Knowledge and Awareness of Crimean Congo Hemorrhagic Fever among medical students

RABIAH MAHWISH1, MEHWISH ARIF2, TAYYABA SULTAN3

ABSTRACT

Aim: To assess the knowledge of 4th year MBBS students about Crimean Congo Hemorrhagic Fever.

Study design: Descriptive cross-sectional study

Place & duration of study: Lahore Medical & Dental College Lahore, over a period of two weeks in February 2016.

Methodology: 149 students of 4th year MBBS, academic session 2015-2016 were included in the study. A structured questionnaire was used to collect data. Data was entered and cleaned by using SPSS statistical package 21. Data was presented in the form of tables and figures.

Results: It was observed that good number of respondents 110 (74%) had the knowledge about causative agent and 94 (63%) were aware about Hyaalomma tick responsible for transmission. A good percentage 108 (73%) were aware that incubation period is 5-6 days. 93 (62%) respondents correctly answered that livestock industry workers are most at risk during an outbreak of CCHF. 41 (28%) respondents had the knowledge that sudden onset of fever and 56 (38%) responded that arthralgia and headache are clinical picture for it. A good percentage 75 (50%) were aware about protective measures. 83 (56%) had the knowledge that the best way to deal with CCHF epidemic is preventive measures.

Conclusion: Medical students have a fair knowledge about Crimean Congo Hemorrhagic fever transmission, clinical picture and personal protective measures.

Key words: Crimean Congo Hemorrhagic fever, medical students structured questionnaire.

INTRODUCTION

Crimean Congo Hemorrhagic Fever (CCHF) is a very fatal zoonotic hemorrhagic fever disease caused by CCHF virus belonging to family Bunyaviridae and genus Nairovirus. It is a triple segmented RNA virus. CCHF virus cannot live outside the host. It is sensitive to light and inactivated at 5°C for 30 minutes. This virus is also sensitive to 1% hypo chloride and 2% glutaraldehyde. It was first emerged in 1944 in Crimea. CCHF is endemic in Africa, Eastern Europe, Asia and Middle East. Its outbreak can cause epidemic because of having high fatality ratio varying from 15-70% depending on the medical services provided by the country in which CCHF occurs. Humans can be infected directly by the tick (Hyalomma) bite or by direct contact with blood, body fluids and tissues of the infected animals. Epidemiologically the most important route of transmission is by infected ticks. CCHF is one of the rare hemorrhagic fevers which has nosocomial outbreak spread in hospitals depending upon the poor health facilities and settings. The risk of human to human transmission increases during the latter stages of infection.

In Pakistan, the disease was first identified in 1976 during the laparotomy of a patient having abdominal pain, melena and hematemesis. Three deaths were recorded, one of the surgeon operating the patient, the patient and the attendant of the operation theater. After this, 11 persons were found infected. In December 1994, an outbreak occurred in Quetta, resulting in the death of the patient and two surgeons operating upon the patient and health care personnel were infected at Agha Khan University Karachi. After this many outbreaks have been reported especially in rural areas of Balochistan. It is endemic in Pakistan, recently cases are reported in Karachi. This disease is hemorrhagic in humans but asymptomatic in animals. It starts from non-symptomatic clinical illness to hemorrhagic disease. The non-specific symptoms include sudden fever, headache, arthralgia, myalgia, fatigue, nausea, vomiting, diarrhea, abdominal pain, conjunctivitis, jaundice, sore throat, photophobia and mood disorders. After these non-specific symptoms, the hemorrhagic symptoms along with hepatomegaly, lymphadenopathy, tachycardia and confusion may occur. However in severe cases shock, coma, kidney failure, liver failure, respiratory failure and DIC may occur. The incubation period after the direct contact with the tick bite is 1-3 days and at maximum 9 days. The incubation period after direct contact with infected body fluids and tissues is 5-6 days and at maximum 13 days.

CCHF is more prevalent during the months between April and October. There are no vaccines and therapeutic intervention since now so prevention is the most important step to deal with epidemics. The studies from Pakistan and Iran have revealed that nosocomial outbreaks of CCHF are very difficult to prevent and treat. Laboratory findings include anemia, leucopenia, increased AST/ALT, thrombocytopenia, bleeding, prolonged prothrombin and activated partial thromboplastin times. Diagnostic tests include antibody detection by ELIZA, virus isolation, antigen detection and polymerase chain reaction. People who are at most risk include those who work in livestock industry such as farmers, veterinarians, abattoir workers, hunters and health care givers especially physicians.

Following personal protective measures should be taken while travelling to the endemic countries which includes wearing of long light clothes, wear long boots and
Pouring of chemicals

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were aware that incubation period of CCHF is 5

is sensitive to light and 1% hypo chloride and 2%

45(30%) of the respondents had the knowledge that CCHF

Hyalomma tick

Sensitive to light and 1%hypo chloride and 2%gluteraldehyde

Abe to live outside the host

Resistant to light

Activated at 5°C for 30 minutes

Incubation period of CCHF

15 days

23(15%)

5 – 6days

108(73%)

30 days

16(11%)

25 days

2(1%)

Who is most at risk during an outbreak of CCHF

Livestock industry workers

93(62%)

Family members

32(22%)

Mourners

43(3%)

Relatives

20(13%)

Clinical picture for CCHF include

Yes

No

Fever with chills and headache

93(62%) 56(38%)

Flush the symptoms

17(12%) 72(48%)

Sudden onset of fever

41(28%) 108(73%)

Arthralgia

56(38%) 93(62%)

Myalgia

47(32%) 102(69%)

Sore throat

46(31%) 103(69%)

Headache

56(38%) 93(62%)

Abdominal pain

49(33%) 100(67%)

Nausea

51(34%) 98(66%)

Vomiting

60(40%) 89(60%)

Mood disorders

38(26%) 111(75%)

Long standing cough and fever

44(30%) 105(71%)

CCHF is more prevalent during the months

Between April and October

77(52%)

Between January and March

40(27%)

December

13(9%)

August

19(13%)

Personal protective measures

Yes

No

Daily bath with Dettol

42(28%) 107(72%)

Exposure to sunlight for at least 8 hours in a day

32(22%) 117(79%)

Wearing of long light clothes

35(24%) 114(77%)

Wear long boots and tuck your pants legs into your boots

61(41%) 88(59%)

Regularly check your clothes and skin for ticks

88(59%) 61(41%)

Use of insect repellents on the skin and clothing

87(58%) 82(42%)

Drink plenty of water

16(11%) 133(89%)

The best way to deal with CCHF epidemic is

Preventive measures

63(46%)

Therapeutic interventions

21(14%)

Vaccination

38(24%)

Isolation of the patient

86(58%)

Table 1: Knowledge of 149 medical students regarding CCHF

<table>
<thead>
<tr>
<th>Knowledge about CCHF</th>
<th>Causative agent for Crimean Congo Hemorrhagic Fever</th>
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<tbody>
<tr>
<td></td>
<td>Bunyaviridae</td>
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<td>Rota virus</td>
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<td>Rubella virus</td>
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<td>Wolbachiaappentinae</td>
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In the present study, out of 149 respondents, 115(77%) respondents were aware of mode of transmission of Crimean Congo Hemorrhagic fever is through infected ticks(Fig. 1).75(50%) of the respondents responded that wearing protective gloves, clothing, mask and safety glasses are protective measures required when caring for CCHF patients (Fig. 2).

It was observed that 110(74%) of the respondents correctly answered that the causative agent for Crimean Congo Hemorrhagic fever is Bunyaviridae. Among 149 respondents, 94(63%) respondents were aware that Hyalomma tick is responsible for transmission of CCHF. 45(30%) of the respondents had the knowledge that CCHF is sensitive to light and 1% hypo chloride and 2% gluteraldehyde. A good number of respondents 108(73%), were aware that incubation period of CCHF is 5 – 6 days.
protective measures for CCHF. 87(58%) answered that use of insect repellents on the skin and clothing are personal protective measures. 83(56%) of the respondents had the good knowledge about the way to deal with CCHF epidemic.

Fig. 1: Mode of transmission

DISCUSSION

Crimean Congo Hemorrhagic Fever has sporadic and endemic spread in countries of Northern Europe, Asia, Middle East and Africa. The results of this present study showed a good knowledge of Crimean Congo Hemorrhagic Fever among 4th year medical students in Pakistan.

This present study results revealed that 77(52%) of the respondents were able to identify that CCHF is more prevalent during the months between April and October which agrees with the results of a cross sectional study conducted on the basis of knowledge levels about Crimean Congo Hemorrhagic Fever among Midwifery and Nursing students in Kahramanmaras, Turkey.

In this study, 35(24%) respondents had the knowledge about wearing of long light clothes and 87(58%) about use of insect repellents on the skin and clothing as personal protective measures which is comparable with the results of descriptive cross sectional study based on Nursing Students’ knowledge about Crimean Congo Hemorrhagic Fever in the endemic regions.

This study results are also comparable with the results of a descriptive cross sectional study conducted on the basis of Knowledge attitude and Practice Survey regarding Crimean Congo Hemorrhagic Fever among a sample of physicians in Turkey.

A hospital based descriptive cross sectional study on Crimean Congo Hemorrhagic Fever also revealed a fair Knowledge and Attitude in occupationally at risk Iranian healthcare workers which agrees with the results of present study.

The results of this study are also comparable with the results of a descriptive cross sectional study conducted on the basis of Evaluation of Knowledge about protection against Crimean Congo Hemorrhagic Fever.

The present study results are also comparable with the descriptive cross sectional study results based on Malaria and Congo Fever: Awareness among university students, Dow Medical College, Civil hospital Karachi in which a good number of students showed a fair knowledge about Congo fever.

In this study 56(38%) respondents had knowledge about headache as clinical picture for CCHF which is comparable hospital based descriptive cross sectional study which evaluated the Awareness among healthcare personnel, the Aga Khan University Karachi where on 4.1% doctors and 6.5% nurses had answered this question.

This study results are also comparable with hospital based descriptive cross sectional study conducted on the basis of knowledge, attitude and practices regarding Crimean Congo Hemorrhagic Fever among healthcare workers in Baluchistan.

CONCLUSION

The present study showed that our medical students have fair knowledge about Crimean Congo Hemorrhagic Fever, its causative agent, mode of transmission, incubation period, clinical picture and protective measures. CCHF is endemic in Pakistan so prevention is considered the best way to deal with it.
RECOMMENDATIONS

Scientific and formal knowledge about Crimean Congo Hemorrhagic Fever should be provided to all medical students, health care providers and primary care physicians and nurses to deal with this, as there is no specific vaccine and therapeutic interventions for CCHF.

Limitation: Due to limited time and resources, the present study was conducted only in one medical college in Lahore and study population was only 149 students of 4th year MBBS which are not the representative of all the medical students in the whole country.

So in future, further studies should be conducted on students of other medical colleges and health care providers to impart the knowledge about Crimean Congo Hemorrhagic Fever.

REFERENCES
5. Cagdas SNA, SAGLAM ZA, Toprak D, Sargn F, Mutlu HH. Knowledge Attitude and Practice Survey regarding Crimean Congo Hemorrhagic Fever among a sample of physicians in Turkey.