

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 Hyalomma 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 Nairovirus¹. It is a triple segmented RNA virus². CCHF virus cannot live outside the host. It is sensitive to light and inactivated at 5C⁰ for 30 minutes. This virus is also sensitive to 1% hypo chloride and 2% glutaraldehyde³. It was first emerged in 1944 in Crimea⁴. 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 occurs⁵. Humans can be infected directly by the tick (Hyalomma) bite or by direct contact with blood, body fluids and tissues of the infected animals⁶. Epidemiologically the most important route of transmission is by infected ticks⁷. CCHF is one of the rare hemorrhagic fevers which has nosocomial outbreak spread in hospitals depending upon the poor health facilities and settings⁸. The risk of human to human transmission increases during the latter stages of infection⁹.

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 Karachi¹⁰. 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 disease¹. 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 days³.

CCHF is more prevalent during the months between April and October⁴. 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 ELISA, 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 physicians⁵.

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

¹Demonstrator Community Medicine, Fatima Memorial Hospital, Lahore

²Demonstrator Community Medicine, Lahore Medical & Dental College, Lahore

³Final Year MBBS student, LMDC

Correspondence to Dr. Mehwish Arif, Email: mehwish.arif@lmdc.edu.pk, cell: 0300-6286542

tuck your pant legs into your boots. Regularly check your skin and clothing for ticks and insect repellents should be applied on skin and clothing. Animals should be treated with insecticides on regular intervals. Pouring of chemicals on ticks and putting out a cigarette on ticks which may cause vomiting of ticks, should not be performed. CCHF has nosocomial spread so health care personnel and the patient should wear protective mask, gloves, clothing and safety glasses during invasive procedures. Penetrating procedures should be reduced. Blunt needles should be used and sharp objects should be placed in special containers³.

The National institute of Health, Islamabad is serving as a capital diagnostic laboratory for all cases including suspected cases of CCHF from all over the country².

Rationale of the study:Being a Muslim country, we sacrifice animals every year on 'EidulAzha' so CCHF is endemic in Pakistan. As no vaccine and specific therapeutic interventions are available against CCHF, the prevention is considered the best way to save the lives of the population. So it was imperative to assess the knowledge of medical students which would determine the further spread of the disease.

The objective of the study was to assess the knowledge among 4th year M.B.B.S students at Lahore Medical & Dental College about Crimean Congo Hemorrhagic Fever.

METHODOLOGY

This descriptive cross sectional study was conducted at Lahore Medical & Dental College Lahore (LMDC) during two weeks in February 2016 on all registered M.B.B.S students of 4th year from the session 2015-2016. Non-probability Convenience Sampling technique was used. Study population was the entire class comprising of one hundred and seventy students (170). Structured questionnaire was developed as data collection tool. Data was analyzed by using SPSS 21. Data was described in the form of frequencies and percentages. It will be presented in the form of tables and figures. The research protocol was approved by the LMDC ethical review committee and verbal consent was obtained from each study participants.

RESULTS

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% glutaraldehyde. A good number of respondents 108(73%), were aware that incubation period of CCHF is 5 – 6 days.

Table 1: Knowledge of 149 medical students regarding CCHF

Knowledge about CCHF		n
Causative agent for Crimean Congo Hemorrhagic Fever		
Bunyaviridae	110(74%)	
Rota virus	16(11%)	
Rubella virus	11(7%)	
Wolbachiapipientis	12(8%)	
Tick responsible for transmission of CCHF		
Hyalomma tick	94(63%)	
Hard tick	14(9%)	
Soft tick	21(14%)	
Mite	20(13%)	
CCHF virus is		
Sensitive to light and 1%hypo chloride and 2%glutaraldehyde	45(30%)	
Able to live outside the host	64(43%)	
Resistant to light	27(18%)	
Activated at 5°C for 30 minutes	13(9%)	
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	4(3%)	
Relatives	20(13%)	
Clinical picture for CCHF include		
	Yes	No
Fever with chills and headache	93(62%)	56(38%)
Flue like symptoms	77(52%)	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%)	62(42%)
Drink plenty of water	16(11%)	133(89%)
The best way to deal with CCHF epidemic is		
Preventive measures	83(56%)	
Therapeutic interventions	21(14%)	
Vaccination	36(24%)	
Isolation of the patient	6(6%)	

93(62%) of the respondents had good knowledge about persons who are most at risk during an outbreak of CCHF. Among 149 medical students, 41(28%) responded that sudden onset of fever and 56(38%) answered that arthralgia & headache are clinical picture for CCHF.77(52%) of the respondents were aware that CCHF is more prevalent during the months between April and October. 88(59%) of the respondents answered that regularly check your clothes and skin for ticks are personal

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

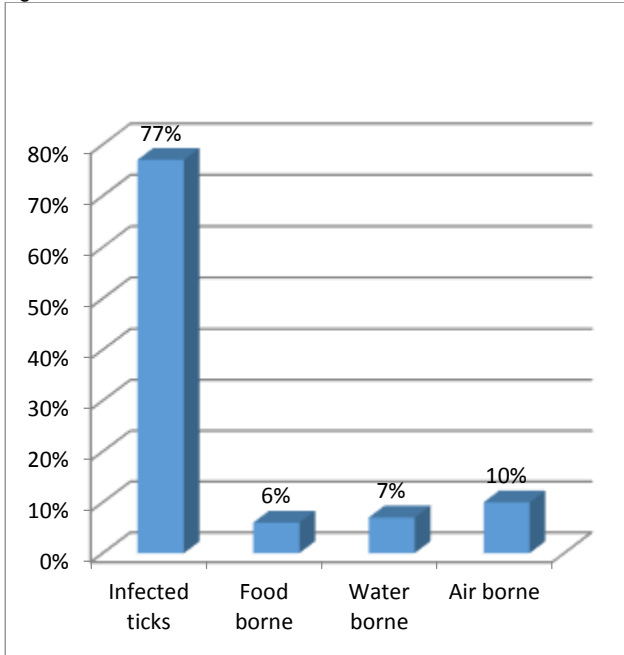
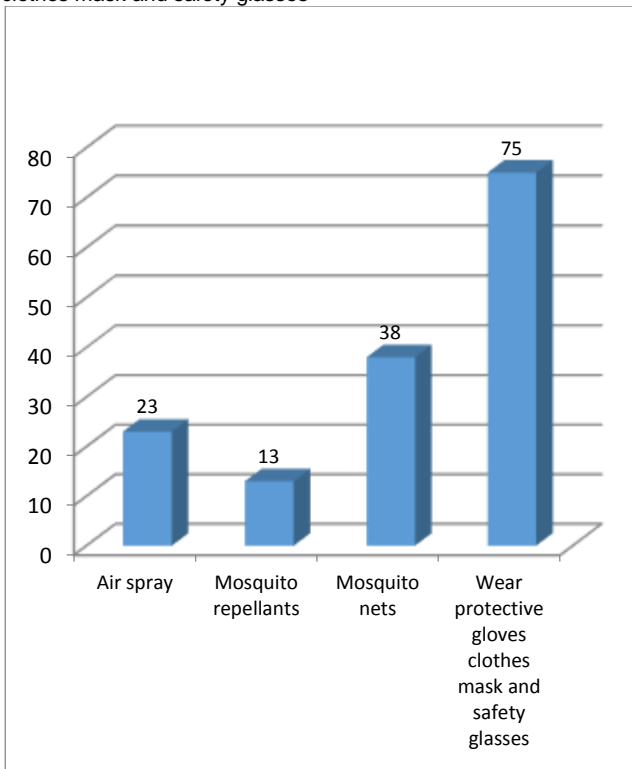


Fig. 2: Protective measures for CCHF wear protective gloves clothes mask and safety glasses



DISCUSSION

Crimean Congo Hemorrhagic Fever has sporadic and endemic spread in countries of Northern Europe, Asia, Middle East and Africa¹¹. 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, Turkey³.

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 regions¹¹.

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 Turkey⁵.

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 study⁶.

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 Fever⁷.

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 fever¹².

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 question¹³.

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 Baluchistan¹⁰.

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

- Ahmed M, Rafaqat B, Jamali MS, Aziz A, Ilyas T. malaria and congo fever: awareness among university students.
- Alam MM, Khurshid A, Sharif S, Shaukat S, Rana MS, Angez M, et al. Genetic analysis and epidemiology of Crimean Congo hemorrhagic fever viruses in Baluchistan province of Pakistan. *BMC infectious diseases*. 2013;13(1):201.
- Ozer A, Miraloglu M, Ekerbicer HC, Cevik F, Aloglu N. Knowledge levels about Crimean-Congo hemorrhagic fever among midwifery and nursing students in Kahramanmaras, Turkey. *Southeast Asian Journal of Tropical Medicine and Public Health*. 2010;41(1):77.
- Kader Ç, Akça NK, Erbay A, Polat S. Nursing Students' Knowledge about the Crimean-Congo Haemorrhagic Fever in the Endemic Regions. *International Journal of Caring Sciences*. 2014;7(3):855.
- 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.
- Rahnavardi M, Rajaeinejad M, Pourmalek F, Mardani M, Holakouie-Naieni K, Dowlatshahi S. Knowledge and attitude toward Crimean–Congo haemorrhagic fever in occupationally at-risk Iranian healthcare workers. *Journal of Hospital Infection*. 2008;69(1):77-85.
- Gungormus Z, Kiyak E. Evaluation of knowledge about protection against Crimean-Congo hemorrhagic fever. *Southeast Asian Journal of Tropical Medicine and Public Health*. 2011;42(3):737.
- Elata AT, Karsany MS, Elageb RM, Hussain MA, Eltom KH, Elbashir MI, et al. A nosocomial transmission of Crimean-Congo hemorrhagic fever to an attending physician in North Kordufan, Sudan. *Virology journal*. 2011;8(1):303.
- Lakhani A, Mahmood H, Laeeq A, Mansoor S, Lodhi S, Majid S, et al. Viral hemorrhagic fever in Pakistan: awareness among health care personnel. *JPMA* 2002;52(5):214-7.
- Sheikh NS, Sheikh AS, Sheikh AA. Knowledge, attitude and practices regarding Crimean–Congo haemorrhagic fever among healthcare workers in Balochistan. *Headache*. 2004;30:20.
- Kader Ç, Erbay A. Nursing Students' Knowledge about the Crimean-Congo Haemorrhagic Fever in the Endemic Regions. *International Journal of Caring Sciences*. 2014;7(3):855.
- Ahmed M, Bota R, Jamali MS, Aziz A, Ilyas T. Malaria and Congo fever: Awareness among university students. *Int J Trop Med Public Health*. 2013;2(1):22-30.
- Lakhani A, Mahmood H, Laeeq A, Mansoor S, Lodhi S, Majid S, et al. Viral hemorrhagic fever in Pakistan: awareness among health care personnel. *JPMA The Journal of the Pakistan Medical Association*. 2002;52(5):214-7.