A STUDY TO ASSESS THE KNOWLEDGE REGARDING HIB VACCINATION AMONG THE MOTHERS OF NEONATE WITH A VIEW TO DEVELOP AN INFORMATION GUIDE SHEET ON IMPORTANCE OF HIB VACCINATION

Dr. Ravindra H.N

Professor,

Sumandeep Nursing College,

Sumandeep Vidyapeeth deemed to be University,

Piparia, Waghodia, Vadodara – 391760, Gujarat, India.

Email. ravindrahn23@hotmail.com

ABSTRACT

Background of the study: Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert over between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. It has clearly defined target groups; it can be delivered effectively through outreach activities; and vaccination does not require any major lifestyle change.HIB disease is a serious disease caused by a gram-negative rod-shaped bacterium estimated to be responsible for some three million serious disease. It usually strikes children under 5 years old. Haemophilus influenza, formerly called Pfeiffer's bacillus or bacillus influenza was first described in 1892 by Richard Pfeiffer's.

Objectives of the study: The investigator aimed to assess the knowledge on HIB vaccination among mothers of Neonate and to findout the association between knowledge on HIB vaccination with selected demographic variablesin a view to develop an information guide sheet.

Material and methods: In this study a quantitative research approach with descriptive survey research design was adopted in order to accomplish the main

objective of the present study. The sampling technique used is non-probability purposive sampling technique which fulfilled the criteria for selection of the sample. Data was collected by preparing a structured knowledge questionnaire to assess the knowledge of HIB vaccination among the mothers of neonates.

Results: The collected data was tabulated and analyzed by using descriptive and inferential statistics.The result shows that among majority of the samples (73%)respondents had inadequate knowledge, (27%) respondents had moderate knowledge regarding HIB vaccination.

Conclusion: The findings of the study shows that the public health nurse have a vital role in creating health consciousness among the people and also to identify children who are at risk by periodic assessment of children.Mothers need education on importance of National Immunization schedule and adherence to the timings in the given immunization card.Education campaign will help to reduce the incidence of vaccine preventable Diseases.Nursing practice optimally enables mothers to examine what is known and make choice that best fit for their children.

Key Words: Knowledge,HIB vaccination,Mothers,Neonates.

INTRODUCTION

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease[1].Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert over between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. It has clearly defined target groups; it can be delivered effectively through outreach activities; and vaccination does not require any major lifestyle change.[2]

HIB vaccine protects against Haemophilus influenza type B infection, all infants should receive a primary series of conjugate HIB vaccine beginning at the age 2, 4, 6

months and booster or dose 12-15 months. The number of doses in the primary depends on the type of vaccine used. The optimal interval between doses is 2 months, with a minimum interval of 1 month.   At least 2 months should separate the booster dose from the previous dose. HIB vaccines may be given simultaneously with all other vaccines. Unvaccinated infants and children ages 7 month and older might not require a full series of 3 or 4 doses. Previously unvaccinated children 15-59 months of age should receive a single dose of any conjugate HIB vaccine.[3]

The World Health Organisation (WHO) estimates that 45% of deaths among children under the age of 5 years occur during the newborn period[4]. More specifically, neonatal infections currently account for ~ 700,000 of these deaths and ~ 7 million cases per year, with the greatest proportion affected and most severe outcomes in poorly resourced areas [5]. The burden of disease is high at this early stage due to the unique nature of the neonatal immune system specifically adapted to postnatal life, but simultaneously susceptible to infection and suboptimal vaccine responses. The transition from the sheltered in-utero environment to the 'outside world', the lack of defense from vaccine-induced antibody and the profile of early pathogenic organisms all contribute to the newborn's vulnerability to microbial and environmental insults. Despite the limited ability of the neonatal immune system to develop potent memory responses, the success of the three vaccines administered in the immediate neonatal period, Bacillus Calmette–Guérin (BCG), hepatitis B vaccine (HBV) and oral polio vaccine (OPV), confirms that newborn vaccination can be effective at preventing three quite different diseases [6]. Furthermore, recent technological advances have enabled in vitro and in vivo modelling of early immune ontogeny with detailed characterization of mechanistic processes. Along with the introduction of several significant global policy and funding initiatives to promote newborn and infant health, this has resulted in renewed interest in neonatal immunization as an important tool to reduce the unacceptably high figure of neonatal mortality [7].

REVIEW IF LITERATURE

Mira kojouharova (2002)conducted a population based surveillance study with the objective to assess the incidence of meningitis caused by HIB among the children and to use the HIB vaccines, the study has undertaken for about 2.5 year,

surveillance was conducted among 138 249 children aged <5 years — a sample representing 40% of all children in this age group. Overall, 285 children with suspected meningitis were identified. In eight children, clinical symptoms of meningitis resolved rapidly before a CSF specimen could be obtained. Of the remaining 277 children, 121 (44%) were classified as having probable bacterial meningitis on the basis of a CSF examination. An organism was identified for 88 (73%) of the 121 cases with probable bacterial meningitis. There were 21 cases of Hib, giving a mean annual incidence of 6.1 Hib meningitis cases per 100 000 children <5 years; the case-fatality rate was 10%. Nearly 60% of Hib isolates were resistant to one or more antibiotics, but they were not resistant to third-generation cephalosporins.[8]

Adegbola R, Secka O, LahaiG(2009) conducted a prospective study to know the effectiveness of the vaccine when delivered through the expanded programme on immunization and the effect of national immunization on incidence of Hib disease. a total of 5984 children were examined for possible Hib infections. 49 children had Hib disease, 36 of whom had meningitis. The annual incidence rates of Hib meningitis before any use of the vaccine (1990-93) dropped from over 200 per 100,000 children aged younger than 1 year to none per 100,000 in 2002, and from 60 to no cases per 100,000 in children younger than 5 years. The prevalence of Hib carriage decreased from 12% to 0.25% (p<0.0001). Two doses of vaccine were needed for direct protection from Hib disease (vaccine efficacy 94%, 95% CI 62-99). Since most children received a protective dose after the age of greatest disease risk, indirect effects were important in reducing disease incidence. Hib immunization programme reduced the occurrence of Hib disease despite irregular vaccine supply. The effect of the programme has important implications for the introduction of the vaccine into routine immunization programme of other developing countries.[9]

RESEARCH METHODOLOGY

The present study was conducted by using descriptive survey research design. The population in the study consisted of mothers of neonates of Dhiraj Hospital, Waghodia (India). Out of whom 100 care givers were selected as a sample by using

non-probability purposive sampling technique. The study included the samples who were mothers of neonates at Dhiraj Hospital.

The data collection tool included two sections, the first one consists socio demographic characteristics such as age of mother, education of the mother, occupation of the mother, religion, family type, monthly income, area of domicile and source of information. and the second one was structured knowledge questionnaire for measuring the knowledge regarding the importance on HIB vaccination. The total score was calculated by summing up the answers given to the questions and categorized as inadequate, moderate, andadequate. The reliability of the self-structured questionnaire was measured by using split half correlation. The correlation coefficient for these data is +0.85. The split half correlation of +.80 or greater generally considered good internal consistency.

DATA COLLECTION AND ANALYSIS PROCESS

The data regarding samples were taken from Dhiraj hospital by the researcher and co-researchers. A formal permission was obtained from Medical Superintendent of Dhiraj hospital, Waghodia, Vadodara. After a brief self-introduction and building the rapport with mothers of neonates who were selected by non-probability purposive sampling technique. The investigator had given brief details about the nature of the study and a written consent was obtained from the sample and confidentiality of the responses to be assured. First the knowledge of the mothers of neonates regarding HIB vaccination was assessed by structured questionnaire.Data collection process was extended up to two months and completed when the desirable samples (100) were obtained. Data were analyzed by using descriptive statistics (The mean and standard deviation).

RESULTS

A total of 100 mothers of neonates were included in the final study for analysis. The majority of the participants were (35%) age group of 31-35 years among them 30% of mothers were educated up to secondary high school, 35% of the mothers were housewife from them 54% of mothers were of Hindu religion and 26% belongs to nuclear family. Majority (31%) of mothers were having 1000-2000 monthly family

income moreover 45% of mothers were having No information regarding HIB vaccination. **(Table:1)**

VARIABLES	CATEGORY	FREQUENCY
AGE	BELOW 25 YEARS	20%
	26-30 YEARS	25%
	31-35 YEARS	35%
	36 AND ABOVE	20%
EDUCATION	ILLITERATE	26%
	PRIMARY SCHOOL	20%
	HIGH SCHOOL	24%
	SECONDARYSCHOOLANDABOVE	30%
OCCUPATION	HOUSEWIFE	35%
	GOVERNMENT EMPLOYEE	20%
	PRIVATE EMPLOYEE	25%
	OTHERS	20%
RELIGION	HINDU	54%
	MUSLIM	24%
	CHRISTIAN	20%
	OTHERS	2%
FAMILY TYPE	NUCLEAR FAMILY	26%
	JOINT FAMILY	30%
	EXTENDED FAMILY	20%
	SINGLE PARENT FAMILY	24%
INCOME	BELOW 1000/MONTH	26%
	RS 1000-2000/MONTH	31%
	RS 2001-3000/MONTH	20%
	RS 30001 AND ABOVE	23%
SOURCE OF INFORMATION	YES	45%
	NO	55%

DISTRIBUTION OF KNOWLEDGE SCORE OF MOTHERS OF NEONATES REGARDING HIB VACCINATION. (TABLE-2)

		N= 100	
Level of knowledge	Score	No of Respondents	
		No	%
Inadequate	< 50%	73	73
Moderate	50--75%	27	27
Adequate	> 75%	0	0

Association between demographic variables and Knowledge scores on HIB vaccination among mothers of Neonate. (TABLE-3)

S.No	Demographic variables	No	%	Knowledge scores				Chi square
				< Median		≥ Median		
				No	%	No	%	
1	**Age of the Mother**							
	Below 25 years	20	20	12	30.77	8	13.11	12.22*
	26- 30 years	25	25	14	35.90	11	18.03	df 3
	31 – 35 years	35	35	8	20.51	27	44.26	**S**
	35 years and above	20	20	5	12.82	15	24.59	
2	Education of the Mother							
	Illiterate	26	26	15	38.46	11	18.03	9.7*
	Primary school	20	20	10	25.64	10	16.39	df 3
	High school	24	24	8	20.51	16	26.23	**S**
	Secondary school and above	30	30	6	15.38	24	39.34	

3	Occupation of the Mother						
	a. House wife	35	35	8	20.51	27	44.98	12.22*
	b. Government employer	20	20	5	12.82	15	24.59	df 3
	c. Private employer	25	25	14	35.90	11	18.03	**S**
	d. Others	20	20	12	30.08	8	13.11	
4	Religion						
	Hindu	54	54	18	46.15	36	59.02	
	Muslim	24	24	11	28.21	13	21.31	4.33
	Christian	20	20	8	20.51	12	19.67	df 3
	Others	2	2	2	5.13	0	0.00	NS
5	Family type						
	Nuclear family	26	26	15	38.46	11	18.03	9.8*
	Joint family	30	30	6	15.38	24	39.34	df 3
	Extended family	20	20	10	25.64	10	16.39	**S**
	Single parent family	24	24	8	20.51	16	26.23	
6	Monthly Income						
	Below Rs1000/month	26	26	3	7.69	23	37.70	12*
	Rs1001-Rs2000/month	31	31	17	43.59	14	22.95	df 3
	Rs2001-Rs3000/month	20	20	9	23.08	11	18.03	**S**
	Rs 3001 and above	23	23	10	25.64	13	21.31	
7.1	Do you have any information about HIB vaccination?						
	Yes	45	45	11	28.20	35	57.37	df 1
	No	55	55	20	51.28	34	55.73	2.59 N S
	If yes, from whom you got information?						
	Health Professionals	20	20	4	10.25	16	26.22	28.3*
	Mass media	10	10	2	5.12	8	13.11	df 3
	Neighborsand relatives	15	15	3	7.69	12	19.67	**S**
7.2	Others	0	0	0	0	0	0	

N.S- Not Significant *S- Significant at p<0.05 level

Data presented in the above table indicated, association between demographic variables and knowledge scores on HIB vaccination among mothers of Neonate. There exists a significant association between knowledge score on HIB vaccination among mothers of Neonate and the selected demographic variable such as age (χ^2=12.22), education(χ^2=9.7), occupation(χ^2=12.17), Family type(χ^2=12.9), Monthly income(χ^2=11.67) and source of information(χ^2 = 28.3). Hence, H_1 is accepted.

There is no significant association between religion and knowledge score (χ^2 = 4.33 at $P< 0.05$) and source of information (χ^2 = 2.59 at $P<0.05$). Hence, H_1 is rejected.

DISCUSSION

The result of the survey are the first to provide detail information about the knowledge of mothers of neonates regarding HIB vaccination.Several studies on the immunization status of children have been published in various countries at different times and comparisons with this studies are interesting but must be made cautiously indeed,since many factors make influence vaccination coverage,important differences should be taken into account,such as prevalence of vaccine preventable diseases.

A study conducted by I.F.Angellio[10] in 2019 reported low level of knowledge regarding HIB vaccination among mothers of under-five children of Italy.Which shows that 57.8% of the respondents were aware about all vaccination similarly in our study 73% of mothers of neonates were having inadequate knowledge regarding HIB vaccination.

A Owais, B Hanif, AR Siddiqui[11] conducted a study on 366 mothers of Karachi regarding knowledge on vaccination which depicted that 59% of children were not fully immunized dye to low literacy level among mothers. Similarly our study depicted that 73% of mothers of neonates were having inadequate level of knowledge.

CONCLUSION

The findings of the study shows that the public health nurse have a vital role in creating health consciousness among the people and also to identify children who

are at risk by periodic assessment of children. Mothers need education on importance of National Immunization schedule and adherence to the timings in the given immunization card. Education campaign will help to reduce the incidence of vaccine preventable Diseases. Nursing practice optimally enables mothers to examine what is known and make choice that best fit for their children.

Ethical approval

Since the study involved human subjects, a formal ethical approval received from institutional ethical committee.

Informed Consent

Informed consent was obtained from participants and assured for anonymity.

Declaration of Interest

The author declares that there is no financial and personal relationship with other people and organizations.

Conflict of Interest

The author declares that they have no conflicts of interest.

Funding

The study is not funded by any external sources and all expenses were borne by the principal investigator.

REFERENCES

1.Dorothy R Marlow, Barbara A. Redding. Textbook of Pediatric Nursing : Elsevier Publications: W. B. Saunders Company; 2007: Page 164.

2.Parul Dutta. Pediatric Nursing : 2nd Edition. Jaypee Brothers Medical Publishers; 2009. Page 1.

3.Icchpujani R.L., Rajesh Bhatia. Microbiology for Nurses, 2nd Edition. Jaypee Brothers. Medical Publishers ; 2003. Page 206.

4. WHO (2015) Child mortality and causes of death. In Global Health Observatory Data, www.who.int/gho/child_health/mortality/en/. Accessed 26th June 2017

5. Kollmann TR, Kampmann B, Mazmanian SK, Marchant A, Levy O. Protecting the newborn and young infant from infectious diseases: lessons from immune ontogeny.Immunity. 2017;46:350–363. doi: 10.1016/j.immuni.2017.03.009.

6. Wood N, Siegrist CA. Neonatal immunization: where do we stand? CurrOpin Infect Dis. 2011;24:190–195. doi: 10.1097/QCO.0b013e328345d563.

7. Dowling DJ, Levy O. Ontogeny of early life immunity. Trends Immunol. 2014;35:299–310. doi: 10.1016/j.it.2014.04.007.

8. Mira Kojouharova,NinaGatcheva,LenaSetchanova,Susan E. Robertson, Jay.D, Wenger and Bulgarin HIB study team. Epidemiology of Meningitis due to Haemophilus Influenza Type B in Children in Bulgaria: a Prospective Population - Based Surveillance study. Bulletin of World Health Organisation.2002. pp 690-695.

9.Adegbola R, Secka O, Lahai G, Lloyd-Evans N, Njie A, Usen S et al.   Elimination of Haemophilus influenza type b (Hib) disease from The Gambia after the introduction of routine immunization with a Hib conjugate vaccine: a prospective study. The Lancet; 2009 Jul 9-15; vol 336 (9480).pp 144-150.

10 Angelillo IF, Ricciardi G, Rossi P, Pantisano P, Langiano E, Pavia M. Mothers and vaccination: knowledge, attitudes, and behaviour in Italy. Bulletin of the World Health Organization. 1999;77(3):224.

11.Owais A, Hanif B, Siddiqui AR, Agha A, Zaidi AK. Does improving maternal knowledge of vaccines impact infant immunization rates? A community-based randomized-controlled trial in Karachi, Pakistan. BMC public health. 2011 Dec 1;11(1):239.