EVALUATION OF MATERNAL KNOWLEDGE & PERCEPTIONS ON NEONATAL JAUNDICE (A HOSPITAL BASED SURVEY)

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ABSTRACT

Objective: This cross sectional study was conducted to assess maternal knowledge and perceptions of pathological jaundice with association of mother's characteristics with the knowledge.

Methods: A descriptive study was carried out on 100 mothers of the sick infants visiting Pediatrics' department. All the consenting mothers of sick infants were conveniently enrolled in the study. Paramedic staff mothers and mothers who did not consent were excluded. A self-structured questionnaire was developed to assess mother's knowledge and validated through pilot study. Maternal knowledge scores were graded into outstanding (95- 100%), very good (85- 94%), satisfactory (75- 84%), very weak (65- 74%) and less than 65% as unsatisfactory.

Ethical clearance was obtained. The collected data was analyzed through SPSS Version- 21 by computing frequencies, percentages and inferential statistics by Chi Square Test with significance level set at 0.05.

Results: The mean maternal age was 26.43 years $\pm$ 5.675 with 51% uneducated and 23% had university level education. Two third (91%) of the mothers were housewives.

Thirty-four percent mothers had satisfactory, 14% very good, 1% outstanding, 18% very weak and 29% unsatisfactory knowledge of pathological jaundice. Maternal knowledge about neonatal jaundice had direct association with father's occupation (P value= 0.02) and maternal age (P value= 0.02).

Conclusion: Mothers showed satisfactory knowledge of neonatal pathological jaundice in terms of awareness, causes, complications and treatment options. Maternal age and father's occupation was significant against the maternal knowledge of neonatal jaundice.

Keywords: Knowledge, Mothers, Neonatal Jaundice, Kernicterus.

INTRODUCTION

Neonatal jaundice is a common problem in neonates. First 28 days of an infant's life termed as ''neonatal period'' is the most vulnerable and dangerous time. Morbidity and mortality associated with it is seen mostly in African, Latin American, Asian and developing nations. Globally 60% term and 80% pre term babies develop Neonatal Jaundice usually a harmless condition although can lead to severe form causing brain damage [1, 2].

A yellow substance known as bilirubin is made while replacing older red blood cells with high level of bilirubin in the blood that makes the baby's skin and eyes appear yellow and is commonly known as Neonatal Jaundice. Physiological jaundice is seen in new born babies at day 2- 4 without harming and disappearing after two week's period. Pathological jaundice can lead to kernicterus that causes death and longtime disability if they survive. However maternal risk factors like pre-eclampsia, sickle cell anemia, Rh incompatibility, infections and fetal factors as age, gender, nutrition and lack of enzymatic proteins may cause the bilirubin to increase in the blood and severe discoloration of skin appears. It's hard to remove bilirubin from the body in case of rubella infection, cystic fibrosis and hepatitis [3].

An analytical study carried out on ante natal mothers in Nigeria through interview based questionnaires revealed 96% mothers well versed with the term through their health care providers and friends but 4% of the study population did not have heard about neonatal jaundice. However, knowledge of danger signs, complications and causes was very deficient. This inadequate knowledge puts them in serious condition of ignoring the causes that endangers the infant life that could have easily be managed and prevented. Expectant mothers of this study believed the sunlight to be a treatment modality [4]. Babies with neonatal jaundice are exposed to sunlight as a common tradition as well as treatment option in Sub Saharan countries, although such a practice exposes the baby to danger of infrared

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and ultraviolet rays causing sunburns [5, 6].

A hospital based case control study with cross sectional design was conducted in various ethnic groups in Ghana. This assessed maternal knowledge on neonatal jaundice and identified possible causes of NNJ. Low neonatal birth weight and prolonged labor were found to be associated with neonatal jaundice with deficient knowledge of causes and the condition [7].

A mother infant paired cross sectional study concluded prevalence of NNJ on the basis of NICE guidelines as 55.2% with 10% black babies clinically diagnosed as having jaundice. Here they found mode of delivery as the sole risk factor for NNJ. They found ethnicity and maternal smoking as non- protective factors for NNJ[8]. Similar prevalence of 50- 60% was also found in many other studies [9, 10].

A study published in Lancet Global Health showed that filtered sunlight phototherapy (FSPT) can be safe and effective as compared to traditional intensive electric phototherapy (IEPT) for treatment of neonatal jaundice. FSPT was shown to be effective on 116 infants (87·2%) in 133 treatment days and IEPT upon 135 infants (88·8%) in 152 treatment days (mean difference −1·6% [95% CI −9·9 to 6·7]; p=0·8165). This intervention proved to be safe for all the participating neonates [11]. Mother's knowledge with attitude and behaviors were assessed in a Pakistani study in relation to neonatal jaundice which was acceptable for the diagnostic methods however mothers had deficient knowledge of causes, complications and preventive strategies. The results of this cross sectional study showed a direct correlation among knowledge, attitude and behaviors of the mothers (p- value= 0.001) [12].

Inadequate and suboptimal knowledge of the mothers regarding neonatal jaundice was found in a study conducted at an immunization clinic of Lucknow-India. Less than 50% knew only three of the symptoms associated with jaundice. Few of the mothers had information about the complications and mostly had misconceptions that the diet in antenatal period could prevent this condition in their babies [13]. Poor knowledge and perceptions were found among mothers regarding neonatal jaundice and maternal education was associated with the knowledge. Maternal education has been identified as the most significant social determinant of child mortality [14].

Neonatal Jaundice appears to be a very common topic but can be seen with severe complications like encephalopathy, deafness, mental retardation and cerebral palsy. Effective treatment modalities in the form of phototherapy are available but prompt recognition of pathological jaundice in neonates can prevent them from developing kernicterus. Mother's knowledge about characteristics of jaundice in neonates can point towards pathological jaundice and immediate health care can be sought by them. Parents specially the mother' knowledge is a strong predictor of the final outcome of Neonatal Jaundice. This recommends mother's role being highly important to identify this condition as early as possible and save the baby. Nowadays increasing trend of home deliveries, early discharges from the hospitals after delivery and minimal post-natal stay at the hospital lays a heavy responsibility on the mother's shoulders to recognize this complicated situation in neonates [15].

Increased amount of unsupervised deliveries at the hands of untrained personals in rural and urban areas, added to the deaths of females as well as neonates. Moreover, maternal deficient knowledge of the warning signs puts a huge threat towards mortalities. This paved the way for conduction of this study. The present study assessed maternal knowledge and awareness about characteristics of neonatal jaundice that points towards pathological jaundice and to establish an association of maternal knowledge with her educational status. This study will be a pioneer one and initial step towards curbing these deaths in this area as far as our meager knowledge and web searching and browsing is concerned.

MATERIALS & METHODS

A hospital based descriptive prospective cross sectional study was carried out on 100 mothers of the sick infants visiting Pediatrics' department of a private teaching hospital. Increase trend of home deliveries at the hand of untrained dais in rural as well as urban areas with loss of precious human life with the angels and maternal ignorance to identify early symptoms were the basic intents behind this study.

All the mothers of sick infants, at outpatient as well as inpatient who gave consent were conveniently enrolled in the study. Participation in the study was voluntary with no financial benefit. Paramedic staff mothers, sick females, mothers admitted in intensive care unit and the ones who refused to be included in the study were excluded from the study. Convenient sampling technique used for recruitment of the participating mothers, who were pouring in for outpatient and inpatient department. Age, maternal occupation, maternal education, paternal occupation, parity and residential location were the independent variables of this study, whereas dependent variables of interest were maternal awareness, perceptions and knowledge of neonatal jaundice.

A self-structured questionnaire with 22 items was developed to ascertain maternal knowledge regarding pathological neonatal jaundice and was validated through a pilot study.

The questionnaire included socio demographic variables as age maternal age, maternal educational status, maternal occupation, parity, age of the last born child, place of residence and paternal education. The

knowledge of the mothers was assessed in relation to awareness of yellow discoloration; term used for this yellow discoloration in common practice; causes of pathological jaundice; correct site indicating pathological jaundice; risk factors; danger signs; complications; and treatment options available for this type of jaundice.

Respondents' answers were graded by utilizing the in creating a knowledge score with correct option as yes was given one mark, no and do not know option as zero. There were total of 22 questions out of which 7 were socio-demographic and 12 were about neonatal pathological jaundice. Total score of the correct answers to the questions were 12 marks. Maternal knowledge scores were graded into outstanding (95- 100%), very good (85- 94%), satisfactory (75- 84%), very weak (65- 74%) and less than 65% as unsatisfactory.

Ethical clearance was obtained from the ethical committee of Peshawar Medical College. The study was conducted through house officers under the supervision of the authors with proper verbal consent from the participants.

The collected information was handled with strict confidentiality. Analysis was performed through SPSS Version- 21 by computing descriptive statistics for socio- demographic variables and results generated as frequencies and percentages. Inferential statistics were computed for association of knowledge scores with socio demographic variables by Chi Square Test setting the significant level at 0.05.

RESULTS

In the present study, a total of 100 eligible consenting mothers were interviewed through a validated structured questionnaire. Table- 1 presents the detailed socio- demographic variables of the parents with minimum, maximum, mean and standard deviation values..

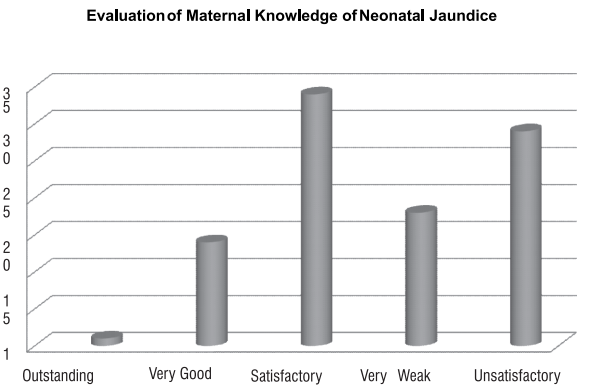
The mean age of the study participants was 26.43 years (SD; 5.675). Maximum mothers (n= 60) were in the range 25- 30 years, with 18 mothers in 25 and 30 years respectively. The youngest mother to participate was 16 years of age whereas the maximum age came out to be 42 years. Only 23% of the mothers had been educated up to university level, however 51% mothers were uneducated and only 5 of the participants had primary level education received. Twenty mothers hailed from district Peshawar mainly from Hayatabad and Tehkal town whereas least study participants (n= 1) were from multiple districts, cities and townships. Twenty-three of the mothers had only one sibling, 25% had two children while eighteen mothers reported to have more than four children. Mostly mothers (n= 13) had infants of one day with them followed by 11 month old infants by (n= 6) mothers. Two third of the mothers (n= 91) happened to be housewives with one each in teaching and learning profession. Fathers were mostly on the roads as drivers (n= 15) by profession, very few (n=10) in government job and only six in business. Among the rest, were involved in multiple professions.

Graph- 1 gives maternal knowledge grading into categories of percentages. No association was found among demographic variables and maternal knowledge however fathers' occupation was found to be significant against the knowledge of jaundice being common in children (P value= 0.02) and maternal age with knowledge of the blood test to identify neonatal jaundice (P value= 0.02).

Table- 2 gives details of the maternal knowledge of neonatal jaundice along with their frequencies and percentages.

DISCUSSION

Globally Neonatal Jaundice is the most common disorder among the children of one week; if it is not evaluated and clinically managed would contribute significantly toward infant's death [4]. The present study revealed overall satisfactory level of maternal knowledge regarding neonatal jaundice. The amazingly majority of mothers were aware of causes and complications, however had least knowledge about the fact that presence of jaundice on palms and soles means significant jaundice. Also the knowledge about treatment options for the neonatal pathological jaundice was lacking. Maternal knowledge although was at satisfactory level but still they were ignorant about the facts that appearance of jaundice in first 24 hours is abnormal. They were also not aware of infection causing neonatal jaundice and breastfeeding related jaundice in babies. The results from the present study correlate with the studies done in other parts of the world [4, 5, 6] however the mothers had good attitude of neonatal jaundice (90%), utilized ineffective preventive and treatment practices [6] these aspects were not assessed in our present study. Mothers in these studiers depicted inadequate knowledge regarding pathological neonatal jaundice and its causes, contrary to the results of our present study. However, majority of the neonates developed jaundice in first 3 days with 10% at birth, duration of labor and birth weight



GRAPH-1: Maternal Knowledge Scores of Neonatal Jaundice

Table- 1: Descriptive Statistics of Socio Demographic Variables (n= 100)

Socio Demographic Variables	Minimum	Maximum	Mean	S.D
Age of the Respondent	16	42	26.43	5.675
Educational Attainment	01	04	3.20	0.943
Residence	01	64	25.51	21.616
Number of Children	01	08	3.04	1.836
Maternal Occupation	01	05	1.17	0.637
Father's Occupation	00	37	11.39	11.022

S. D= Standard Deviation

Table- 2: Evaluation of Maternal Knowledge & Perceptions on Neonatal Jaundice

KNOWLEDGE AREA	YES (n)	NO (n)	DNK (n)
AWARENESS OF JAUNDICE			
Awareness about Yellow discoloration of skin/ eyes	69	09	27
What is it called commonly?	Jaundice (81); Yarqan (08); DNK (11)		
Exposure of her previous children in first 28 days?	68	25	07
AWARENESS OF PATHOLOGICAL JAUNDICE			
Neonatal Jaundice is a common problem	91	07	02
Is Jaundice in first 24 Hours abnormal?	37	43	20
Yellow discoloration on which body part indicates severe Jaundice?			
Face; Chest; Palms; Do Not Know	Face (20); Chest (32); Palms (04); DNK (44)		
Do babies have higher risk of Jaundice, if mother & baby's blood group are different?	61	09	30
Are preterm and low birth weight babies are at risk of Jaundice?	70	08	22
Jaundice not resolving in 2 weeks is abnormal?	80	07	13
Infection can cause jaundice?	45	29	26
Severe Jaundice can cause death?	93	03	04
Severe Jaundice can cause severe brain death?	84	05	11
Severe Jaundice can cause hearing problem?	64	17	19
Are blood tests needed to assess Jaundice?	88	06	06
Which of the following are the treatment modalities? Phototherapy, Exchange Transfusion, Do Not Know	66		
(PT)	11		
(ET)	23		
(DNK)			
Can Exclusive Brest feeding can cause jaundice?	16	71	13

DNK= Do Not know; PT= Phototherapy; ET; Exchange Transfusion

were significantly associated with neonatal jaundice. These elements were not assessed in this particular study. The mean age of mothers WAS (28 Years) was also different from this study (26 Years) [7].

An Iranian study interviewed 400 mothers delivered in a local hospital to determine their knowledge, attitude and behaviors for neonatal jaundice. The mean maternal age was 26.8 years exactly same as this present study. Mothers had inadequate knowledge about the causes, complication and presenting symptoms of neonatal jaundice contrary to the satisfactory level of knowledge in the present study. Mother's knowledge had a significant association with history of neonatal jaundice, maternal age and birth ranking of children contrary to the present findings, where only maternal age was associated. Direct correlation was depicted among knowledge, attitude and maternal behaviors that were not assessed in this study [12]. Unsatisfactory and suboptimal neonatal knowledge regarding symptoms and complications found in this hospital based study at an immunization clinic of Lucknow- India [13] with misconceptions of diet as treatment option for NNJ, contrary to the present study results. Poor knowledge and incorrect perceptions of NNJ found in a mix method study and better knowledge depicted in educated mothers only [14] that are totally opposite to present study findings. Poor knowledge and perception of NNJ causes and management were seen in India and developing setting studies. They practiced instilling of glucose water and breast milk into neonates eyes as a treatment technique for clearing neonatal jaundice however mother's educational status, parity, newborn care and occupation were significantly associated with knowledge and attitude [15, 16]. Results of these researches are totally unrelated to the present study where no such harmful practices were noticed, however maternal age in the present study was found to be significant against the knowledge of a test recommended for neonatal jaundice with paternal occupation significantly associated with the knowledge of NNJ.

Appropriate attitudes and behaviors of mothers were concluded in a Nigerian study with 69% of mother's recognized neonatal jaundice in their babies. These findings are in consistency with the present study except the attitudes and behaviors not recorded [17]. Education on neonatal jaundice was given to the visiting mothers while taking their infants to health clinics, so 93% had good knowledge of this condition. Our results correlate with this study from Pakistan [18]. A comprehensive Saudi Arabian study was conducted to assess knowledge, attitudes and behaviors of both parents. Sufficient knowledge regarding neonatal jaundice was found among the parents that are consistent with this study however some interesting inquiries made from parents like effective treatment for NNJ, etiology and warning signs that were missing from this particular hospital based survey [19].

Strengths of this study were the response rate from the mothers in answering the questions and their adequate and satisfactory knowledge despite of being ill literate mothers. Limitations pertaining to this study included self-reported data from the mothers that was subjected to recall bias that could have inaccuracies in information resulting in measurement and errors in the analysis. This study was unable to establish any relationship between knowledge, attitudes and behaviors of the mothers as we the researchers only assessed the knowledge domain. It also suffers from courtesy and recall biases, but efforts were made to minimize these by assuring confidentiality of the collected information. Our inability to assess the serum bilirubin, blood groups and furthers tests of neonates could serve as a limitation but these were not our objectives. Also, the study is limited by the small number of sample size that could not be extrapolated.

CONCLUSIONS

Maternal knowledge of pathological neonatal jaundice was concluded to be satisfactory in terms of awareness, causes, complications and treatment. There was no significant association of maternal socio demographic variables except age with knowledge of neonatal pathological jaundice.

Recommendations

Parents especially mothers must be educated on Neonatal Jaundice through variety of resources i. e seminars, workshops and counseling sessions to enhance their understanding and saving the babies.

Future research projects must focus not only on knowledge domains, but attention must be paid to attitudes as well as health seeking behaviors and practices for such conditions.

Ineffective preventive strategies prevail in society so deliberate efforts be made in this regard.

Ante natal Post-natal session for mothers be in regular practice to educate mothers regarding harmful traditional practices.

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