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Original Research Article

Knowledge on rotavirus and pneumococcal vaccines among mothers of under five children

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ABSTRACT

Background: Childhood vaccines are one of the great triumphs of modern medicine. They are undoubtedly the most cost-effective healthcare interventions. Knowledge, attitude, and practices regarding the vaccines administered under the National Immunization Programme have been studied in different settings; however, studies regarding Rota virus and Pneumococcal vaccines in India are scarce. The Objective of the study was to assess the mothers' knowledge on Rota virus and Pneumococcal vaccines and to identify the reasons for non-administration of these vaccines.
Methods: This study is a cross-sectional study conducted in pediatric immunization clinic of Chennai Medical College Hospital and Research Centre from February to April 2017. About 380 parents were interviewed with a preformed structured questionnaire.
Results: Of 380 respondents, 130 (34.2%) mothers were aware about Rotavirus vaccine and 148 (39%) about Pneumococcal vaccine. Awareness for these vaccines was seen high among middle and upper socio-economic group mothers. Among the mothers who were aware about these vaccines, the major source of information was doctors followed by health workers and media. Of 380 respondents only 66 (17%) mothers had administered Rotavirus vaccine and 75 (19.7%) had administered Pneumococcal vaccine. The reason for not administering these vaccines was lack of awareness. 274 (87.2%) mothers were not aware about Rotavirus vaccine and 261 (85.6%) mothers were not aware about pneumococcal vaccine.
Conclusions: Present study found that most of the mothers were not aware about these live saving vaccines and they need to be educated about these vaccines through health workers or intense campaigning by using mass media.

Keywords: Awareness, Pneumococcal vaccine, Rotavirus vaccine

INTRODUCTION

Immunization is a proven tool for controlling and even eradicating disease. We often fail to realize that rupees spent on a childhood vaccination not only help save a life, but also greatly reduces spending on future healthcare. Despite advances in prevention and treatment of vaccine-preventable diseases, diarrhoeal and pneumococcal diseases remain a major source of morbidity and mortality among children worldwide. Pneumonia accounts for 16% of all deaths of children under 5 years old, killing 920 136 children in 2015. Many countries in which PCVs were introduced as part of routine immunization have shown reduction in vaccine type invasive disease, not only in the targeted children, but also in older populations as a result of the indirect effects of the vaccine through reduction in nasopharyngeal carriage and transmission of the

organism.[1-3] Each year diarrhoea kills around 760 000 children under five. As per the 2007 update of Indian Rotavirus Strain Surveillance Network (IRSSN), the proportion of diarrheal hospitalizations due to rotavirus was 39%.[4] The Million Death Study, a nationally representative sample of 6.3 million people in 1.1 million households within the Sample Registration System, recorded approximately 334, 000 diarrheal deaths in India during 2005, i.e., 1 in 82 Indian children died from diarrhea before the age of 5 years.[5] Immunization against Pneumococcus and Rotavirus is the most effective way to prevent these deadly diseases. In this context, this study was planned to assess mothers' knowledge on these two vaccines and the extent to which they have been informed regarding these vaccines.

METHODS

This study is a cross-sectional study that was conducted in Pediatric OPD, Chennai Medical College Hospital and Research Centre from February to April 2017 after approval from the Institutional Ethics Committee. All routine immunization, counseling regarding infant and young child feeding, and growth monitoring services are provided in this outpatient department and it runs on all working days of every week. Parents of all the children from infancy to 5 years were approached for inclusion in the study. Mothers who are not willing to participate in the study were excluded. A preformed structured questionnaire was given to the parents of the recruited children. Translation of the questionnaire in the local language was done for easy understanding. After obtaining informed verbal consent from the parents, information was collected about the immunization status with respect to the Rota virus and Pneumococcal vaccines, age and doses of vaccination, various socio-demographic factors, and reasons for non-immunization of the child. The method used was recall method and the vaccination card. The primary respondent was the mother. Data entry was done using Microsoft Excel 2010 and Data was summarized in percentages and proportions.

RESULTS

Table 1: Relations between family's socio-economic status and knowledge of rota virus and pneumococcal vaccines.

Socio economic status (n=380)	Rota virus vaccine n (%)	Pneumococcal vaccine n (%)
Class I (24)	0	0
Class II (91)	18 (19.7)	24 (26.3)
Class III (155)	47 (30)	54 (34.8)
Class IV (83)	43 (51)	47 (56.6)
Class V (27)	21 (77.7)	23 (85)

Of 380 cases, 210 (55.2%) children were <1 year of age and 170 (44.7%) were between 1 and 5years. Of 380 cases studied, 238 (62.6%) were males and 142 (37.4%) were females. Of 380 respondents, 24 (6.3%) belonged to Class I socioeconomic status (SES) (by Kuppuswamy scale), 91 (24%) belonged to Class II, 155 (41%) belonged to Class III, 83 (21.8%) belonged to Class IV, and 27 (7.2%) belonged to Class V status. Of 380 respondents 130 (34.2%) mothers were aware about Rotavirus vaccine and 148 (39%) about pneumococcal vaccine.

Awareness for these vaccines was seen high among middle and upper socio-economic group mothers. 21 (77.7%) mothers from class V SES, 43 (51%) from class IV SES, 47 (30%) from class III SES and 18 (19.7%) from class II SES were aware about Rotavirus vaccine. Similarly, 23 (85%) mothers from class V SES, 47 (56.6%) from class IV SES, 54 (34.8%) from class III SES and 24 (26.3%) from class II SES were aware about Pneumococcal vaccine.

Table 2: Relation between mother's education and knowledge about effect of the vaccines.

	Rotavirus vaccine (n=130)	Pneumococcal vaccine (n=148)
Uneducated	7	6
Primary school	11	18
Secondary school and above	112	124

Mothers with secondary school education or higher had more knowledge about these vaccines than mothers who had no education.

Table 3: Awareness regarding these vaccines among mothers with reference to place of vaccination.

Place of routine vaccination	Rota virus vaccine awareness	Pneumococcal vaccine awareness
Private	102/132 (83%)	115/132 (87%)
Govt health centre	28/248 (11.2%)	33/248 (13.3%)

Table 4: Mother's source of information.

Source	Rota virus vaccine n (%)	Pneumococcal vaccine n (%)
Doctors	68 (53)	84(56.7)
Health workers	36 (27.6)	32 (21.6)
Media	21 (16)	21 (14)
Others	5 (3.8)	11(7.4)

Mother's knowledge on these vaccines varied with the place of vaccination. 102 (83%) and 115 (87%) mothers who had administered routine vaccines at private health facility were aware about Rotavirus vaccine and pneumococcal vaccine respectively. Whereas only 28 (11.2%) and 33 (13.3%) mothers who administered the

routine vaccines at government vaccination centre were aware about these vaccines.

Among the mothers who were aware about these vaccines, the major source of information was doctors followed by health workers and media.

Table 5: Individual vaccine awareness and administration.

Type of vaccine	Status (n=380)	n (%)
Rota virus vaccine	Not aware not administered	250(65.7)
	Aware and not administered	64(16.8)
	Aware and administered	66(17.3)
Pneumococcal vaccine	Not aware not administered	232(61)
	Aware and not administered	73(19.2)
	Aware and administered	75(19.7)

Of 380 respondents, 66 (17%) had administered Rotavirus vaccine and 75 (19.7%) had administered Pneumococcal vaccine.

Table 6: Reasons reported for non-administration of vaccines.

Type of vaccine	Reason	n (%)
Rota virus vaccine	Lack of awareness	274 (87.2)
	Fear of side effects	26 (8.3)
	No specific reason	14 (4.5)
Pneumococcal vaccine	Lack of awareness	261 (85.6)
	Fear of side effects	20 (6.6)
	No specific reason	24 (7.8)

In present study, the most commonly quoted reason for not administering these vaccines was lack of awareness. 87.2% mothers were not aware about Rotavirus vaccine and 85.6% mothers were not aware about pneumococcal vaccine. Fear of side effects was the reason in 8.3% mothers for not administering the vaccine in rotavirus group and 6.6% in pneumococcal group.

DISCUSSION

The present study was conducted to assess the awareness about Rotavirus and Pneumococcal vaccines that mothers have. The results of the study give us some impression about the level of awareness and knowledge to immunization among mothers.

According to our present study, out of 380 respondents 130 (34.2%) mothers showed awareness about Rotavirus vaccine and 148 (39%) about Pneumococcal vaccine. The results were similar to that found in a study done by Deepali et al.[6]

Mothers from upper and middle socio-economic class were aware well about these vaccines compared with mothers from low socio-economic status. 21(77.7%) mothers from class V SES and 43 (51%) from class IV SES were aware of Rotavirus vaccine. Similarly, 23 (85%) mothers from class V SES and 47 (56.6%) from class IV SES were aware about pneumococcal vaccine. Whereas no mothers in class I SES were aware of both Rotavirus and Pneumococcal vaccine.

Mother's knowledge on these vaccines varied with the place of vaccination. Only 28 (11.2%) mothers were aware about Rotavirus vaccine and 33 (13.3%) mothers were aware about Pneumococcal vaccine, who had administered the routine vaccines at government vaccination centre. Place of delivery was another factor found to be associated with mother's knowledge on these vaccines. Babies born in a private healthcare facility were more likely to be completely vaccinated as compared to those delivered at government health sector.[7] Mohamud et al in Ethiopia, and Maina et al in Kenya, both found that children born at health care institutions were twice as likely to be fully vaccinated as compared to those born at home.[8,9]

The present study results revealed that the major source of information was doctors followed by health workers and media. While the study results conducted by sanaa et al revealed that for more than half of mothers their sources of information about diseases prevented by vaccine were T.V, followed by nurses of the MCH.[10]

According to present study that mothers with secondary school education or higher had more knowledge about these vaccines than mothers who had no education. This finding is in the line with Roos et al who found that the knowledge score was lower in those women who didn't have education or have low educational standard.[11]

In this study, non-vaccination with these vaccines was mainly due to lack of awareness. 87.2% mothers were not aware about Rotavirus vaccine and 85.6% mothers were not aware about Pneumococcal vaccine. Fear of side effects was the reason in 8.3% mothers for not administering the vaccine in Rotavirus group and 6.6% in Pneumococcal group. In a study done by Deepali et al also the lack of awareness was the main reason for non-vaccination with optional vaccines.[6] Similar findings were seen in the study conducted by Manjunath et al, who concluded that though many were aware of the importance of vaccination in general, specific information on importance of completing the schedule and knowledge on vaccine preventable diseases were very limited.[12]

More parents in the unvaccinated group had not heard about pneumococcal disease or Pneumococcal Conjugate

Vaccine (PCV), and these parents perceived less threat from pneumococcal disease and less benefit from PCV vaccination than parents in the Vaccinated group. Furthermore, more parents in the unvaccinated group had not had PCV recommended to them by a healthcare professional. These results suggest that efforts and activities to improve parental knowledge about Invasive Pneumococcal Diseases could impact positively on the perceived value of PCV vaccination, which can influence parents' decisions to vaccinate.

CONCLUSION

The results of our study indicate the need for increasing the knowledge about the Rotavirus and Pneumococcal vaccine which is intended to prevent the infection and its toll-deaths, hospitalization, and medical visits. The need for increasing knowledge and awareness about Rotavirus vaccine and pneumococcal vaccine is also reflected from our study which can prevent hospitalization and mortality in children less than five years of age. There is a need to educate the mothers and the community at large about the importance of vaccinating the child with these vaccines.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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