BMH MEDICAL JOURNAL

BMH Med. J. 2019;6(4):100-105. **Research Article**

Knowledge, Attitude, Behavioural Response And Use Of Preventive Measures In Response To Nipah Outbreak - A Descriptive Study From Calicut City

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Abstract

Nipah virus (NiV) infection is an emerging viral epidemic threatening public health in the South-East Asia Region, especially Bangladesh and India. Nipah viral infection was first recognized in a large outbreak of about 265 suspected cases in the Malaysian peninsula from September 1998 to April 1999. Bangladesh reported its first confirmed case of NiV in 2001. India witnessed two outbreaks of Nipah encephalitis, both in the eastern state of West Bengal bordering Bangladesh in 2001 and 2007. The recent outbreak of NiV encephalitis, having a mortality as high as 90%, with 20 confirmed cases occurred in the Southern State of Kerala. It is a relatively new disease with a rapid progression and a high mortality rate. These factors created public fear, the panic and confusion of people when faced with the unknown. Widespread campaigns were implemented in the state, both in mass and social media platforms to educate the public in the science behind the disease, its transmission and preventive measures and to address any concerns from the general population.These measures and a high level of public compliance may be what ultimately limited the disease progression from its erstwhile level of spread.

Objectives: To study the myths and the realities of NiV infection, the perceived susceptibility of the people and their preventive and avoidance behavior during a Nipah outbreak in Kozhikode district, Kerala.

Setting and Methodology: A cross sectional study was done and data were collected using a pretested and precoded questionnaire from a random sample of residents of the Calicut corporation area.

Inclusion criteria: The subjects were residents of Calicut city in the age group of 18-60. The interveners administered the questionnaire in the local language after getting due verbal consent and the data were collected.

Results: The results threw up a lot of interesting observations: A major section of the study population opined that the disease might have reached Kerala through bats. Ninety percent knew that the causative agent was a virus. Almost half of the respondents had misconceptions regarding the mode of spread. The people gathered information from the conventional media such as Print media, Television etc. 30-40 % people experienced emotional disturbances such as fear or depression during the outbreak. Around 70% took personal protective measures and 60% restricted themselves from venturing out of their homes. Majority were satisfied with the measures taken by the administration and health personnel.

Keywords: Knowledge, Attitude, Behavioural Response, Use Of Preventive Measures, Nipah Outbreak

Introduction

Nipah virus (NiV) infection is a newly-emerging zoonosis (a disease which can be transmitted to humans from animals) that causes severe disease in both animals and humans [1]. The natural host of the virus is the fruit bat of the Pteropodidae Family, Pteropus genus. NiV was first identified during an outbreak of encephalitis in pigs and later pig farmers that took place in Kampung Sungai Nipah, Malaysia in 1998 [2]. Here, the pigs were the intermediate, amplifying hosts. However, in subsequent NiV outbreaks, there were no intermediate hosts. In Bangladesh in 2004, humans became infected with NiV as a result of consuming date palm sap that had been contaminated by infected fruit bats [3,4].

Human-to-human transmission has also been documented, including in a hospital setting. India confirmed its first Nipah outbreak in Siliguri, West Bengal, in 2001, with 66 cases and 45 deaths [5,6]. A second outbreak, again in West Bengal, in the Nadia district in 2007 led to the deaths of all the five people infected [7]. With 50 of the 71 people infected dying during the above two outbreaks combined, the death rate in India reached as high as 70%. The present outbreak in 2018 is the first Nipah outbreak in Kerala. The virus is presumed to have jumped the species barrier to infect a person. Transmission supposedly took place through direct or indirect contact with infected bats. NiV infection in humans has a range of clinical presentations, from asymptomatic infection to acute respiratory distress syndrome and fatal encephalitis [8,9]. NiV is also capable of causing disease in pigs and other domestic animals. There is no vaccine for either humans or animals. The primary treatment for human cases is intensive supportive care.

Nipah virus infection can be prevented by avoiding contact with suspected patients, and by taking necessary personal protection, avoiding exposure to sick pigs and bats in endemic areas, not drinking raw date palm sap and not consuming bat bitten fruits that have fallen from trees.

Despite there being a surprisingly high level of scientific awareness among the masses, the sense of panic generated cloistered people within their own homes. No illness, in recent history has so impacted daily life, bringing a city known for its love of celebrations to its knees. Businesses were impacted with any number of establishments closing due to inability to pay employee wages due to non-generation of income. These were not limited to small vendors but to large ventures including public transport and hospitals.

Study Design: Descriptive cross sectional Survey

Materials and Methods:

Data was collected using a pretested and precoded questionnaire from a random sample of residents of Calicut corporation area. The subjects were residents of Calicut city in the age group of 18-60. The interveners administered the questionnaire in the local language after getting due consent and the data was collected on a structured questionnaire. Data was entered in MS Excel worksheet and

analyzed using SPSS 16.0 version.

Results and Discussion:

A. The baseline characteristics of the study population

The baseline characteristics of the study population by Gender is shown in Table 1. A total of 301 eligible people were inducted into the study. 149 were male and 152 were female.

Table 1: The baseline characteristics of the study population by Gender

Variables	Male N= 149	Female N= 152
1. Mean age ± SD	38.9 ± 12.8	35.8 ± 13.5
2. Age group		
18 – 24	22 (14.7%)	43 28.3%
25 – 44	71 (47.7%)	62 40.8%
45 – 60	56 (37.6%)	47 30.9%
3. Education		
Lower primary or below	19 (12.8%)	19 (12.5%)
V – IX	19 (12.8%)	27 17.7%
IX – XII	56 (37,5%)	48 31.6%
Graduates and above	55 (36.9%)	58 38.2%
4. Marital Status		
Single	40 26.9%	46 30.3%
Married	102 68.5%	102 67.1%
Divorced / Widowed	7 4.6 %	4 2.6%
5. Occupation		
Unemployed	10 6.7%	22 14.5%
Full / part time work	93 62.4 %	75 49.3%
Student	13 8.7%	15 9.9%
Govt. Servant / Retired	33 22.2%	9 5.9 %
Housewife	- 0	31 20.4%

B. Knowledge and misconceptions

A significant majority of the respondents appeared to be well aware that the causative agent is a virus with few exceptions who think it could be bacteria or something else. Though 60% respondents were aware that Nipah was not a new virus, only 41% knew that India had experienced previous Nipah outbreaks. A fair proportion (40%) of the respondents did not know that bats were the natural Hosts. Of these, 2/3 believed that the natural hosts were pigs.

Nearly half (48%) of the respondents were under the impression that the disease could spread through air. About 41% of the respondents didn't know that the disease could not spread through cooked meats such as chicken and pork and a small proportion (11% to 14%) firmly believed that such transmission was possible. Misconceptions regarding mode of transmission were reported by 97% of the sample and 11% believed that it could spread through air, water and cooked meat **Suresh** (chicken and pig) (**Figure 1**). One in every 5 people reported that there could be asymptomatic carriers in the society.

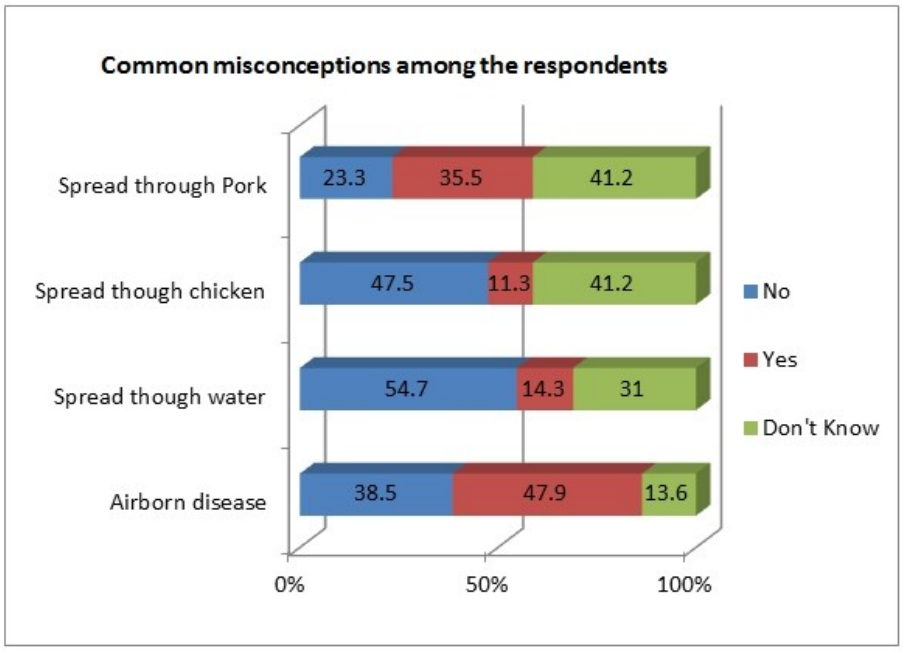

Figure 1: Common misconceptions among the respondents

C. Source of Information

The main source of information about the disease was obtained from conventional media like print media, Television and Radio. While about 14 % of respondents reported the source of information as internet especially social media, this proportion was little higher among young responders below the age group of 40 years (**Figure 2**). Only 7 % reported obtaining information from their peers.

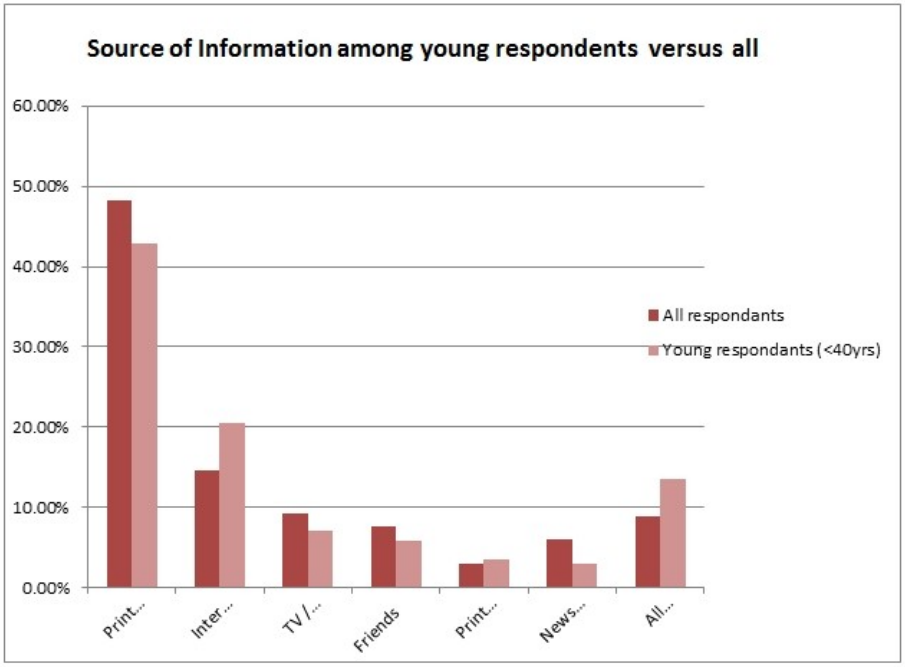

Figure 2: Source of Information among young respondents versus all

D. Perception of mortality and future outbreaks

Nearly ¾ of the respondents perceived Nipah to be a quite serious infection with mortality more than 70%, while a small proportion reported to be unaware of the severity of the disease. Only 40.6% harbored the notion that there was a high chance for further Nipah outbreaks in the district and 30% felt that if the outbreak recurs, it may last more than 3 weeks. Half the respondents thought that in

case of future outbreaks, the mortality would likely to be much more than the present outbreak.

E. Preventive and avoidance behavior

An encouraging finding was that, as high as 95% respondents practiced one or more designated preventive measures such as wearing masks in hospitals, personal hygiene like hand washing. More than half of the people started practicing hand washing more frequently than before. 91%of patients reported avoidance behaviors such as restricting themselves from going out unless it was absolutely necessary, avoiding contact with suspected patients, avoiding hospital visits, not eating fruits etc. Surprisingly, 25 persons (8.3%), took any kind of special food items or native medicines as prophylaxis.

F. Susceptibility to illness

From the survey, majority (85%) believed that they were not susceptible to the infection. Only 31% felt that they too had a high chance of contracting the infection. Similarly, nearly 90% believed that any of their family members were also less likely to get the infection. Only 32.3% people opined that there was a high chance for another member in the society to get the disease.

G. Fear and distress

71 % of the study population thought that they would not get infected with the virus, though 51 % responded that they had the fear that one of their family members might get infected. Around 36% were in panic and emotionally disturbed at some point of time during the outbreak.

H. Level of satisfaction for the work done by health care personnel and Government administration

The level of satisfaction for the work done by the health care personnel (HCP) and the administration were collected in a 1 to 10 scale and the mean score was 8.7 +/- 1.5 for HCP and 8+/- 2.1 for the administration.

Conclusion

The present study reveals that a good majority were aware of the cause, about the host, the nature of transmission but there were serious misconceptions especially regarding the spread of the disease. Conventional Medias mainly print and TV played the main role in providing information regarding the illness. The mortality and susceptibility to the illness were perceived correctly by most of them. Even though the preventive and avoidance behaviors were sufficient, majority did not strictly adhere to the personal protective measures. The unexpected attack of such a fatal disease could create fear and panic among the public, but the measures taken by the health personnel and the administration to contain the disease were found to be satisfactory and reassuring.

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