neonatal jaundice. Pediatrics in Review. 2006 Dec 1; 27(12):443.
- [12] UMHS "Newborn Care Committee" May 2005. Available from <http://www.med.umich.edu/1libr/pa/umphototherapy>
- [13] Maisels MJ, McDonagh AD. Phototherapy for Neonatal Jaundice. N Engl J Med. 2008. 358: 920-928.
- [14] Liyanage Kavya. "Phototherapy of Neonatal Jaundice." Available from <file:///C:/phototherapy-160908051419>.
- [15] Newman TB, Vittinghoff E, McCulloch CE. Efficacy of phototherapy for newborns with hyperbilirubinemia: a cautionary example of an instrumental variable analysis. Medical Decision Making. 2012 Jan; 32(1):83-92.