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Original Article

Staff Nurses Knowledge regarding Care of Babies undergoing Phototherapy

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Abstract:

Introduction : Phototherapy is the use of visible light for the treatment of hyperbilirubinemia in the newborn. This relatively common therapy lowers the serum bilirubin level by transforming bilirubin into water-soluble isomers that can be eliminated without conjugation in the liver. Caregiver responsibilities include ensuring effective irradiance delivery, maximizing skin exposure, providing eye protection and eye care, careful attention to thermoregulation, maintaining adequate hydration, promoting elimination, and supporting parent-infant interaction.

Methods : Descriptive Approach was used. Quasi-experimental one group pre-test post-test design (O1 X O2) was adopted for the study. The study was conducted at two selected hospitals of vidharba region out of them one is Semi Government Hospital and one were Private Hospital. 60, staff nurses working in paediatric unit of A.B.R.H.,Sawangi (meghe), Kasturba Hospital, Sevagram.

Results : The calculated 'p' value which was higher than the acceptable level of significance. This indicates that there is no statistically significant association of post-test knowledge scores with the any of the sample.

Conclusion : The calculated 'p' value for all the areas of knowledge regarding care of babies undergoing phototherapy was 0.000 which was less than 0.05 and which was acceptable level of significance. Hence the research hypothesis H1 is accepted. There was no significant association between age, gender, professional qualification, total clinical experience and area of working ward.

Keywords : Staff nurses; knowledge; care of babies; phototherapy

Introduction :

"Immature newborn brain is susceptible to toxicity from unconjugated bilirubin Resulting in "Kernicterus" or "bilirubin brain damage".

About 80% of preterm infants become jaundiced during the first week of life, compared to 45-60% term newborns born in India. Jaundice, or hyperbilirubinaemia, results from increased production and transiently impaired elimination of the pigment bilirubin. While most affected neonates recover rapidly, some infants show persistent high levels of unconjugated bilirubin levels. Such high levels can lead to Kernicterus, a condition involving deposition of bilirubin in the brain, which leads to deficits in cognition, neuromuscular tone and control, hearing, and even death. The most common therapy for neonatal hyperbilirubinaemia is phototherapy.

Bilirubin is a pigment produced when the liver processes waste products, especially hemoglobin in red blood cells. A high bilirubin level causes yellowing of the skin.5

Jaundice is a yellowing of the skin and the whites of the eyes from a bile pigment called bilirubin. It is frequently due to a liver problem.

Phototherapy is a treatment for hyperbilirubinaemia and jaundice in the newborn that involves the exposure of an infant's bare skin to intense fluorescent light. The blue range of light accelerates the excretion of bilirubin in the skin, decomposing it by photo oxidation.

Neonatal jaundice is a common condition and phototherapy is an accepted modality for its management. It converts unconjugated bilirubin to its oxidation products as well as to photo and structural isomers, which are easily eliminated through gastrointestinal tract or lost in urine. It has recently been demonstrated that phototherapy is an oxidative stress and can cause lipid per oxidation. Antioxidant activity in the serum of term neonates is lower than that of adults. It is still lower in preterm and low birth weight babies as compared to term babies. Red blood cells are extremely susceptible to lipid per oxidation since they are rich in unsaturated

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membrane lipids, which have rich supply of oxygen and transitional metal catalysts. Neonatal erythrocyte membrane is more susceptible to oxidative damage due to its predominant pro-oxidant potential. Therefore, they recommend a very cautious use of phototherapy in all patients of neonatal jaundice i.e. it should be administered only for the required duration and may be combined with antioxidant supplements. Large scale studies would be able to provide new insights in this field.3

Poor caloric intake and/or dehydration associated with inadequate breastfeeding may contribute to the development of hyperbilirubinaemia. Increasing the frequency of nursing care decreases the likelihood of subsequent hyperbilirubinaemia in breastfed infants. Providing appropriate support and advice to breastfeeding mothers increases the likelihood that breastfeeding will be successful.

Methodology

Research Approach : Descriptive Approach

Research Design : Quasi-experimental one group pre-test post-test design (O1 X O2) was adopted for the study.

Setting of The Study : The study was conducted at two selected hospitals of vidharba region out of them one is Semi Government Hospital and one were Private Hospital.

Population : The proposed study was undertaken in Kasturba Hospital, Sevagram and A.V.B.R.H Hospital , Sawangi which has the good strength of staff nurses.

Sample : 60, staff nurses working in paediatric unit of A.B.R.H., Sawangi (meghe), Kasturba Hospital, Sevagram.

Method of samples : non-probability convenient sampling.

Description of the sections :

Section I : Distribution of the nurses according to their demographic variables.

Section II : Assessment of the knowledge of nurses regarding care of babies undergoing phototherapy.

Section III : Effectiveness of self instructional module on knowledge regarding care of babies undergoing phototherapy among subjects.

Section IV : Association of post test knowledge regarding care of babies undergoing phototherapy among subjects with their selected demographic variables.

Data Analysis and Interpretation :

This chapter deals with a distribution of sample characteristic, analysis and interpretation of data collected in hospitals of Vidarbha region, for the quasi experimental research design, one group pre-test ,post- test without control group. Participants were selected by non probability convenient sampling. Sample comprises of staff nurses working in hospitals, sample size 60. The collected data was tabulated, analyzed and interpretated with the help of descriptive statistics based on objectives of the study.

Section I

This section deals with the percentage wise distribution of demographic variables of staff nurses such as age, gender, professional qualification, total clinical experience and area of working.

Table 1: Distribution of samples according to their demographic variables.

n=60

Demographic Characteristics	No. of staff nurses	Percentage (%)
Age (yrs)		
21-25	25	41.7
26-30	16	26.7
31-35	15	25.0
36 and more	4	6.7
Gender		
Male	1	1.7
Female	59	98.3
Professional Qualification		
Diploma in Nursing(GNM)	51	85.0
Basic B.Sc. Nursing	9	15.0
P.B.B.Sc Nursing	0	0.0
Total Clinical Experience (yrs)		
1- 5 years	32	53.3
6-10 years	20	33.3
11-15 years	8	13.3
Working ward		
NICU	26	43.3
PICU	16	26.7
General Paediatric Ward	18	30.0

The table 1 shows that, among the staff nurses 25(41.7%) were belonged to the age group of 21-25 years, 16(26.7%) were belonged to 26-30 years, 15(25.0%) were belonged to 31-35 years and 4(6.7%) were from 36 or more years.

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In context to gender, majority 59(98.3%) were females, 1(1.7%) staff nurses were male. Most of the staff nurses 51(85%) were diploma holders and 9(15%) were Basic Bsc nursing. Majority of staff nurses 32(53.3%) had 1-5 yrs of clinical experience, 20(33.3%) had 6-10years and 8(13.3%) had 11-15 years of clinical experience. Among the staff nurses 26(43.3%) were from NICU, 18(30.0%) were from general pediatric ward and 16(26.7%) were from PICU

SECTION II.

Table 2: Level of Knowledge scores regarding care of babies undergoing Phototherapy among subjects in pretest and post test

n=60

Level of knowledge	Score Range	Pretest Percentage (%)	Post test Percentage (%)
Poor	(Below 19%)	0(0%)	0(0%)
Average	(20-39%)	7(11.67%)	0(0%)
Good	(40-59%)	33(55%)	0(0%)
Very Good	(60-79%)	18(30%)	12(20%)
Excellent (≥80%)	(>80%)	2(3.33%)	48(80%)

Table 2 shows that, in pretest 33(55%) of subjects were having good knowledge, 18(30%) having very good knowledge and 7(11.67%) having average knowledge and 2(3.33%) having excellent knowledge regarding care of babies undergoing phototherapy whereas, in post test 48(80%) of subjects were having excellent knowledge and 12(20%) of subjects were having very good knowledge regarding care of babies undergoing phototherapy.

Table 3: Effectiveness of knowledge score regarding care of babies undergoing phototherapy among subjects in pretest and posttest.

n=60

	Mean	Standard Deviation	Mean percentage	t- value	p- value
Pre-test	18.96	2.68	54.17	28.74	0.000
Post test	30.58	1.68	87.37		S,p<0.05

The table 3 shows that, in pretest mean knowledge score obtained by the subjects was 18.96 and in the post test it increased to 30.58. The knowledge score of the subjects 'shows marked improvement after giving self instructional module. This indicates that self instructional module was effective in improving the knowledge of the staff nurses. The calculated't' value (28.75) was greater than tabulated't' value 2.00 at 5% level of significance which was statistically acceptable level of significance. The calculated 'p' value for knowledge regarding care of babies under going phototherapy was 0.000 which was less than 0.05 and which was acceptable level of significance. Hence the research hypothesis H1 is accepted.

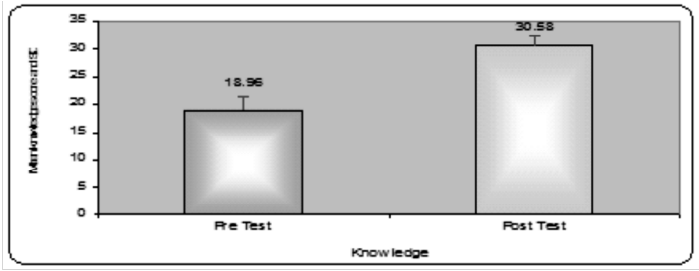

Figure 1: Comparison of knowledge score regarding care of babies undergoing phototherapy among staff nurses in pretest and posttest.

Section IV

This section deals with association of post-test knowledge of subjects with their age, gender, professional qualification, total clinical experience, and present area of working in pediatric unit.

The association of post -test knowledge of the subjects with their age. The calculated 'F' value is 1.63 which was less than the tabulated 'F' = 3.15 at 5% level of significance. The association of post -test knowledge of the subjects with their gender. The calculated 't' value is 0.24 which was less than the tabulated't' value 2.00 at 5% level of significance. The calculated 'p' value which was higher than the acceptable level of significance.The association of post -test knowledge of the subjects with their professional qualification. The calculated't' value is 0.58 which was less than the tabulated't' = 2.00 at 5% level of significance .The table association of post -test knowledge of the subjects with their years of clinical experience. The calculated 'F' value is 1.86which was less than the tabulated 'F' = 3.15 at 5% level of significance.. The association of post -test knowledge of the subjects with their area of working. The calculated 'F' value is 1.30 which was less than the tabulated 'F' = 3.15 at 5% level of significance. The calculated 'p' value which was higher than the acceptable level of significance. This indicates that there is no statistically

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significant association of post-test knowledge scores with the any of the sample..

Summary :

The study shows that, in pretest, 33(55%) of subjects were having good knowledge, 18(30%) having very good knowledge and 7(11.67%) having average knowledge and 2(3.33%) having excellent knowledge regarding care of babies undergoing phototherapy. In post test, 48(80%) of staff nurses were having excellent knowledge and 12(20%) of staff nurses having very good knowledge regarding care of babies undergoing phototherapy. The study shows that in pretest mean knowledge score obtained by the staff nurses were 18.96 and in the post test it increased to 30.58. The knowledge score of the staff nurses 'shows marked improvement after giving self instructional module. This indicates that self instructional module is effective in improving the knowledge of the staff nurses. From the above table; it is evidence by the calculated't' value (28.75) is greater than tabulated't' value 2.00 at 5% level of significance which was statistically acceptable level of significance. The calculated 'p' value for all the areas of knowledge regarding care of babies under going phototherapy was 0.000 which was less than 0.05 and which was acceptable level of significance. Hence the research hypothesis H1 is accepted. There was no significant association between age, gender, professional qualification, total clinical experience and area of working ward.

Implication for nursing

Nursing Service : It helped the nurses to enlarge their knowledge and importance of care during phototherapy and detection of complications sign and symptoms.

Nursing Education : It helped the staff nurses improve the technical care of baby undergoing phototherapy.

Nursing Administrator; It allows the administrator to know the importance of care of baby undergoing phototherapy.

Nursing Research : It focused on evidence based practice. It helped to fill the gap between the knowledge and practice.

References :

1) Marlow DR.Textbook of pediatric nursing, 6th edition.Noida:Elsevier publication; 2009.
2) Nelson. Textbook of pediatrics, 18th Edition.Vol.2, New Delhi: Elsevier publication;2008.
3) Achar.Textbook of pediatrics.3rd Edition.New Delhi:Orient Langman publication;2006.
4) Gupte Suraj. Textbook of pediatric. 11th Edition. New Delhi; jaypee publication; 2009.
5) O.P Ghai. Essential pediatrics, 7th Edition. New Delhi; CBS publication; 2007.
6) IAP Textbook of pediatrics ,4th Edition Vol.1, Jaypee brothers publication 2009.
7) Wongs, Nursing care of infants and children ,8th edition, Elsevier publisher.

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