Original Article

Are the medical interns ready to deal with the treatment, prevention and control of Nipah virus infection at the tertiary care hospital?

H. Pavithra[1], Abhay Subhashrao Nirgude[1], A. G. Balakrishna[1], Nihala Bijali[1], T. M. Revathi[1], Santosh K. Yatnatti[2]

[1]Department of Community Medicine, Yenepoya Medical College, Mangalore, Karnataka, [2]Department of INCLEN Trust International, INCLEN Trust International, New Delhi, India

ABSTRACT

Context: Nipah virus infection is an emerging life threatening zoonotic disease. Health care workers are at the highest risk of getting the infection. **Objectives:** To assess the level of knowledge and attitude regarding Nipah virus infection among medical interns of a tertiary care hospital, Mangaluru and also to assess the readiness of medical interns dealing with cases of Nipah virus infection. **Setting and Design:** A cross-sectional study was conducted among 94 medical interns of a teaching hospital in Mangaluru. **Methods and Material:** Questionnaire comprising of 33 questions was used to assess the knowledge, attitude and practice behaviors of the medical interns. **Statistical Analysis Used:** Descriptive statistics as mean and standard deviation and Pearson correlation coefficient. **Results:** The mean knowledge, attitude and practice scores were 10.28 (± 2.31), 8 (± 2.9) and 15.85 (± 3.7). Three (3.2%) of the medical interns correctly knew the best modality of diagnosis of Nipah. All the interns correctly answered the samples to be collected for diagnosis and 72 (76.6%) correctly answered the lab where samples have to be sent. Majority i.e. 64 (68.1%) of the medical interns correctly enumerated the preventive measures to be employed. Eighty four (89.4%) of them were aware about the availability of vaccine. The correlation between the adequate facilities available with practice domain and training provided with practice domain were found to be statistically significant. **Conclusion:** In this study, the knowledge, attitude and practice regarding Nipah virus infection were found to be inadequate. There is an urgent need to address these gaps.

Keywords: Attitude and practise among house surgeons, knowledge, medical interns, Nipah virus infection

Introduction

Human Nipah virus (NiV) infection is an emerging zoonotic disease caused by Nipah virus which is an RNA virus, causing severe illness in both animals and humans.[1] The disease was first recognised in Malaysia and Singapore, as a massive outbreak of 276 reported cases from September 1998 to May 1999.[2]

There were further multiple outbreaks in Bangladesh and in West Bengal of India. Consumption of contaminated date palm sap had led to the outbreak of the Nipah virus.[3-5] A recent outbreak evidenced in Kerala, India, prompted the epidemiological investigations and further dissemination of information regarding the disease to the health care providers as well as general public.[6] The main strategy involved in prevention of spread of Nipah is its containment to an affected area.[7-9]

The health care providers at all levels of care are at increased risk of acquiring the infection if the cases are not managed

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appropriately. Hence, this study was done to assess the level of knowledge, attitude and practise about Nipah and readiness of medical interns to respond to the Nipah outbreak.

Materials and Methods

This was a cross-sectional study conducted in a medical college hospital of coastal Karnataka for a period of 2 months from July to August 2018. A complete enumeration of the medical interns was done and all medical interns working in the hospital during the study period were included in the study. A pilot study was conducted among 20 of the total interns to assess operational feasibility and to pre-test the study questionnaire. These interns were further excluded from the main study.

The data was collected by an interview method. The study tool comprised of a questionnaire which was pre-tested and validated. The assessment of the knowledge, attitude and practise of medical interns towards Nipah virus disease was done using this questionnaire. The questions pertaining to Nipah virus disease, diagnosis of the disease, the attitude of medical interns towards the illness, preventive measures to be employed and practises followed to prevent the Nipah virus infection were included.

The questionnaire comprised of 33 questions; 19 pertaining to knowledge, 6 for attitude and 8 for practise assessment. The favourable answer was given a score of one and latter a score of zero. The maximum attainable score for knowledge, attitude and practise were 34, 18 and 28, respectively. The knowledge was assessed about the epidemiology of Nipah virus disease, clinical features, diagnosis, treatment and complications and the questions were semi-structured. The attitude was assessed by asking the interns to rate their fear for the disease in particular, did they modify their working habits etc. The practise questions used Likert scale for assessing the behaviour of medical interns regarding washing hands for 30 seconds with soap and water, use of disposable items, use of N-95 mask, recapping used needle and so on.

The analysis was done by categorising the questions into four domains. The knowledge domain constituted the scores of 19 questions. Similarly, attitude domain comprised of four questions and practise domain had six questions. Three questions formed the training domain. Information was sought regarding adequate facilities available in the institution. The data were entered in MS excel and further analysed using SPSS version 21. The results were expressed as frequencies, mean scores along with standard deviation and minimum and maximum scores attained. The strength of association between different domains was determined using Pearson's correlation coefficient. Institutional ethics committee approval was obtained before commencement of the study. (protocol number: 2018/147, approved on 30/07/2018).

Results

The mean knowledge, attitude and practise scores were 10.28 (±2.31), 8 (± 2.9) and 15.85 (± 3.7) with maximum attainable scores being 34, 18 and 28.

Only three (3.2%) of the medical interns correctly knew that the best modality of diagnosis of Nipah was immunoglobulin essay and RT PCR. The samples that were to be collected for diagnosis were correctly answered by all the interns. About 72 interns (76.6%) among them were able to correctly identify the lab where the samples were sent for diagnosis.

Majority i.e., 64 (68.1%) of the medical interns correctly enumerated the preventive measures to be employed against Nipah. Out of which, 84 (89.4%) of them were aware of the availability of vaccines. Nevertheless, none of the medical interns were correctly aware of the case fatality rate of Nipah.

The fear of contracting Nipah infection was asked and graded on a scale of 0–10. The mean score of fear was 6.34 (± 2.7).

When asked for the training programme conducted, 73 (77.7%) answered that there was no training provided. However, 27 (28.7%) said that there was a document disseminated regarding Nipah virus infection.

The domain-wise scores were calculated. The mean score of the knowledge domain was 10.3 (± 2.3). The attitude domain had a mean score of 2.23 (± 0.76) and mean practise domain score was 15.85 (± 3.7). The training domain had a mean score of 1.5 (± 0.7).

Discussion

Since, there are no published Indian studies regarding the KAP of Nipah virus disease among the medical interns in this part of Karnataka, India, the findings obtained here can be considered as the first step towards providing data pertaining to the knowledge, attitude and practise among medical interns regarding the infectious disease Nipah and also their perspectives regarding the training and facilities available to control the spread of the disease.

The knowledge, attitude and practise scores were found to be unsatisfactory in our study. Knowledge was assessed using questions regarding the epidemiology [Figure 1], diagnosis and treatment of the Nipah virus infection. A similar study conducted by Kanniyan *et al.* among medical students in a medical college of Kerala found that half of the students (51%) had good knowledge about Nipah.[5] In the wake of the outbreak, a better knowledge score was expected from the medical interns as Indian medical graduates should be lifelong learners.

The attitude of the interns towards the disease was assessed by asking them to grade their fear of contracting the disease and if

they considered whether Nipah was a life-threatening disease. The poor attitude scores reflected the low knowledge scores and in turn, indicated that there is increased chance of the health personnel getting infected. In the above-mentioned study, the authors found that majority (70%) of the medical students had good attitude towards Nipah virus disease.[5]

Practise scores were calculated by asking the modifications that they did in their routine, usage of personal protective measures and disposable items, hand washing with soap and water for at least 30 seconds and recapping of the needle if practised or not. Unsatisfactory practise scores indicate that the risk of acquiring infection was high among medical interns. Only 7.4% always wore the N-95 mask whereas 20.2% of them admitted having never worn the N-95 mask [Table 1].

A similar cross-sectional study regarding KAP of swine-flu was conducted among medical and dental students in Karachi by Hasan *et al*. It was found that a majority (80%) of the students were aware that swine-flu was a transmittable disease and the participants could enumerate the preventive measures. However, only 15.5% of the students used facemask while suffering from fever, cold and runny nose.[10] This poor practise score is comparable with that of our study. Human to human transmission was high during the recent outbreak witnessed in Kerala. It was found during the outbreak investigation that, health care workers and companions of the patients using adequate infection control measures did not acquire the infection despite being in close contact.[11]
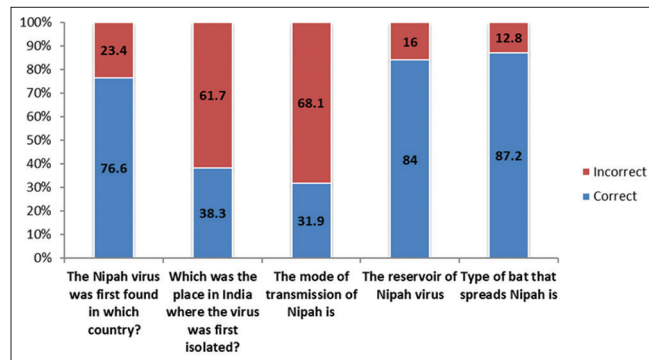

Figure 1: Knowledge regarding the epidemiology of Nipah virus infection (*n* = 94)

We also studied co-relation between the different domains using Pearson's test. It was found that there was a statistically significant correlation between the adequate facilities provided and training provided with practise domain with correlation coefficients 0.268 and 0.286 and with *P* values 0.009 and 0.005, respectively [Table 2].

It is a known fact that the undergraduate years are the determinative and developmental phase for gaining skills and knowledge. The infection control measures are necessary for a decrease in the infection rates and are to be taught in the undergraduate (UG) years itself. 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. Only 31.25% always followed hand hygiene procedures. Half of the participants practised recapping the needles which are comparable with that of our study [Table 1]. The study concluded that knowledge has to be provided to the UGs and it should be ensured that practical skills are also acquired.[12]

The findings of our study have aided us in the assessment of the present status of awareness and comprehension among the medical interns regarding Nipah infection. The inadequate scores stress upon the need for improving educational curricula. We would like to draw attention to the fact that poor practise stems from inadequate knowledge which leads to the emergence and spread of the outbreak.

The strengths of our study were that responses were collected from all the 94 medical interns. This is the first study conducted on the topic among the health care providers in this region and a comprehensive, validated questionnaire was used. Limitations of this study are that the study findings are not generalisable and the availability of the resources in the institution was not verified during the course of the study.

The medical interns work at different levels of health care mainly the primary level care and hence improving their core competency is of grave importance. Employing universal health precautions for all identified and suspected cases is the pragmatic step that the health care professionals must undertake and is more relevant to the primary care provider.[13] Appropriate mentoring and training is shown to improve the efficiency of health care workers. Hence, the

Table 1: Measures for prevention of Nipah virus infection (*n*=94)					
Variable	Strongly agree *n* (%)	Agree *n* (%)	Neither agree nor disagree *n* (%)	Disagree *n* (%)	Strongly disagree *n* (%)
Washing hands with soap and water for at least 30 seconds is one of the preventive measures against Nipah.	28 (29.8)	44 (46.8)	15 (16)	7 (7.4)	0 (0)
Only disposable items should be used while treating a patient suspected with Nipah.	50 (53.2)	34 (36.2)	5 (5.3)	3 (3.2)	2 (2.1)
Variable	Always *n* (%)	Often *n* (%)	Sometimes *n* (%)	Rarely *n* (%)	Never *n* (%)
How often have you worn N-95 mask?	7 (7.4)	18 (19.1)	26 (27.7)	24 (25.5)	19 (20.2)
How regularly do you recap used needle?	34 (36.2)	15 (16)	7 (7.4)	9 (9.6)	29 (30.9)

Table 2: Correlation between the different study domains using Pearson correlation (*n*=94)

Variables for correlation	Pearson value	*P*
Knowledge about diagnosis and treatment of Nipah infection with practise domain	0.162	0.120
Adequate facilities available with practise domain	0.268	**0.009***
Training provided with practise domain	0.286	**0.005***
Training provided with attitude domain	0.018	0.862
Attitude domain with practise domain	0.130	0.213

*Statistically significant correlation

capacity building of health care workers involved in primary care in hard-to-reach areas is a practical way of tackling the outbreaks.[14]

The study concludes that the knowledge, attitude and practise scores among medical interns regarding Nipah infection were inadequate. This raises questions about readiness of the intern in dealing with Nipah outbreak.

In light of the present findings, we would recommend that diseases like Nipah, Zika, Ebola which are emerging and highly infectious should be included in the medical interns' training programme so that, they acquire adequate skills to address such outbreak. This can be attained by conducting CMEs, sensitisation workshops and also by providing hands-on training.

Declaration of participant consent

The authors certify that they have obtained all appropriate participant consent forms. In the form the participant has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The participant understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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