

Original Research Article

Knowledge and attitude about Nipah virus infection among medical students, Mysuru, India

Preetha Susan George*, Narayana Murthy Mysore Ramaiah

Department of Community Medicine, JSS Academy of Higher Education and Research Centre, Mysuru, Karnataka, India

Received: 09 June 2020

Accepted: 13 July 2020

*Correspondence:

Dr. Preetha Susan George,

E-mail: drsusanbejoy@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: As the deadly Nipah virus, which took the life of 18 people in 2018, resurfaces in Kerala, Karnataka being nearby state is put on high alert, among which Mysore is one such district. Even with a case fatality rate of 94.7%, early treatment and prompt control activities by medical professionals can save more lives. So with this background and relevance, the study intends to assess the knowledge and attitude about Nipah virus infection among the medical students of JSS Medical College, Mysuru district, as medical students must have a good insight about the effect of diseases on communities and individuals.

Methods: The study was conducted among 4th term and 8th term MBBS students of JSS Medical College, Mysuru, Karnataka. The study sample of 271 was obtained by convenient sampling method. The study was done over a period of 3 months (April 2019 to June 2019). Data regarding knowledge and attitude was collected using pretested semi-structured questionnaire. Data was analysed using SPSS-24. Appropriate statistical tests were applied to find out association and was expressed statistically significant at a p value < 0.05.

Results: Majority of the students were aware about the Nipah virus infection and 97% were aware about the recent outbreak in Kerala. 43.5% of the students had good knowledge regarding the epidemiology and treatment of Nipah virus infection and 47.20% had acceptable knowledge on Nipah virus. 33.60% of the students had good attitude regarding the preventive aspects of Nipah virus infection.

Conclusions: Majority of the students 97% were aware about the recent outbreak of Nipah virus infection in Kerala. Around 43.5% of the students had good knowledge regarding the epidemiology and treatment of Nipah virus infection and 33.6% of the students had good attitude regarding the preventive aspects of Nipah virus infection. Students from previously affected places had good knowledge and attitude regarding Nipah virus.

Keywords: Emerging disease, Medicos, Nipah virus, Zoonotic

INTRODUCTION

Nipah virus (NiV) is a recently emergent deadly zoonotic virus, which belongs to the family paramyxoviridae. This virus was implicated as the cause of highly fatal, febrile encephalitis in Malaysia and Singapore in 1999 and in Bangladesh in 2001, 2003 and 2004.¹ NiV was first recognised in 1999 during an outbreak among pig farmers in Malaysia and Singapore which presented with encephalitis symptoms. This outbreak alerted the global

public health community to the severe pathogenic potential of this unique virus.² The virus is named after the Malaysian village where it was first discovered. The knowledge about Nipah virus was limited to Malaysia, Singapore and Bangladesh, until the recent and first outbreak in Kerala in 2018 followed by another very recent outbreak in 2019.¹

Fruit bats belonging to the family *Pteropodidae* and pigs are the natural host for Nipah virus. Clinical features

varies from fever with acute respiratory distress to fatal encephalitis. Clinical symptoms commonly seen were fever, headache, dizziness and vomiting. The spread of the virus is very rapid and fatal, with a case fatality of 40-70%.³ The transmission of NiV virus occurs from infected pigs to human (Malaysian NiV outbreak), infected bats to human (consumption of raw date palm sap contaminated with infectious bat excretions) and also human to human transmission (seen in the family and care givers of Nipah virus infected person).⁴ There is no proven effective treatment at present and primary treatment is intensive supportive care.

As the deadly Nipah virus, resurfaces in Kerala in 2018, Karnataka being nearby state is put on high alert, among which Mysore is one such district. So with this background, the study intended to assess the knowledge and attitude about Nipah virus infection among the medical students of JSS Medical College, Mysuru district, as learning about public health makes them better doctors.

METHODS

The study was conducted among 4th term and 8th term MBBS students of JSS Medical College, Mysuru, Karnataka. The 4th term and 8th term students were selected to find out if there is any difference in the knowledge and attitude on Nipah virus infection based on clinical exposure. Since medical students are tomorrow's doctors, they should have a good insight about the effect of a disease not only at individual level but in a community. The study sample of 271 was obtained by convenient sampling method. Students who were willing to participate were included and those who were absent for the class and not willing to participate in the study were excluded. An ethical clearance was obtained from institutional ethical committee prior to the study. An informed consent was taken from the study participants before the process of data collection. The study was done over a period of 3 months (April 2019-June 2019). Data regarding knowledge and attitude was collected using pretested semi-structured questionnaire. Data was analysed using SPSS-24. Descriptive statistics like percentage, mean and standard deviation were applied. Inferential statistical tests like chi-square test were applied for association. P value <0.05 was considered statistically significant.

RESULTS

Among the 271 students, most of them were in the age group of 21 ± 1.2 years. Female students constituted 68.3% whereas male students constituted 31.7% (Figure 1). All the students have heard about the disease Nipah. Majority of the students were from 8th term and constituted 51.3% (Figure 2). Major source of information for the study participants was from social media (35.4%) followed by newspaper (28.4%) (Figure 3).

Most of the students were aware about the clinical features, diagnosis, treatment and complications of Nipah virus infection. 27.7% of the students knew that Dr. Kaw Bing Chua discovered Nipah virus. 66.4% of the students were aware about the previous outbreak of Nipah virus and 97% were aware about the recent outbreak in Kerala.

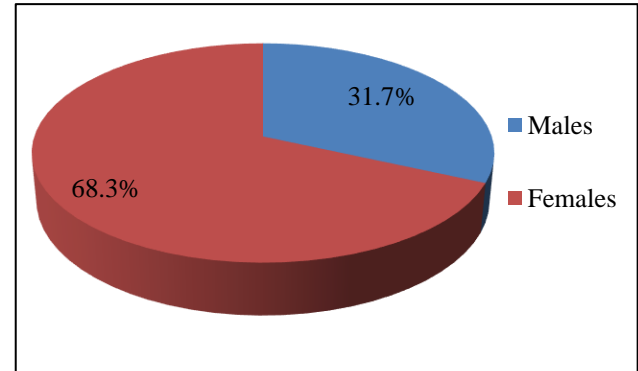


Figure 1: Distribution of study participants based on gender.

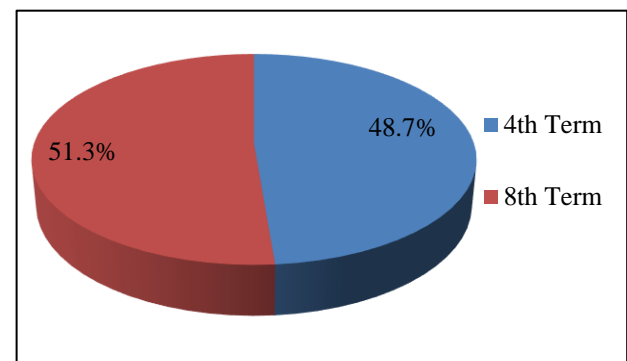


Figure 2: Distribution of study participants based on semester.

Only 31.4% of the students knew that the incubation period of Nipah virus was 5 to 14 days, but majority (68.6%) were unaware.

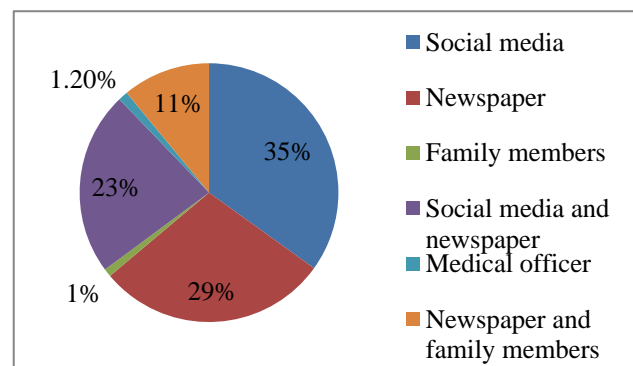


Figure 3: Source of information about Nipah.

86% of the students were aware about the symptoms as fever, headache, nausea, vomiting and upper respiratory

tract infection. 78.2% of the students were aware about the fatal complication (encephalitis). Only 58.7% were aware about the mode of spread as man-man, bat-man, pig-man. 71% were aware about the case fatality rate of Nipah virus (40-75%).

Regarding the diagnosis and treatment, 77.9% of the students were aware about the samples collected for lab diagnosis (throat swab, blood, urine, CSF). 69% of the students knew about the triple container packing for sample transportation. Only 29.5% of the students were aware of confirmatory test as next generation sequencing IgM Elisa test. 65.7% of the students were aware about the treatment used as Ribavirin, targeted recombinant human monoclonal antibody therapy. 40.6% knew that NiV samples were tested in 3rd grade lab for confirmation (Table 1).

Table 1: Knowledge on the epidemiology of Nipah among medicos. (N= 271).

	Aware N (%)	Not aware N (%)
Knowledge on clinical features and complications		
Incubation period	85 (31.4)	186 (68.6)
Symptoms	233 (86)	38 (14)
Fatal complications	212 (78.2)	59 (21.8)
Case fatality rate	195 (71)	76 (29)
Infectivity rate	149 (55)	122 (45)
Mode of spread	159 (58.7)	112 (41.3)
Knowledge about diagnosis and treatment		
Samples collected	211 (77.9)	60 (22.1)
Sample transportation	187 (69)	84 (31)
Confirmatory test	80 (29.5)	191 (70.5)
Treatment	178 (65.7)	93 (34.3)
NiV lab grade	110 (40.6)	161 (59.4)

43.5% of the students had good knowledge regarding the epidemiology and treatment of Nipah virus infection and 47.20% had acceptable knowledge on Nipah virus (Figure 4). Only 0.40% had very good knowledge on Nipah virus. 33.60% of the students had good attitude and 28.80% had very good attitude regarding the preventive measures for Nipah virus infection. 18.8% had poor attitude on preventive aspects of Nipah virus infection (Figure 4).

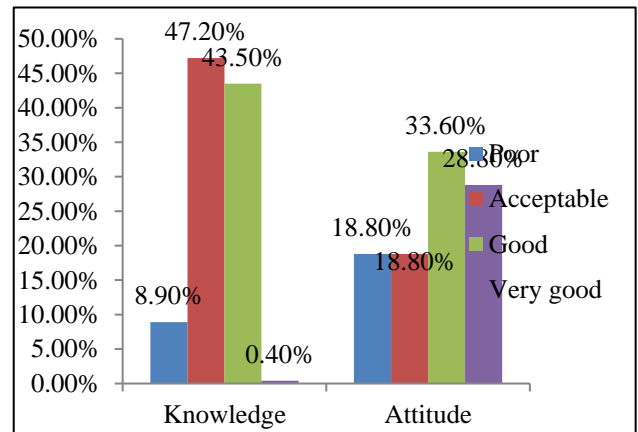


Figure 2: Distribution of students based on the knowledge and attitude on Nipah virus infection (n=271).

It was seen that 8th term students had good knowledge regarding the epidemiology of Nipah virus infection and it was statistically significant. Those students from previously affected native places (Kerala, Bangladesh) had good knowledge on Nipah virus when compared to residents from non-affected places, which was statistically significant. Females had good knowledge on Nipah virus infection when compared to males and it was found to be statistically significant (Table 2).

Table 2: Knowledge level of students on Nipah virus by selected variables (n=271).

Categories	Knowledge			P value
	Poor	Acceptable	Good	
	N (%)	N (%)	N (%)	
Term				
4 th	17 (12.9)	74 (56.1)	41 (31.1)	<0.05*
8 th	7 (5.0)	54 (38.8)	78 (56.1)	
Native place				
Affected	1 (1.1)	38 (42.7)	50 (56.2)	<0.05*
Non affected	23 (12.6)	90 (49.5)	69 (37.9)	
Socioeconomic status				
Upper class	17 (7)	117 (48.3)	108 (44.6)	<0.05*
Upper middle	5 (21.7)	9 (39.1)	9 (39.1)	
Lower middle	2 (33.3)	2 (33.3)	2 (33.3)	
Gender				
Male	13 (15.1)	37 (43)	36 (41.9)	<0.05*
Females	11 (5.9)	91 (49.2)	83 (44.9)	

*p value found to be significant.

Table 3: Attitude level of students on Nipah virus by selected variables (n=271).

Categories	Attitude				P value
	Poor	Acceptable	Good	Very good	
	N (%)	N (%)	N (%)	N (%)	
Term					
4 th	30 (22.7)	27 (20.5)	50 (37.9)	25 (18.9)	<0.05*
8 th	21 (15.1)	24 (17.3)	41 (29.5)	53 (38.1)	
Native place					
Affected	10 (11.2)	13 (14.6)	35 (39.3)	31 (34.8)	<0.05*
Non affected	41 (22.5)	38 (20.9)	56 (30.8)	47 (25.8)	
Gender					
Male	28 (32.6)	22 (25.6)	16 (18.6)	20 (23.3)	<0.05*
Female	23 (12.4)	29 (15.7)	75 (40.5)	58 (31.4)	

*p value found to be significant.

Regarding the attitude level for Nipah virus infection, 8th term students had better attitude on Nipah virus infection prevention when compared to 4th term and it was statistically significant. Students from previously affected places had very good attitude on the preventive aspects of Nipah virus, which was statistically significant (Table 3).

DISCUSSION

It is well known that undergraduate years are the defining and evolutionary period for the learning of skills and knowledge. Infection control measures are needed to reduce the rate of infection and are to be taught in undergraduate (UG) years. A study conducted by Ayub et al in Armed Forces Medical College, Pune showed that only 77.5% of the UGs had complete knowledge regarding universal precautions and the finding was similar to the present study.⁵ The use of universal health precaution for all confirmed and suspected cases is a proactive measure that health professionals must follow and is more important to the primary care provider.⁶ A sound knowledge on the preventive aspects of the deadly disease can be a powerful tool in preventing future outbreaks of the disease in the community.⁷⁻¹¹ Since there are no published Indian studies on the knowledge and attitude of Nipah virus disease among medical students in this part of Karnataka, India, the results obtained here can be regarded as a first step towards the provision of information, on knowledge and attitudes among medicos on Nipah infectious disease

In the present study more than half of the students were aware about the clinical features and complications of Nipah virus infection which was similar to a study conducted by Kannian et al among medical students in a medical college of Kerala.³ A study done on the awareness regarding Ebola virus by Aliya et al, shows that about 63% of the students were aware about the mode of transmission, 50.6% of the students knew that Ebola virus disease can be diagnosed via ELISA. 53.2% of the students correctly identified that no treatment is available for Ebola virus disease as yet. In the present study 58.7% were aware about the mode of spread of

Nipah virus infection and only 29.5% students were aware about the laboratory test for diagnosis of Nipah virus infection.⁷ Studies on Rabies awareness reveals that 74.3% of the medical students were aware about the common symptom of rabies in humans. Majority of the students (72.7%) were aware about immediate washing of the wound with soap and water.⁸ A similar cross sectional study regarding KAP of swine flu was conducted among medicos in Karachi by Hasan et al and it was found that majority of the students (80%) were aware about its transmissibility and they were able to enumerate preventive measures.

So these comparisons shows that medical students are more aware about other deadly infectious diseases as robust literature is available than Nipah virus. Awareness of the history will enable students to manage these situations that will occur during their working careers, and to learn from the past.

CONCLUSION

Majority of the students were aware about the Nipah virus infection and 97% were aware about the recent outbreak in Kerala. 86% of the students were aware about the symptoms of Nipah virus infection. 43.5% of the students had good knowledge regarding the epidemiology and treatment of Nipah virus infection and 47.20% had acceptable knowledge on Nipah virus. 33.60% of the students had good attitude regarding the preventive aspects of Nipah virus infection.

Recommendations

Medical students as doctors of tomorrow have vital role to play in this battle. Being future doctors, they need to have better knowledge on preventive and diagnostic aspects of infectious diseases to tackle such outbreaks in the future. CME's and research projects on infectious diseases should be encouraged among medical students. Emerging and Re-emerging infectious diseases should be included in medical syllabus in detail.

Funding: No funding sources

Conflict of interest: None declared

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

REFERENCES

1. Chadha MS, Comer JA, Lowe L, Rota PA, Rollin PE, Bellini WJ, et al. Nipah Virus-associated Encephalitis Outbreak, Siliguri, India. *Emerg Infect Dis*. 2006;12(2):235-40.
2. Chua KB. Introduction: Nipah Virus-Discovery and Origin. In: Lee B, Rota PA, editors. *Henipavirus: ecology, molecular virology, and pathogenesis*. Berlin, Heidelberg: Springer Berlin Heidelberg; 2012:1-9.
3. Binub K. Medicos: knowledge and attitude on Nipah at Malappuram district, India. *Int J Community Med Public Health*. 2019;6(2):784-8.
4. Syed A. Nipah Virus outbreak in the World. *Int. J. Adv. Res. Biol. Sci*. 2018;5(9):131-8.
5. Ayub A, Goyal A, Kotwal A, Kulkarni A, Kotwal A, Mahen A. Infection control practices in health care: Teaching and learning requirements of medical undergraduates. *Med J Armed Forces India*. 2013;69:107-12.
6. Sharma V, Kaushik S, Kumar R, Yadav JP, Kaushik S. Emerging trends of Nipah virus: a review. *Rev Med Virol*. 2019;29:e2010.
7. Hisam A, Rana MN, Ur-Rahman M. Knowledge and attitude regarding Ebola virus disease among medical students of Rawalpindi: a preventable threat not yet confronted. *Pak J Med Sci*. 2016;32(4):1015-9.
8. Tiwari A. Assessment of knowledge regarding rabies and its prevention among the medical students of Government Medical College Rajnandgaon, Chhattisgarh, India. *Int J Community Med Public Health*. 2018;1(5):1397-401.
9. WHO. Nipah virus- India. WHO. Available from: <http://www.who.int/csr/don/07-august-2018-nipah-virus-india/en/>. Accessed on 27 June 2019.
10. Pavithra H, Nirgude AS, Balakrishna AG, Bijali N, Revathi TM, Yalnatti SK. Are the medical interns ready to deal with the treatment, prevention and control of Nipah virus infection at the tertiary care hospital? *J Fam Med Primary Care*. 2019;8(11):3653.
11. Gillam S, Maudsley G. Public health education for medical students: rising to the professional challenge. *J Public Health*. 2010;32(1):125-31.
12. Arunkumar G, Chandni R, Mourya DT, Singh SK, Sadanandan R, Sudan P, et al. Outbreak investigation of Nipah virus disease in Kerala, India, 2018. *J Infect Dis*. 2019;219(12):1867-78.

Cite this article as: George PS, Ramaiah NMM. Knowledge and attitude about Nipah virus infection among medical students, Mysuru, India. *Int J Community Med Public Health* 2020;7:3213-7.