

Knowledge, Attitude and Practices towards Congo Virus: A Cross-Sectional Study among the Healthcare Professionals in Pakistan

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Abstract

Crimean-Congo Hemorrhagic Fever CCHF, a tick borne viral disease, is prevalent in Africa, Asia and Europe. Supportive therapy is a general measure to manage CCHF. Main objective of this study is to develop and validate a questionnaire/tool to determine knowledge, attitude and practices regarding Congo virus among pharmacists and doctors including students and professionals (hospital, clinical and retail pharmacist) and to identify the key variables affecting the knowledge and attitudes. The cross sectional survey was conducted in twin cities of Pakistan which included randomly selected 437 pharmacists and doctors. Descriptive statistics, cross tab and chi square were applied on data to assess it. Results of the study postulate the need to periodically update and improve practices of Healthcare Professionals (HCP) by conducting relevant education programs.

Keywords: Crimean-Congo hemorrhagic fever CCHF; Descriptive statistics; Cross tab; Chi square

Introduction

Crimean-Congo Hemorrhagic Fever (CCHF) is described as a fatal viral infection in about 30 countries with reported mortality rate of 3-30%. Being a tick borne viral disease, humans become infected through tick bites, by crushing the infected tick, contact with CCHF patient during acute phase of infection or by contact with blood and tissues of virulent stock. The disease was first characterized in Crimea in 1944 thus given the name Crimean hemorrhagic fever [1]. CCHF virus has been named "the Asian Ebola virus", a soubriquet that identifies the clinical similarity of CCHF and Ebola hemorrhagic fever [2].

Severity of the disease depends on route of transmission and viral load in the inoculum and these two factors correspond to CCHF incubation period; ranging from a few days to 1 week. Compared to nosocomial infections the length is shorter through tick bite or livestock contact. Death rate for nosocomial transmitted infections is much higher than infections developed by tick bites. This may be due to viremia in nosocomial infections [3].

About one out of five humans infected with CCHF develop mild to severe clinical symptoms as the disease progresses. Symptoms include headache, high fever, back pain, joint pain, stomach pain, vomiting, red eyes, a flushed face, large areas of severe bruising and severe nosebleeds [4].

Laboratory tests used for diagnosis of CCHF include antigen-capture Enzyme-Linked Immune-Sorbent Assay (ELISA), real time polymerase chain reaction (RT-PCR), virus isolation attempts, and detection of antibody by ELISA (IgG and IgM).

Treatment regimen is based primarily on supportive care due to the fact that CCHF has multiple aspects and the maintenance and transmission of virus and pathogenesis of the disease in humans remains inadequately understood. Septic workup is done after which broad spectrum antibiotics are used. Hemostasis is improved through RBC's, FFP/thrombocyte solutions [5].

Currently Pakistan is one of five countries with clear evidence of CCHF presence. In endemic areas, CCHF is an occupational disease for butchers, slaughter house workers, livestock workers, animal husbandry workers, veterinarians and healthcare workers. Hence, it is of paramount importance that knowledge of at-risk occupational groups should be assessed periodically.

Knowledge, Attitude and Practices (KAP) of Health Care Practitioners are of great importance when it comes to maintaining the disease. The proposed framework of this study is to develop and validate a self-administered questionnaire to evaluate KAP towards Congo virus, to determine knowledge, attitude and practices of Healthcare Professionals (HCP) towards Congo virus in Pakistan.

Methodology

Study was carried out in the twin cities of Pakistan, Islamabad and Rawalpindi. Data was collected from pharmacist and medical students and professionals.

A cross sectional survey was conducted in the Riphah International University, Riphah Institute of Pharmaceutical Sciences, Islamabad, during Jan -May, 2017. The sample size was determined using EPI info stat calculator with error of 5% and level of confidence 95%.

Population Size (N)

Since the sample size does not change much for populations larger than 20,000, therefore 20,000 was taken as total population.

The statistically significant sample size was calculated to be 384. Adding 20% of non-response or missing data values the final sample size was 465 subjects.

Study tool

The study questionnaire was adapted from similar studies conducted previously and pre-tested. It was a two page questionnaire providing information about the knowledge, attitude and practices of Congo virus. The answers were used to assess the participants' level of knowledge and attitude FDI.

Study Questionnaire

Content validity was assessed by distributing questionnaire to 40 pharmacist recruits to complete the validation process. Initial draft was mailed to pharmacists to help review the structure of questionnaire and to amend it, if needed. After its assessment

and pilot testing on 40 respondents, validation of questionnaire was done through corn batch alpha. The final form of questionnaire consisted of pharmacist's demographic data, and a total of 36 questions that covered main areas of interest; assessment of pharmacist's knowledge regarding Congo virus and their attitude towards Congo virus

Statistical Analysis

The data was collected and analyzed using Statistical Package for Social Sciences (SPSS) version 16. Non parametric tests were applied including chi-square tests to identify associations amongst variables. The data was analyzed using frequency tables, chi-squares and cross tabulation among different variables.

Results

General Characteristics of Respondents

A total 437 pharmacists and doctors have participated in this study out of which 187 are male and 250 are female (Table1)

Table 1: General characteristics of respondents.

Characteristics	N%
Gender	187 (42.8)
Male	250 (57.2)
Female	
Age (years)	9 (2.1)
<20	359 (82.2)
20-29	58 (13.3)
30-40	11 (2.5)
>40	
Occupation	23 (5.3)
Retail pharmacist	48 (11.0)
Hospital pharmacist	35 (8.0)
Clinical pharmacy Lecturer	10 (2.3)
Professional pharmacist	118 (27.0)
Pharmacy student	100 (22.9)
Professional doctors	103 (23.6)
Medical student	
Level of education	354 (81.0)
Graduate/Bachelor	83 (19.0)
Postgraduate	

Mean percentage knowledge of respondents came out to be 66.33 (Table 2).

Table 2: Mean percentage knowledge.

N	Valid	437
	Missing	0
	Mean	66.3388

Frequency of knowledge range

As elucidated in table 3 majority of pharmacists (Professionals/Students) and Doctors (Professionals/Students)

Table 3: Frequency of knowledge range.

Knowledge range	Frequency (%)
Poor knowledge	131 (30.0)
Average knowledge	263 (60.2)
Good knowledge	43 (9.8)
Total	437 (100.0)

i.e. 263 (60.2%) have average knowledge, 43 (9.8%) have good knowledge while 131 (30.0%) pharmacists have poor knowledge.

As p value is greater than 0.05 therefore, difference between knowledge among male and female gender, Age, working experience and source of information is in significant. While occupation, level of education and type of facility has p value less than 0.05 hence, difference among knowledge is significant.

type of facility and source of information is statistically significant as p value is less than 0.05. Difference between responses to K8 and type of facility is statistically significant as p value is less than 0.05. Difference between responses to K10 and occupation, level of education and experience is statistically significant as p value is less than 0.05. Difference between responses to K11 and age, occupation, level of education and source of information is statistically significant as p value is less than 0.05.

Association of different variables with knowledge

Majority responses for K1 (3.4%), K2 (13.0%), k4 (43.7%), k6 (23.8%), k7 (32.5%), k8 (22.7%), k10 (41.0%), k11 (41.0%), k12 (33.9%) were correct. From table 4 we can conclude that difference between responses to K2 and occupation along with experience is statistically significant as p value is less than 0.05. Difference between responses to K3 and age, occupation, experience is statistically significant as p value is less than 0.05. Difference between responses to K4 and occupation, level of education, experience and source of information is statistically significant as p value is less than 0.05. Difference between responses to K6 and occupation, type of facility is statistically significant as p value is less than 0.05. Difference between responses to K7 and occupation, level of education, experience,

Majority responses for K5 were wrong i.e. 19.9%, 87 answers were correct. From table we can conclude that difference between responses to K5 and age is statistically significant as p value is less than 0.05. Majority responses for K9 were wrong i.e. 41.2%, 180 answers were correct. From table we can conclude that difference between responses to K9 and occupation is statistically significant as p value is less than 0.05. Majority responses for K12 were correct i.e. 33.9%, 148 answers were wrong. From table 4 it can be conclude that difference between responses to K12 and occupation, level of education and type of facility is statistically significant as p value is less than 0.05.

Table 4: Association of different variables with individual knowledge questions.

Statement	Response		Gender	Age	occupation	Level of education	Experience	Type of facility	Source of information
	correct	wrong							
(K1) Ever heard	422	15	0.057	0.337	0.164	0.056	0.023	0.003	0.937
	96.60%	3.40%							
(K2) The	380	57	0.861	0.396	0.001	0.671	0.003	0.054	0.31
	87.00%	13.00%							

(K3) Symptoms	97	339	0.745	0.007	0.008	0.47	0.003	0.574	0.143
	22.20%	77.60%							
(K4) Tick bite	246	191	0.222	0.246	0.015	0	0.006	0.347	0.011
	56.30%	43.70%							
(KS) Percutaneous	87	350	0.434	0.011	0.058	0.288	0.544	0.338	0.423
	19.90%	80.10%							
(K6) Bleeding	333	104	0.089	0.24	0	0.026	0.362	0	0.046

from multiple sites and fever are the cardinal manifestations	76.2%	23.8%							
(K7) Central nervous system involvement accompanies poor prognosis	295	142	0.07	.095	0	.002	.020	.017	.007
	67.5%	32.5%							
(K8) universal precautionary measures can prevent the nosocomial transmission of the disease	338	99	.125	.966	.088	.599	.550	.002	.132
	77.3%	22.7%							
(K9) A history of chronic hemostasis disorders can guide to the diagnosis	180	257	.237	.593	000	.430	.113	.505	.651
	41.2%	58.8%							
(K10) Antibiotic therapy is the	258	179	.387	.425	000	.003	.015	.103	.309
	59.0%	41.0%							

treatment of choice									
(K11) The disease is a chronic and life lasting one	258	01-Sep	.099	27	000	000	.078	.056	.007
	59.0%	41.0%							
(K12) The disease is not fatal	285	148	747	510	.001	.005	.631	.002	.151
	65.2%	33.0%							

Association of different variables with average attitude

15.3% negative responses were observed for A1, 79.2% positive while 4.3% responses were neutral. From table we can conclude that difference between responses to A1 and gender, age, occupation, working experience and source of information is statistically significant as p value for these three is less than 0.05.

Majority responses for A2 were positive i.e. 80.3%, 13.5% were neutral while 5.3% were negative. From table we can conclude that difference between responses to A2 and age, occupation, level of education, working experience and source of information is statistically significant as p value is less than 0.05. 40.7% responses were positive, 27.9% were negative while only 30.4% were neutral for A3. From table we can conclude that difference between responses for A3 and gender is statistically significant as p value is less than 0.05.

For A4 53.1% responses were positive, 24.3% were neutral while 21.7% were negative. P value shows that difference between response for A4 and occupation, experience, type of facility and source of information is statistically significant as it is less than 0.05. Majority responses i.e. 70.9% for A5 were negative, 11.0% were positive while 17.2% were neutral. P value shows that difference between response for A5 and gender, experience, level of education and type of facility is statistically significant as it is less than 0.05.

Majority responses i.e. 79.4% for A6 were positive, 12.6% were neutral while 7.1% were negative. P value shows that difference between response for A6 and age, occupation, Level of education, experience and type of facility is statistically significant as it is less than 0.05.

Majority responses i.e. 51.7% for A7 were positive, 11.7% were negative while 35.7% were neutral. P value shows that difference between response for A7 and gender, age, occupation and working experience is statistically significant as it is less than 0. Majority responses i.e.

59.0% for A8 were negative, 21.5% were neutral while 18.5% were positive. P value shows that difference between response for A8 and occupation, experience and type of facility is statistically significant as it is less than 0.05.

Majority responses i.e. 49.4% for A9 were negative, 26.8% were positive while 22.9% were neutral.

P value shows that difference between response for A9 and age, occupation, experience is statistically significant as it is less than 0.05. In A10 most of the pharmacists showed positive attitude i.e.

78.9% while 9.6% was neutral and 10.3% showed negative attitude. As p value is less than 0.05, we can conclude that difference between response for A10 and gender, occupation, experience and level of education is statistically significant.

In A11 most of the pharmacists showed positive attitude i.e. 84.9% while 2.1% was negative and 12.1% showed neutral attitude. As p value is less than 0.05, we can conclude that difference between response for A12 and level of education and type of facility is statistically significant.

In A12 most of the pharmacists showed negative attitude i.e. 64.1% while 17.8% was positive and 17.2% showed neutral attitude. As p value is less than 0.05, we can conclude that difference between response for A12 and age, occupation, level of education, experience, type of facility and source of information is statistically significant.

For A13 70.0% responses were positive, 19.2% were neutral while 9.8% were negative.

P value shows that difference between response for A4 and age, occupation, experience, level of education and experience is statistically significant as it is less than 0.05. For A14 62.5% responses were positive, 19.0% were neutral while 17.6% were negative. P value shows that difference between responses for A4 and age and occupation, is statistically significant as it is less than 0.05.

Table 5: Association of different variables with individual attitude questions.

Statement	Response			P value						
	Negative	positive	Neutral	Gender	Age	occupation	Level of education	Experience	Type of facility	Source of information
(A1) It is a contagious disease	-67 15.30%	-346 79.20%	-19 4.30%	0	0	0.001	0.189	0.005	0.983	0.021
(A2) Healthcare workers are at high risk	-23 5.30%	-351 80.30%	-59 13.50%	0.347	0.041	0	0.004	0.029	0.17	0.019
(A3) It cause severe illness in animals	-178 27.90%	-122 40.70%	-133 30.40%	0.024	0.566	0.613	0.304	0.073	0.077	0.081
(A4) Do you eat your livestock's meat if a tick bites it?	-95 21.70%	-232 53.10%	-106 24.30%	0.358	0.922	0	0.776	0.033	0.022	0.001
(A5) It can transmit from close contact with infected person	-310 70.90%	-48 11.00%	-75 17.20%	0.001	0.05	0	0.009	0.192	0.01	0.182
(A6) Patients must be isolated in hospital	-31 7.10%	-347 79.40%	-55 12.60%	0.557	0.011	0	0.028	0	0.023	0.079
(A7) CCHF can be considered as an occupational disease	-51 11.70%	-226 51.70%	-156 35.70%	0.004	0.05	0	0.3	0.04	0.431	0.459
(A8) Treatment of the patient's family is necessary	-258 59.00%	-81 18.50%	-94 21.50%	0.497	0.315	0	0.126	0.007	0.034	0.054
(A9) Do you think that it has airborne transmission	-216 49.40%	-117 26.80%	-100 22.90%	0.063	0.001	0.009	0.452	0.006	0.68	0.656

(A10) Use of gloves and hand hygiene participate effectively to reduce transmission	-45	-345	-42	0.022	0.183	0	0.012	0	0.046	0.099
	10.30%	78.90%	9.60%							
(A11) Is it possible to prevent it's spread	-9	-371	-53	0.416	0.37	0.147	0.002	0.059	0.023	0.439
	2.10%	84.90%	12.10%							
(A12) Do you consider yourself to be at risk	-280	-78	-75	0.213	0.01	0	0	0	0.035	0.039
	64.10%	17.80%	17.20%							
(A13) Do you think that Infection control policy of country is inadequate	-43	-306	-84	0.664	0.028	0.007	0.018	0.041	0.807	0.18
	9.80%	70.00%	19.20%							
(A14) One confirmed case of disease is an outbreak	-77	-273	-83	0.132	0.03	0.035	0.782	0.654	0.467	0.191
	17.60%	62.50%	19.00%							

Discussion

The present study was a questionnaire based study which included pharmacists and doctors from twin cities of Pakistan. This is the first study in Rawalpindi/Islamabad that evaluated the KAP of pharmacists/doctors regarding CCHF. Questionnaire development was based upon extensive literature review and focus group discussions. The present study was successful in evaluating the knowledge and attitude of CCHF among pharmacists and doctors. Overall, the KAP scores of the pharmacists was average.

Our aim was to develop a questionnaire which could be used for future studies and assessment of HCP's, to assess knowledge of pharmacists and doctors (professional and students) and to identify key variables affecting their knowledge. The total sample size for our study was 437 among which 42.8% were male while 57.2% were female. The average respondent in our study were interested in increasing their knowledge about the disease and further surveys might be needed to explore the reasons for this.

Pharmacists and doctors should have sufficient knowledge about CCHF as they are a part of healthcare team and are responsible for patient safety. Compared to another study where

about 177 students (34.3%) knew that Congo is a viral fever (6). These results shows that although most of the respondents are aware of CCHFV, that why they may take precautionary measures to save themselves from this fever. It is a non-specific febrile illness that has a dramatic progression [7]. Most of (77.6%) respondents said that symptoms appear suddenly that means they do not have adequate knowledge about the onset of disease.

In our study most of the respondents orderlies reference books/articles (54.5%) as key bases of CCHF information, while radio and television about (17.8%) as key bases of CCHF information, possibility for poorer knowledge. Compared to the study done in Iranian HCW's they have cited radio and television as the major sources of CCHF information [8].

(56.3%) participants were aware of the transmission of disease, as it is a tick borne disease and tick bite prevention may control the disease transmission [9]. This result was important as people couldn't have able to protect themselves against the disease by not knowing the mode of transmission [10-16]. While in another study done in turkey among public it was found that most of the adults knew about mode of transmission of disease [7,17].

Presenting symptoms of CCHF in our study were hemorrhage by (76.2%) respondents and CNS involvement by (67.5%) participants [18-20]. These results have showed that most of the individuals know about sign and symptoms of CCHF, seminar to another study done on healthcare professional reported hemorrhage as a symptom of CCHF by 57% of doctors (6). This data might have been showed that this knowledge is valuable in initial diagnosis and treatment of CCHF [21].

By directing this study knowledge and attitude of pharmacists and doctors is assessed which comes out to be average, therefore one of the better methods to improve the knowledge of pharmacists is to conduct KAP concerning CCHF precautions and conducting educational programs, seminars and workshops [22,23]. Educational intervention is suggested to expand knowledge of forthcoming HCP's, and also in addition to infectious diseases CCHF should be included into the curriculum. Professional study courses should include training programs and sessions about CCHF among healthcare professionals to avoid its outbreaks [24]. It is also suggested that in future more studies should be directed that evaluate the KAP of pharmacists and doctors (professional and students), both before and after an educational intervention [25].

Conclusion

In conclusion, the knowledge and attitude of the HCWs is found to be average regarding CCHF. Pharmacists and doctors surveyed in this study showed an intermediate or an average knowledge about CCHF while occupation, source of information and level of education were key variables found in this study affecting knowledge of pharmacist and doctors. Pharmacists and doctors have an important role in providing pharmaceutical care to patients. In order to improve HCW's' attitude boost them to use academic materials and to increase the knowledge of less educated HCWs, professional by starting different educational campaigns in Pakistan. An education campaign comprising of seminars, pamphlets and workshops would be useful in dispersal of information, an important factor of this approach. The extent and nature of gaps in knowledge, attitudes and practices of HCW's needs to be documented and require further studies. Findings of this study have supported the need to remain updated and improve practices.

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