International Journal of Research In Paediatric Nursing

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A study to assess the knowledge of staff nurses regarding the care of newborn during phototherapy in selected hospitals of Jaipur

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DOI: https://doi.org/10.33545/26641291.2020.v2.i2b.152

Abstract
Introduction: The neonatal jaundice (NNJ) is still a leading cause of preventable brain damage, physical and mental handicap, and early death among infants in many communities. Nearly 70% of term and 80% of preterm infants develop Jaundice during the First week of life. Jaundice is the frequent diagnosis and reason of post discharge readmission in any neonatal set-up. Phototherapy as a treatment modality has become the backbone of un-conjugated hyper-bilirubinemia in the neonate. It's noninvasive in nature and has fewer side effects as reported until now.
Objective: To assess the knowledge of staff nurses regarding the care of newborn during phototherapy in selected hospitals of Jaipur.
Methods: A descriptive survey research design was conducted among the 50 staff nurses working in Government Jaipuria hospital, Jaipur. The sample were selected by non-probability convenient sampling technique.
Results: The mean of knowledge score is 13.22 with 52.88% mean percentage median is 12.5 and the SD is 2.27.
Discussion: On the basis of the results it is concluded that the level 6% has adequate knowledge 52% moderate knowledge and 42% have inadequate knowledge.

Keywords: Assess, knowledge, new born, phototherapy

Introduction

All the parents have fruitful ambition to have healthy child. The child inherits their parent's characters and they are the future wealth of nation. The early life of the new born is the precious period and it is the risk period in human life cycle. In human life cycle from birth to 28 days is known as the newborn period. The newborn period the care of the period is very important one. The newborn period is for the potential for the several complication. It varies from mild to severe in intensity. Some of the commonest problems are asphyxia neonatorum, neonatal convulsions, neonatal jaundice and infections.

The neonatal jaundice (NNJ) is still a leading cause of preventable brain damage, physical and mental handicap, and early death among infants in many communities. Nearly 70% of term and 80% of preterm infants develop Jaundice during the First week of life. Jaundice is the frequent diagnosis and reason of post discharge readmission in any neonatal set-up. Phototherapy as a treatment modality has become the backbone of un-conjugated hyperbilirubinemia in the neonate. It's noninvasive in nature and has fewer side effects as reported until now. The sunshine's fading effect on the yellow skin colour of jaundiced newborns was discovered accidentally by an observant nurse in 1956. The first, controlled treatments of the condition of hyperbilirubinaemia were indeed performed with sunlight as the light source, but were very soon followed by the use of blue-light fluorescent lamps.

In jaundice or hyperbilirubinemia the bilirubin causes the often mild and reversible bilirubin encephalopathy, the more severe irreversible neurological damage or the deadly outcome, kernicterus. Bilirubin toxicity is not restricted only to the central nervous system, but may affect many different cell processes. The bulk of phototherapy research has been done on adverse effects, but unfortunately only a small part is relevant for *in vivo* conditions. The phototherapy is a boon to treat the person suffering with physiological jaundice.

Need of the study

Inadequate provision of care at birth and in the first 48 hours of birth remains a largely

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unaddressed neonatal problem. The major causes of deaths during the newborn period was birth asphyxia, problems related to low birth weight as hypothermia, respiratory problems, intra partum infections are needed to tackle neonatal mortality. India carries the single share of the neonatal deaths of the world around 30%. In this 2/3 deaths occur in first 28 days and 45% within 2 days.

About 3% of all hospital-born babies in India develop significant jaundice, with total Serum Bilirubin (TSB) levels more than 15 mg/dL [1]. Phototherapy is a useful method for treating neonatal hyperbilirubinemia because it is easily available and devoid of all complications of double volume exchange. Transfusions. The efficacy of phototherapy depends on the dose and wavelength of light, used and the surface area exposed [2]. Phototherapy is associated with side-effects like dehydration and hyperthermia.

Un-conjugated hyperbilirubinemia is commonly observed in all preterm infants, especially in very low birth weight newborns. Studies show that the large amount of short-lived red blood cells, and the increase in enterohepatic circulation of bilirubin and the deficient hepatic conjugation of bilirubin are the most important physiological conditions that cause hyperbilirubinemia. In addition, the delayed implementation of enteral nutrition, which is common in critically ill preterm newborns, may restrict intestinal blood flow and enhance the enter hepatic reuptake of bilirubin. Therefore, due to erythrocyte, hepatic and gastrointestinal immaturity, "physiological" jaundice is more intense than that observed in full-term newborns. The total bilirubin concentration ranges between 10 and 12 mg/dl on the fifth day of life and may not reach normal values until the end of the first month. The above findings supported that the photo therapy helps to reduce serum bilirubin level for both preterm and full term newborns.

Aim of the study

The main aim of the study is to assess the knowledge of staff nurses regarding the care of newborn during phototherapy in selected hospitals of Jaipur.

Research Methodology

The research design adopted for the present study was descriptive survey research design. In the present study it refers to the level of knowledge of staff nurses regarding the care of newborn on phototherapy. Demographic variables selected for this study are age, gender professional qualification, income per menthe, year of experience. The present study was conducted in Government Jaipuria hospital, Jaipur. The target population for the study was staff nurses working in Government Jaipuria hospital, Jaipur. Sample size is 50 staff nurses working in Government Jaipuria hospital, Jaipur. The sampling technique used for this study is Non-probability convenient sampling technique.

The instrument selected in a research should as far as possible be vehicle that would best obtaining data for drawing conclusions, which are pertinent to the data four point multiple choice type of semi structured questionnaire used to assess the knowledge of care of newborn on photo therapy.

The following data collection instruments were constructed in order to obtain data

- **Part I:** Socio demographic variables consist of age, gender professional qualification, income per menthe, year of experience
- **Part II:** The semi structured questionnaire consists of the 25 items in the form of multiple choice questionnaires. The item no. from 1 to 7 related to the meaning and uses of the photo therapy from the no.8 to 20 related to the nurse's role during, before and after the photo therapy, from the no.21 to 25 related to the caution about the adverse effects photo therapy.

The reliability was calculated by using split half method. Inter rated score was 0.85 and found to be highly reliable.

Data collection procedure: The formal permission was taken from the authorized personnel in the Government hospital Jaipur. The data collected according to the convenience subjects. After obtaining the permission the investigator met the subjects and established rapport with them after ensuring the physical comforts. A written informed concerned was taken separately from each subjects. Appropriate orientation was given to the subjects about the aim of the study, Nature of the questionnaire and adequate care was taken for protecting the subjects from the potential risks including maintaining confidentiality, security and identity.

Results
Aspect wise mean knowledge of photo therapy among the staff nurses

Table 1: Aspect wise mean knowledge of photo therapy among the staff nurses

S. No.	Aspects	Max. Score	Respondents Knowledge		
			Mean	Mean %	SD
1.	Meaning and uses of photo therapy	7	5.84	83%	0.99
2.	Nurses responsibilities related care of newborn on photo therapy	13	5.56	42.79%	1.87
3.	Adverse effects of photo therapy.	5	1.82	36.3%	0.89
4.	Over all knowledge	25	13.22	52.88%	2.27

The first part that is related to Meaning and uses of photo therapy the mean is 5.84 with 83% mean percentage median is 5 and the SD is 0.99.

The second part that is related to Nurses responsibilities related care of newborn on photo therapy the mean is 5.56 with 42.79% mean percentage median is 6 and the SD is 1.87.

The third part that is related to adverse effects of photo therapy the mean is 1.82 with 36.3% mean percentage median is 2 and the SD is 0.89.

The overall mean is 13.22 with 52.88% mean percentage median is 12.5 and the SD is 2.27.

Association Level of Knowledge Regarding care of newborn during phototherapy Of Staff Nurses with Their Demographic Variable.

Table 2: Association level of knowledge regarding care of newborn during phototherapy of staff nurses with their demographic variable

S. No.	Demographic Variable	DF	Tabulated Value	Calculated Value	Significant / Not Significant
1.	Age	6	12.59	1.11	Not Significant
2.	Gender	2	5.99	0.91	Not Significant
3.	Professional qualification	2	5.99	8.78	Significant
4.	Income per month	4	9.49	0.9	Not Significant
5.	Year of experience	4	9.49	11.74	Significant

Data presented in table 2 reveals that the demographic variables like age (χ^2 1.11, $p>0.05$), gender (χ^2 0.91, $p>0.05$) and income per month (χ^2 0.9, $p>0.05$) was less than the table value, which indicates that there was no association with the knowledge of staff nurses at 0.05 level of significance. The hypothesis H_1 is rejected.

The demographic variables like professional qualification (χ^2 8.78, $p>0.05$), year of experience (χ^2 11.74, $p>0.05$) was more than the table value, which indicates that there was association with the knowledge of staff nurse at 0.05 level of significance. The hypothesis H_1 is accepted.

Conclusion

The overall mean knowledge about the care of newborn on photo therapy was 52.88%.among the staff nurses. Based on the level 6% has adequate knowledge 52% moderate knowledge and 42% have inadequate knowledge.

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