International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 7; Issue 9(B); September 2018; Page No. 15323-15326
DOI: http://dx.doi.org/10.24327/ijcar.2018.15326.2796

Research Article

EFFECTIVENESS OF OIL MASSAGE ON BILIRUBIN REDUCTION IN LATE PRETERM NEWBORNS WITH PHYSIOLOGICAL JAUNDICE ADMITTED IN NICU OF SELECTED HOSPITALS AT VIJAYAPUR

Priyanka Gudannawar., Prakash Siddapur and Ninganagouda Patil

BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur

A R T I C L E I N F O

Article History:

Received 6th June, 2018
Received in revised form 15th July, 2018 Accepted 12th August, 2018
Published online 28th September, 2018

Key words:

Effectiveness, Oil massage, Bilirubin, Late preterm newborns

A B S T R A C T

Background: Jaundice is the most common condition that requires medical attention in newborn. Phototherapy is a safe and widely used method for treatment and prevention of neonatal jaundice but there are potential side effects of phototherapy. Therefore it is necessary to find some way to control hyperbilirubinemia within normal range whilst avoiding more harmful treatments.

Aim and objectives - The Study aims at assessing the effectiveness of oil massage on bilirubin reduction in late preterm newborns with physiological jaundice admitted in NICUs.

Materials and methods- The demographic data and percentages were calculated by using frequency, percentage, mean and standard deviation. The bilirubin levels of late preterm newborns with physiological jaundice were estimated using Kramer's staging. The difference between posttest bilirubin levels in experimental group and control group was estimated by using paired t-test. Further statistical significance for the effectiveness of oil massage on reduction of bilirubin level was analyzed by unpaired t-test.

Results: The study result shows that 65% newborns of experimental group had Grade 4 level of bilirubin in pretest and 60 % newborns of control group had Grade 4 of bilirubin in pretest. In posttest 85% newborns of experimental group had Grade 2 level of bilirubin and 65% newborns of control group had Grade 3 level of bilirubin. The calculated t value shows that there is significant difference between pretest and posttest bilirubin levels in experimental group (t=11.53, df=19). The unpaired t test shows that there is significant difference between posttest bilirubin levels in experimental and control group (t=3.409, df=38).

Conclusion- The study concludes that oil massage is effective when it is given along with phototherapy in reducing bilirubin levels in late preterm newborns with physiological jaundice

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INTRODUCTION

Newborns, as the name itself suggests, are just born. After 9 months of stay in mother's womb, they finally come to the outer world. A fetus in the mother's womb will be totally dependent on mother for its survival. But in the outer world a newborn has to manage on its own. Newborn struggles to survive with its immature organs. This struggle will lead to adjustment to the outer world. But sometimes the immature organs of the newborn makes it impossible to adjust and results in some consequences. Physiological jaundice is one of such consequence in preterm newborns.[1]

Amongst all age group neonates are most susceptible to mortality and morbidity. According to UNICEF newsletter on April 24, 2008 out of every four, a child dies under the age of one in the world, one is an Indian child. The infant mortality rate in the country is 67% per thousand live births, in which neonatal mortality contributes 43.4 /1000 against the annual death of 9 /1000 (2008) In India neona0tal jaundice, contributes 4.55% death in neonatal period. In Pondychery the cause of neonatal death due to neonatal jaundice ranks to 6 contributing 3.8% of death.[2]

More than 8 million children die all over the world before they attain 5 years of age each year. Most of these deaths occur in developing countries and most are caused by preventable or treatable diseases. India is the country responsible for maximum number of neonatal deaths from 1990-2009. India accounts for 27.3% of total neonatal death in the world.[3]

Massage increases lymph flow and blood circulation when it is given along with phototherapy. An increased blood circulation speeds up the excretion of the Bilirubin. On the other hand, stools contain a large amount of Bilirubin and delayed stool

Corresponding author:* **Priyanka Gudannawar
BLDEA's Shri B M Patil Institute of Nursing Sciences, Vijayapur

passage is associated with increase in Bilirubin levels. Massage accelerates the excretion of stools and helps baby to pass more stools and decreases the reabsorption of Bilirubin into the blood. More stools passed may make the jaundice go away faster.[4]

Massage has many added benefits for baby, including improving weight gain, aiding digestion, improving circulation and easing teething pain. Other benefits include develop mentally , socially and physically, stay relaxed and not get upset, cry fuss less and sleep better.[5]

Baby friendly approach suggests that positive touch and massage are important aspects of child care as it promotes physiological, psychological and emotional health of baby.[6]

Statement of the problem: "Effectiveness of oil massage on Bilirubin reduction among late preterm newborns with physiological jaundice admitted in NICU of selected hospitals at Vijayapur."

Objectives of the study

1. To assess the pretest Bilirubin level in late preterm newborns with physiological jaundice in experimental group and control group.
2. To assess the posttest Bilirubin level in late preterm newborns with physiological jaundice in experimental group and control group.
3. To find out the effectiveness of oil massage on reduction of Bilirubin level in late preterm newborns with physiological jaundice in experimental group.

Hypotheses

Hypotheses will be tested at 0.05 level of significance.

H_1: There will be significant difference between pretest Bilirubin level and posttest bilirubin level in experimental group.
H_2: There will be significant difference between posttest Bilirubin levels in experimental and control group.

MATERIALS AND METHODS

Source of data- In this study data was collected from mothers of preterm newborns and preterm newborns with physiological jaundice admitted in NICUs of selected hospitals in Vijayapur.

Research Design- Quasi Experimental research design was used or the study**.**

Setting of the study – The study has been conducted at NICU of selected hospital in Vijaypur,

Population- Population includes late preterm newborns with physiological jaundice.

Sample*:* In this study, late preterm newborns with physiological jaundice who fulfilled the sampling criteria were selected as sample.

Sampling Method- Samples for the study were selected by Purposive sampling technique.

Sample Size- Sample size comprises of 40 late preterm newborns with physiological jaundice.

Sampling criteria

Inclusion Criteria

- Late preterm newborns
- Birth weight of 1500gm and above
- Receiving phototherapy for jaundice

Exclusion Criteria

- Extremely preterm babies
- Extremely low birth weight and very low birth babies
- Babies with congenital anomalies and hemolytic diseases like ABO and Rh incompatibility

Methods of data collection

- Demographic data was used to collect information of late preterm newborns with physiological jaundice.
- Kramer's Staging was used for clinical assessment of jaundice.
- Oil massage was given to see the effectiveness.

RESULTS

Section 1: Analysis of Demographic variables of late preterm newborns

Table 1 Demographic Variables of late preterm newborns of Control group (N= 20)

SL. No	Items	Frequency	ercentage
	Sex		
1.	a) Male	9	45
	b) Female	11	55
	Age in weeks		
	a) 34	4	20
2	b) 35	4	20
	c) 36	5	25
	d) 37	7	35
	Mode of Delivery		
3	a) Vaginal	6	30
	b) Cesarean section	14	70
	Indications		
	a) Previous LSCS	2	14.2857
4	b) Hypertensive disorder	5	35.7143
	c) APH	2	14.2857
	d) Fetal distress	2	14.2857
	e) Mal presentation	3	21.4286
	Birth order		
	a) 1st	11	55
5	b) 2nd	4	20
	c) 3rd	3	15
	d) 4th	2	10
	Birth Weight		
6.	a) 1500-2000	4	20
	b) 2000- 2500	12	60
	c) Above 2500	4	20
	Type of Phototherapy		
7.	a) Single surfaced	6	30
	b) Double surfaced	14	70
	On breast feeding		
8.	a) Yes	6	30
	b) No	14	70
	Age in years		
	a) Under 20	9	45
9.	b) 21-30	11	55
	c) 31-40	-	-
	d) 41 and above	-	-
	History		
10.	a) Present	-	-
	b) Absent	20	100

Table 2 Demographic Variables of late preterm newborns of Experimental group (N= 20)

SL. No	Items	Frequency	Percentage
	Sex		
1.	a) Male	11	55
	b) Female	9	45
	Age in weeks		
	a) 34	1	5
2	b) 35	3	15
	c) 36	7	35
	d) 37	9	45
	Mode of Delivery		
3	a) Vaginal	5	25
	b) Cesarean section	15	75
	Indications		
	a) Previous LSCS	4	26.6667
	b) Hypertensive disorder	4	26.6667
4	c) APH	3	20
	d) Fetal distress	1	6.6667
	e) CPD	2	13.3333
	f) Mal presentation	1	6.6667
	Birth order		
	a) 1st	9	45
5	b) 2nd	9	45
	c) 3rd	2	10
	d) 4th	-	-
	Birth Weight		
6.	a) 1500-2000	4	20
	b) 2000- 2500	13	65
	c) Above 2500	3	15
	Type of Phototherapy		
7.	a) Single surfaced	5	25
	b) Double surfaced	15	75
	On breast feeding		
8.	a) Yes	5	25
	b) No	15	75
	Age in years		
	a) Under 20	9	45
9.	b) 21-30	11	55
	c) 31-40	-	-
	d) 41 and above	-	-
	History		
10.	a) Present	1	5
	b) Absent	19	95

Section 2: Analysis of Pretest and posttest of bilirubin levels

Table 3 Comparison of Pretest and posttest Bilirubin levels in control group

Bilirubin levels (mg/dl)	Kramer's staging	Control group(n=20)			
		Pre test		Post test	
		F	%	F	%
0	0	-	-	-	-
4-6	1	-	-	-	-
6-8	2	-	-	6	30
8-12	3	6	30	13	65
12-14	4	12	60	1	5
>15	5	2	10	-	-
Total		20	100	20	100

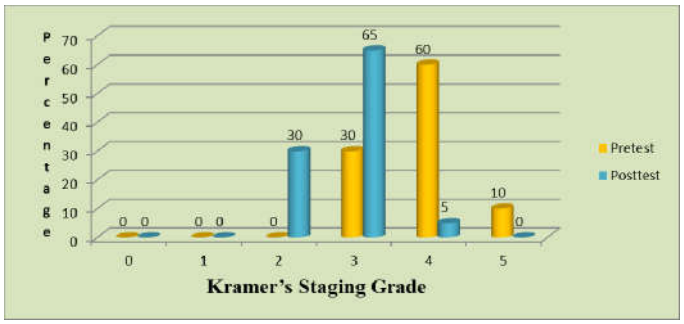

Fig 1 Comparison of pretest and posttest Bilirubin levels in control group

The above table and figure shows the comparison between pretest Bilirubin levels and posttest Bilirubin levels. The control group received only phototherapy as a regular management.

Table 4 Comparison of Pretest and posttest Bilirubin levels in experimental group

Bilirubin levels (mg/dl)	Kramer's staging	Experimental group(n=20)			
		Pre test		Post test	
		F	%	F	%
0	0	-	-	-	-
4-6	1	-	-	1	5
6-8	2	-	-	17	85
8-12	3	7	35	2	10
12-14	4	13	65	-	-
>15	5	-	-	-	-
Total		20	100	20	100

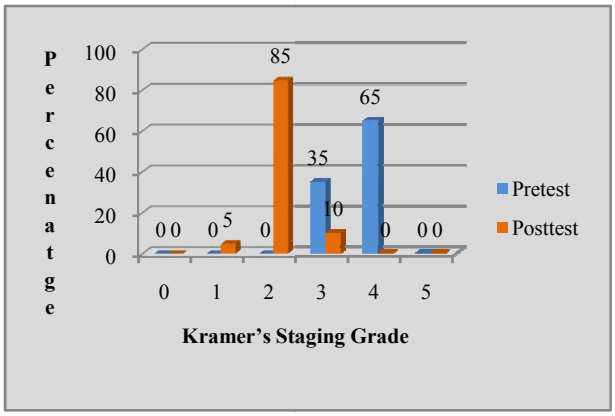

Fig 2 Comparison of pretest and posttest Bilirubin levels in experimental group

The above table and graph shows the comparison between pretest Bilirubin levels and posttest Bilirubin levels when oil massage is given along with phototherapy in experimental group.

Table 5 Comparison of Posttest bilirubin levels in Experimental group and control group

Bilirubin levels (mg/dl)	Kramer's staging	Experimental group (n=20)		Control group (n=20)	
		Post test		Post test	
		F	%	F	%
0	0	-	-	-	-
4-6	1	1	5	-	-
6-8	2	17	85	6	30
8-12	3	2	10	13	65
12-14	4	-	-	1	5
>15	5	-	-	-	-
Total	Total	20	100	20	100

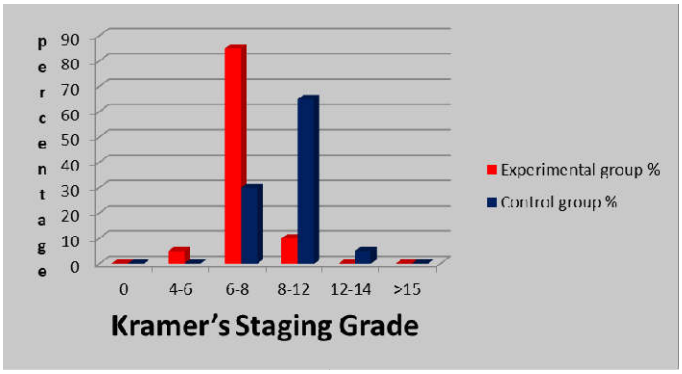

Fig 3 Comparison of Posttest bilirubin levels in Experimental group and control group

The above table and graph shows the comparison of posttest Bilirubin levels in experimental group and control group. It shows that oil massage is effective along with regular treatment such as Phototherapy in experimental group comparing to control group.

Section 3: Analysis of effectiveness of oil massage in experimental group

Table 6 Effectiveness of oil massage in Experimental group

Paired t- test	No. of samples	Mean	Standard deviation	Paired 't' value	Significance
Pretest	20	3.65	0.5	11.53	Highly significant
Posttest	20	2	0.4		

The above table shows that calculated t-value is more than tabulated t-value 11.53 at d.f (19) is 2.09. Hence there is a highly significant difference between pretest and posttest bilirubin levels in experimental group.

Section 4: Analysis of posttest bilirubin levels of Experimental group and Control group

Table 7 Mean Standard deviation and t value of posttest of Experimental Group and Control Group

		Mean	Number of samples	Standard deviation	Unpaired 't' value (Cal)	't' value (Table)	Significance
Unpaired 't' test	Control group	2.75	20	0.55	3.409	2.024	Significant
	Experimental group	2	20	0.45			

The data presented in above table reveals that the mean Bilirubin level of control group (2.75) was higher than the experimental group (2). At 38 degrees of freedom, tabulated t-value is 2.024 and calculated t-value is 3.049. This shows that calculated t-value is more than tabulated t-value (3.049 > 2.024). So there is enough evidence that oil massage is effective in reducing Bilirubin levels when given along with phototherapy.

DISCUSSION

The study result shows that 65% newborns of experimental group had Grade 4 level of bilirubin in pretest and 60 % newborns of control group had Grade 4 of bilirubin in pretest. In posttest 85% newborns of experimental group had Grade 2 level of bilirubin and 65% newborns of control group had Grade 3 level of bilirubin. The calculated paired t value shows that there is significant difference between pretest and posttest bilirubin levels in experimental group (t=11.53, df=19). The unpaired t test shows that there is significant difference between posttest bilirubin levels in experimental and control group (t=3.409, df=38).

CONCLUSION

The study concludes that oil massage is effective when it is given along with phototherapy in reducing bilirubin levels in late preterm newborns with physiological jaundice. The present study may be replicated on a larger sample size which may help to draw more definite conclusions and make generalizations. The experimental study can be conducted to assess the effectiveness of oil massage on weight gain in newborns.

Acknowledgement

We thank to participants and Authorities of selected organization of Vijayapur for their permission and participation in the study.

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How to cite this article:

Priyanka Gudannawar *et al* (2018) 'Effectiveness of Oil Massage on Bilirubin Reduction in Late Preterm Newborns with Physiological Jaundice Admitted in Nicu of Selected Hospitals At Vijayapur', *International Journal of Current Advanced Research,* 07(9), pp. 15323-15326. DOI: http://dx.doi.org/10.24327/ijcar.2018.15326.2796

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