SHORT REPORT

Awareness and knowledge regarding rotavirus disease and vaccine among healthcare providers in tertiary care settings

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Abstract

A descriptive, cross-sectional study was conducted from July 2018 to September 2018 to assess the level of awareness among healthcare workers regarding rotavirus infection and its vaccination in Rawalpindi and Islamabad.

The study site was conducted at tertiary care hospitals of Rawalpindi and Islamabad. Ethical approval was obtained from the Institutional Review Board of Army Medical College, Rawalpindi. Closed and open ended questionnaires were distributed via non-probability convenient sampling. The sample size was 257.

Among the study participants, 247 (96.1%) of the participants had good level of awareness regarding rotavirus, whereas 212 (82.5%) had awareness regarding the vaccine. The mean awareness score was 16.16 ± 4.097 out of a maximum score of 22. Both male and female participants had almost equal awareness regarding the rotavirus infection (Males = 96, 93.2%, Females = 151, 98%) and vaccination (Males = 87, 84%, Females = 125, 81.1%). The mean awareness was directly related with the level of education of the participants, i.e. MBBS/FCPS/MCPS = 221(85.9%), MBBS = 209(81.5%), B.Sc. Nursing = 206(80%), and Basic Education = 220(85.7%) knew about the vaccine.

Keywords: Rotavirus, Diarrhoea, Vaccination, Healthcare workers, Awareness.

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Introduction

Rotavirus gastroenteritis is a major cause of mortality and morbidity worldwide. The virus mainly affects children under five years of age and is the most common cause of hospitalisation worldwide for gastroenteritis.[1] Despite the fact that new immunisation techniques have been developed, rotavirus still remains the most common cause of infectious diarrhoeal death in children.[2]

Despite better rehydration therapy and implementation of diarrhoea control measures globally, the mortality is still high in various regions; nearly 65,000 children die of the infection in 22 countries of Eastern Mediterranean Region.[3] The World Health Organisation (WHO) has now recommended the use of rotavirus vaccines in routine immunisation programmes worldwide.[4] There are two commercially available vaccines: RotaTeq (licensed in 2006) and Rotarix (licensed in 2008). Rotavirus vaccine has been an integral part of the vaccination programmes in 81 countries, such as the United States, the UK, Russia, etc.[5] Many members of the Low Middle Income Countries group have included the vaccine in their immunisations programmes such as Iran, Bangladesh, and India.[6,7] Rotavirus diarrhoea accounts for under-five child mortality rate of 50-100 deaths per 100,000 children in Pakistan, as of 2013.[3] Rotavirus is the 10th vaccine to be added to the Expanded Programme on Immunisation; it has been introduced in Punjab in 2017, which reports about 1.2 million cases of diarrhoea annually with deaths due to rotavirus accounting for 40-45%. The vaccine will later be introduced in the remaining provinces which accounts for 20% of Pakistan birth cohort.[8] The aim of the study was to assess the level of awareness regarding rotavirus disease and its vaccine among healthcare practitioners because studies have shown that their recommendations actually influence and affect the parents' decision regarding vaccination of their children.[9] A bigger study on the national level can be conducted to determine the level of awareness regarding Rotavirus vaccine so that recommendations can be made to patients who lack awareness about the disease and the vaccine.

Methodology

The study was initiated after taking ethical approval from the Institutional Review Board of Army Medical College, Rawalpindi. It was a descriptive cross-sectional study. All participants enrolled, were informed, and verbal and written consent was taken from each of them. They were given a self-made questionnaire consisting of both open-ended and closed-ended questions. Incomplete questionnaires were discarded at the end of each study. The tertiary care hospitals enrolled were Shifa International Hospital, Military Hospital, Combined Military Hospital, Benazir Bhutto Hospital, Holy Family

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Hospital and Begum Jan Hospital. The duration of the study was from July 2018 to September 2018. Sampling technique was non-probability. Sample size was kept at 257 with an anticipated vaccine efficacy proportion of 0.06 and precision of 0.06 and 95% confidence interval. All doctors, nurses and nursing assistants were enrolled, while medical students were excluded from the study. Data was analysed using SPSS 22.

Results

A total of 300 questionnaires were distributed, some of which were incomplete and were therefore discarded. The age range of the population was 23 to 60 years (mean age = 29.93 ± 8.841). Majority, 174 (67.8%), of the participants belonged to the age group 20 to 29 years while the age group >55 years had only 12 (4.7%) participants.

A total of 257 people took part in the research. When divided on the basis of socio demographic patterns, the figures showed that there were nearly 20% more females than males in the study with equal number of married and unmarried participants. The comparison between different education levels and other demographics are shown in Table-1.

An attempt was made to find the level of association between the socio-demographic factors and awareness regarding either the Rotavirus disease itself or the

Table-1: Socio-demographic characteristics of the respondents.

Sr. No.	Variables	Frequency/n (%)
1	**Marital Status:**	
	Married	109 (42.4%)
	Unmarried	148 (57.6%)
2	**Gender:**	
	Male	103 (40.1%)
	Female	154 (59.9%)
3	**Qualification:**	
	MBBS + FCPS/MCPS	57 (22.2%)
	MBBS	146 (56.8%)
	B.Sc. Nursing	40 (15.6%)
	Basic Education (PA)	14 (5.4%)
4	**Designation:**	
	Consultant	52 (20.2%)
	Post-Graduate	152 (59.1%)
	Nurse	37 (14.4%)
	Physician Assistant	16 (6.2%)

MBBS: Bachelor of Medicine and Bachelor of Surgery
FCPS: Fellow of College of Physicians and Surgeons Pakistan
MCPS: Member of College of Physicians and Surgeons.

Table-2: Level of awareness of health care providers regarding rotavirus infection.

Sr.No.	Variables	Frequency (%)			
		Yes		No	
		N	%	N	%
1	Do you know about Rotavirus?	247	96.1	10	3.9
2	Is Rotavirus related disease a problem here?	203	79.0	54	21.0
3	According to you, is Rotavirus a disease of importance for Public Health?	221	86.0	36	14.0
4	Does Rotavirus infect children under five years of age?	165	64.2	92	35.8
5	Can you get Rotavirus more than once?	174	67.7	83	32.3
6	Does a specific treatment for Rotavirus exist?	110	42.8	147	57.2
7	Is the mortality rate of Rotavirus infection high in children under 5?	184	71.6	73	28.4
8	In about 1 in 50 cases of Rotavirus illness, does dehydration occur from severe diarrhoea?	240	93.4	17	6.6

Table-3: Level of awareness of health care providers regarding rotavirus vaccine.

Sr.No.	Variables	Frequency (%)			
		Yes		No	
		N	%	N	%
1	Have you heard of Rotavirus vaccine?	212	82.5	45	17.5
2	Is the Rotavirus vaccine given as drops in infancy?	148	57.6	109	42.4
3	Do you think Rotavirus vaccine should be a part of routine immunisation?	165	64.2	92	35.8
4	Should an infant, who has already been infected with Rotavirus, still be vaccinated?	130	50.6	127	49.4
5	Is the Rotavirus vaccine effective?	188	73.2	69	26.8
6	Are there any side effects of this vaccine?	88	34.2	169	65.7
7	Have you heard of any adverse event due to the vaccine?	36	14.0	221	86.0
8	Is rotavirus vaccine stored at 36°F - 46°F?	51	19.8	206	80.2

F: Fahrenheit.

Rotavirus vaccine. The only significant association was found to be between gender and knowledge regarding Rotavirus ($p<0.05$).

The results from the questionnaire showed that majority of the participants had some knowledge about both rotavirus disease and vaccine (Table-1 and 2). The only area where the results were low was the availability of vaccine and its side effects (Table-2 and 3).

Discussion

According to a research conducted in Yogyakarta, Indonesia, based on a small sample size of 14, of which only three were doctors, majority of the people had no idea regarding rotavirus.[10] Our study, however, consisted of a major sample of doctors, i.e. 203 (96.1%) of the total respondents had knowledge regarding rotavirus.

Whether they considered rotavirus a problem here, and that too of public importance, our findings are similar to a study carried out in South-east Nigeria, where 79.1% of the participants considered it an important childhood disease.[11] This similarity in results is mostly due to the fact that both countries have a high mortality rate from rotavirus.

Severe diarrhoea was seen in 45.1% of the cases reported in Sokoto, Nigeria.[12] In our study, 93.4% of the healthcare providers acknowledged that severe dehydration would be seen in majority of the children suffering from rotavirus diarrhoea.

A case control study carried out in Belgium, regarding the effectiveness of the vaccine showed that one dose of any rotavirus vaccine is effective enough to provide 91% protection against hospital admissions.[13] This correlates with our findings, as 188 (73.2%) of healthcare providers considered it to be an effective vaccine.

The vaccine is considered to be quite safe with a very rare adverse effect of intussusception.[14] In our study, 221 (86%) had never heard of an adverse effect due to the vaccine. In our research, 206(80.2%) healthcare providers had no knowledge about storage of vaccine which highlights the importance of efforts to not only increase the knowledge of healthcare providers regarding the disease but also about its vaccine.

Our study showed satisfactory levels of awareness among healthcare workers in specific demographic areas. But more studies on national level across cities should be done, because awareness among healthcare workers is vital as many parents are influenced by their recommendations concerning vaccination of their children.[14]

Equal number of both male and female healthcare workers could not be taken, as the study was done in only a few hospitals so results cannot be generalised to a bigger population.

Conclusion

The overall level of awareness among healthcare workers regarding rotavirus infection and its vaccination was satisfactory. However, the three main areas where awareness levels were inadequate were rotavirus treatment, mode of administration of vaccine and its storage.

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Conflict of Interest: None to declare

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