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RESEARCH ARTICLE

A cross-sectional study on rotavirus infection among students of University Kuala Lumpur Royal College of Medicine Perak in Malaysia

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ABSTRACT

Background: Rotavirus (RV) infection is quite rare in Malaysia but cases involving this virus gradually increases. In order to avoid any risk of infection, it is important to have the awareness about this virus. **Aims and Objectives:** The present study aims to compare the knowledge, attitude and practice towards RV infection between the different gender and students from variety of courses in University Kuala Lumpur Royal College of Medicine Perak (UniKL RCMP). **Materials and Methods:** This is a cross sectional study conducted among students from variety of courses (MBBS, Pharmacy, Nursing, Radiography and Physiotherapy) in UniKL RCMP. This study involved 1769 students and were given questionnaires regarding their demographic data, knowledge, attitude and practice on RV infection. **Results:** From the total respondents, 64% were categorized as high knowledge score. Male group particularly studying in MBBS showed higher percentage of knowledge score compared to female and other available courses. About 72.1% of male respondents had high knowledge on RV infection while 96.0% of female students and 35.0% of the MBBS group had good attitude score. **Conclusion:** Aware ness on RV infection is important to all students from different courses in order to avoid any risk and can therefore take preventive measures for themselves and the people surrounding them against RV infection.

KEY WORDS: Attitude; Knowledge; Practise; Prevention; Rotavirus Infection

INTRODUCTION

Diarrhea is the commonest cause of mortality among children worldwide most of which related with rotavirus (RV) infection.[1] RV is the most prevalent cause for severe gastroenteritis (GE) and dehydration occurance in young children below the age of 5 years.[2] RV belongs to the virus family Reoviridae, which are categorized as important human and also veterinary gastrointestinal specific pathogens.[3] Their infection is systemic which causes malabsorption by changes in the villus epithelium. This malabsorption results in the undigested bolus of biomolecules that reaches the colon. Since the bolus is osmotically active, the colon cannot able to absorb required water and therefore results in diarrhea.[4] RV diarrhea also causes enterocyte destruction and villus ischemia. Immunity develops with each infection, meaning, subsequent infection is less severe. Transmission is achieved through the faecal-oral route, contact with contaminated limbs, surfaces and even objects and also by the respiratory route.[5] RV can be diagnosed by identifying the virus in patient's stool using enzyme immunoassay, electron microscopy, polyacrylamide gel electrophoresis and reverse transcriptase polymerase chain reaction.[6] Fluid replacement,

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replacement of lost electrolyte and general support are the main principle for the treatment of RV.

There are no antiviral agents previously available for the treatment of RV infection. However, to reduce the RV-associated acute GE (AG) worldwide, RV vaccines are developed and in 2009, WHO recommended to include prophylactic RV vaccination for infants in all national immunization programs.[2] These vaccines proved efficacy against the viruses such as G and P types (G1, G2, G3, G4, G9 and P[4], P[6], P[8]) that are circulating worldwide and leads to approximately 90% of the disease [7]

From the previous studies, it was shown that vaccine efficacy in highly income countries is more than that in middle and low income countries.[8] Alt hough there is lesser effects in middle income settings, these vaccines when introduced into national immunization programs has been associated with a significant decrease in AG-related deaths.[9] For any preventive measures to be followed, it should be necessary to improve our knowledge on RV disease. The objectives in the present study are therefore to assess the level of knowledge, attitude and practice among sample respondents on RV and its infection and to determine the association between the awareness on RV with the socio-demographic of the sample respondents.

MATERIALS AND METHODS

Study Design

This was a cross sectional study involving students from variety of courses in University Kuala Lumpur Royal College of Medicine Perak (UniKL-RCMP). The courses involved are MBBS, Pharmacy, Nursing, Physiotherapy and Radiology. The total students involved were 1769. The subjects were evaluated on their awareness by assessing the knowledge and practice on RV infection.

Sample Size and Sampling

The sample size was calculated using Epi Info where the population size of students in UniKL RCMP was 1769 and the sample size required in this study was 236. The confident level of this study was 90% with a confident limit of 5%. Quota sampling method was used and the subjects was categorised by gender and course. Their awareness was tested based on their knowledge, attitude and practice on RV. The association between the awareness and socio-demographic of sample respondents were also made.

Variables

Variables with conceptual, operational definition and classification were listed below:

Variables	Conceptual definition	Operational definition	Measurement/ classification
Gender	Physical appearance	Refer to identification card and asking through questionnaire	Male and female (categorical data-nominal)
Course	Course students enrol in	According response by respondents	Degree and Diploma Students (categorical data-nominal)
Knowledge	Knowledge on RV infection: General knowledge Transmission Prevention	Based on the set questionnaire regarding on RV infection	Yes/no/not sure
Attitude	Attitude on activities for prevention of RV infection	Based on the set questionnaire regarding on RV	Yes/no/not sure
Practice	Practice on activities for prevention of RV infection	Based on the set questionnaire regarding on RV	Yes/no/not sure

Data Analysis

Data was collected by using questionnaire to find relevant information in knowledge, attitude and practice on RV infection. The questionnaires and consent form was distributed to all selected respondents. Microsoft Excel was used for data entry and processed using the Statistical Package for Social Sciences (SPSS). Data presented in the form of percentage (%) and Chi-square for association of awareness on RV infection and socio-demographic with $P = 0.05$.

RESULTS

A total of 236 completed questionnaires were collected back at the end of data collection period. Table 1 shows the awareness specifically on knowledge of RV infection among the respondents. Of the total respondents, 64% (151) of the respondents were categorized under high knowledge while 36% (85) were categorized under low knowledge. Out of total respondents, male gender showed higher percentage (72.1%) as compared to female, (61.1%). For the comparison between available courses, MBBS has the highest percentage on knowledge (47.7%) followed by pharmacy (25.2%), nursing (11.9%), physiotherapy (9.3%) and lowest was radiography (6%).

To prevent RV infection, various positive attitudes were given in the questionnaire. Table 2 shows the selected attitudes by the respondents and their percentage.

From the total respondents, 95.8% (226) of them are classified as having good attitude towards themselves and their

surroundings as shown in Table 3. Female gender showed higher percentage of good attitude towards RV infection (96%) compared to male, (95.1%) and from comparing the courses, MBBS has the highest percentage on good attitude (35%) while the lowest was radiography (9.7%) as shown in Table 3.

Percentage of respondents and their positive practise towards RV infection was shown in Table 4.

Level of practise with gender and available courses was shown in Table 5. Based on Table 5, 89.4% (211) of the total respondents categorized as applying a good practise towards RV outbreaks. Female has higher percentage of good practise towards RV infection (91.4%) compared to male, (83.6%). Among available courses, MBBS has the highest percentage on good practise (36.5%) followed by pharmacy (26.5%), physiotherapy (15.2%), nursing (12.3%) and the lowest was radiography (9.5%).

Comparison of knowledge, attitude and practise score among respondents was shown in Table 6. Results showed that there was no significant difference in knowledge, attitude and practise score between respondents ($P > 0.05$).

Table 1: Comparison between level of knowledge with gender and available courses

Parameters	High knowledge (%)	Low knowledge (%)	*P*
Gender			
Male	72.1 (44)	27.9 (17)	2.37
Female	61.1 (107)	38.9 (68)	
Courses			
MBBS	47.7 (72)	9.4 (8)	>0.05
Pharmacy	25.2 (38)	27.1 (23)	
Nursing	11.9 (18)	15.3 (13)	
Physiotherapy	9.3 (14)	31.8 (27)	
Radiography	6.0 (9)	16.5 (14)	

Table 2: Positive attitude for prevention of RV infection

Attitude	Frequency *n* (%)
Self-treatment	205 (86.9)
Importance of vaccination	215 (91.1)
Awareness on outbreak	211 (89.4)
Proper treatment	158 (66.9)
Share knowledge on transmission, symptom and prevention	198 (83.9)

RV: Rotavirus

Table 3: Comparison between level of attitude with gender and available courses

Parameters	Good attitude (%)	Wrong attitude (%)	*P*
Gender			
Male	95.1 (58)	4.9 (3)	0.09
Female	96.0 (168)	4.0 (7)	
Courses			
MBBS	35.0 (79)	10.0 (1)	>0.05
Pharmacy	26.5 (60)	10.0 (1)	
Nursing	12.4 (28)	30.0 (3)	
Physiotherapy	16.4 (37)	40.0 (4)	
Radiography	9.7 (22)	10.0 (1)	

DISCUSSION

In this study, the proportion of the respondents has high awareness on RV infection. Specifically for knowledge, male showed higher percentage of knowledge compared to females. Among courses, MBBS contribute almost half from the total respondents. This proved that they were aware of the most common sign and symptoms, mode of transmission and

Table 4: Positive practise in preventing RV infection

Practise	Frequency *n* (%)
Proper disposal of faeces	201 (85.2)
Wash hands	226 (95.8)
Apply hand sanitizer	75 (71.8)
Activities avoided during RV outbreak: Water activities	193 (81.8)
Avoid spitting in public once infected	179 (75.8)

RV: Rotavirus

Table 5: Comparison between level of practise with gender and available courses

Parameters	Correct practice (%)	Wrong practice (%)	*P*
Gender			
Male	83.6 (51)	16.4 (10)	2.92
Female	91.4 (160)	8.6 (15)	
Courses			
MBBS	36.5 (77)	12.0 (3)	>0.05
Pharmacy	26.5 (56)	20.0 (5)	
Nursing	12.3 (26)	20.0 (5)	
Physiotherapy	15.2 (32)	36.0 (9)	
Radiography	9.5 (20)	12.0 (3)	

Table 6: Comparison of knowledge, attitude and practise score among respondents

Variable	Population size *n* (%)	Chi-square	*P*
Knowledge score	151 (64)	2.370	0.12
Attitude score	226 (95.8)	0.094	0.75
Practise score	211 (89.4)	2.922	0.08

action taken in preventing the infection to another person. They may also aware of RV infection that can lead to death in infants and young children. This was due to their studies and involvement in the organization of health campaign for the community organised by the university. Their attitude score was assessed through scenario given. Respondents shared their knowledge on RV infection among family members and friends in advising self-treatment or proper treatment. Most of the respondents agreed in sharing their knowledge and get proper treatment when infected in order to prevent it from spreading to other person.

MBBS students also recorded the highest score in applying a good practise towards RV infection when compared to others. Generally, most of the respondents have a good practise towards RV infection such as washing their hands after using toilets, proper disposal of faeces and not spitting in public when infected. This happened due to their awareness as these were important actions in order to prevent other contagious diseases.

CONCLUSION

Our findings showed that MBBS students have the highest percentage of knowledge due to their involvement in activities related to medical field. In comparison between male and female knowledge score, male recorded higher percentage of high knowledge score compared to female. Our study also found that the level of good attitude and practice towards RV infection for female students was higher compared to male students. However, most of the respondents have low awareness on the importance of applying hand sanitizer daily as an action to prevent the spread of RV infection. A better campaign on RV which targets both male and female from all available courses should be made by the relevant agencies, especially the health ministry and university.

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