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Knowledge of community on hemorrhagic fever in Kirkuk province-Iraq

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***Abstract*---**Back ground: Viral hemorrhagic fevers (VHF) are febrile illness caused by RNA virus. Human infection occurs through contact with animal-vectors or other infected humans. Objective; The object of present study was to determine the knowledge, regarding viral haemorrhagic fever (VHF) among different groups of population at Kirkuk- Iraq.Methods: A cross-sectional survey was conducted during period from April –November among the officials and university students. A questionnaire was formulated which included demographic data of the respondents and their knowledge toward viral haemorrhagic fever. Results: Regarding the knowledge of the studied samples on the causative agent, the vast majority knew that the cause was virus in a percentage of (67.61%), while (85.7%) had the correct information that the disease is transmitted from animals. Finally about half of the participant (50.47%) knew that gathering is an important risk factor of infection, followed by health centers (35.23%) and the lowest was the general parks (14.28%). In the field of prevention it was clear that most participants (99.o4%) knew that notification is the best way of prevention and control of the disease and 93.30%) knew that isolation of patient is a correct way of prevention.

***Keywords*---**Viral haemorrhagic fevers, Knowledge, Attitude, Kirkuk-Iraq.

Introduction

Viral haemorrhagic fevers are fatal emerging diseases , are of public health importance, among the different parts of the world. Their clinical feature start by acute fever, joint pain, bleeding and shock (1). Viral hemorrhagic fevers can cause severe, and it is life threatening illness leading to damage and leak of blood from various blood vessels (2 & 3).

There are twelve different viruses associated with haemorrhagic fever in human, most of them are zoonoses except dengue virus which may continuously circulate among humans, it is transmitted to human frequently. Several viruses cause VHF : such as Arenavirus, Filoviridae, Bunyaviridae and Flavivirus. Some of these viruses can cause severe, life threatening disease, while others cause relatively mild illness. Most of viruses can be transmitted to human by mosquitoes, ticks or rodents (4, 5). Haemorrhagic fever viruses are found in both temperate and tropical regions, and infect both males and females of all ages. Seasonality of haemorrhagic fever among human is influenced for the most part by the dynamics of infected arthropod or vertebrate hosts (6).

Haemorrhagic fever is a viral disease that is transmitted to human by tick (tick borne), which is infected by direct contact with infected animal or their blood or infected tissues. Haemorrhagic fever has been isolated for the first time in Iraq in 1979, mean while several cases were reported in Halabja city during 1980,unfortunately in 2021; 33 cases were reported among which 13 were died (7).

A study on disease in Sulaimania, showed that symptomatic Crimean-Congo hemorrhagic fever (CCHF) is a uncommon disease in Sulaimania province and no clinical cases is reported, due to eradication of ticks implemented by veterinary authorities (8).

In Jazan Saudi Arabia, (9) showed low prevalence of sufficient knowledge was evident among secondary school students.

In humans, CCHF is a main pathogen for humans, the main clinical signs in humans are, fever, severe headache, dizziness, pohotophobia, myalgia, arthralgia, bleeding echymosis, hematemesis, melena, epistaxis, hematuria, hemoptysis, nausea and vomiting (10).

Materials and Methods: A Descriptive study was setup on different groups of population from various districts of Kirkuk governorate along 4 months ; from beginning of July to the end of November 2022. A Special questionnaire form distributed to public. The questionnaire involved the sociodemographic characteristics including age, gender, occupation, residency, educational level, knowledge of viral

Haemorrhagic fever, which include the causative agents, route of transmission, clinical features, methods of control, prevention and hygiene related behaviors as, hand washing, shaking hands, social distancing and avoidance of crowded places.

Data collection tool carried out according to a study done by Jassim (11) that included many parts and parameters.

Statistical analysis: Statistical analysis was carried out using statistically available SOFT WARE (SPSS version 18. Chi-square test was used to show significant difference between groups and student t-test was used to show the difference between any two groups (12).

Results

Table 1 demonstrate the distribution of participant to haemorrhagic fever according to demographic characteristics. The present study was conducted on 105 participants (48 males and 57 females). Their age were ranging from below 25 to over 55 years old, the residency of participant in urban area (86..66%) were greater than rural regions (13.33%). The highest level of education was university (91.42%) followed by illiterate (3.80%), primary (2.85%), and secondary (1.90%).

Table 1: Distribution of participant according to demographic characteristics

Parameters	Number	Percentage (%)
Gender		
Male	48	45.71
Female	57	54.28
Age		
<25	71	67.61
25-40	23	21.90
41-55	5	4.76
>55	6	5.71
Residency		
Urban	91	86.66
Rural	14	13.33
Education		
Illiterate	4	3.80
Primary	3	2.85
Secondary	2	1.90
University	96	91.42

The occupation of cases were students 79.05%, official 12.38%, farmers 4.76% and employee 3.81% respectively as shown in table 2.

Table 2. Distribution of participant according to occupation.

Occupation	Number	Percentage %
Official	13	12.38
Students	83	79.05
Employee	4	3.81
Farmers	5	4.76

It is shown in table 3 that 67.61%, had the correct knowledge the causative agent being virus followed by bacteria 17.14%, parasite 11.42%, fungus 3.80% respectively. Statistically there was no significant difference between groups.

Table 3. Knowledge of studied samples according to causative agent.

Causative agents	Male No.	%	Female No.	%	Total No.	%
Bacteria	9	8.57	9	8.57	18	17.14
Virus	34	32.38	37	35.23	71	67.61
Fungus	1	0.95	3	2.85	4	3.80
Parasite	4	3.80	8	7.61	12	11.42
Total	48	45.71	57	54.28	105	

Chi Sq=1.701 df=3 P>0.05

Table 4 shows, the knowledge of participant on mode of transmission, it is shown that the majority of participant believe that the disease is transmitted from animals (85.71%), followed by direct contact (58.09%). Statistically there was no significant difference between groups.

Table 4. Knowledge of participant on haemorrhagic fever according to routes of transmission.

Routes o transmission	Urban	Rural	Total	Percentage (%)
Direct contact	54	7	61	58.09
Zoonosis	82	8	90	85.71
Patients utensil	16	3	19	18.09
Body fluids	11	1	12	11.42
Water	5	1	6	5.71
Shaking hands	3	1	4	3.80
Air borne	2	1	3	2.85

Chi Sq=3.39 df=6 P>0.05

Table 5, shows the site risk of infection to educational level, the majority of participant answer was gathering (50.47%), followed by health centers (35.23%) and general parks (14.28%).

Table 5. shows the site risk of infection to participant according to educational level.

the majority of participant believes that the site risk of infection is gathering (50.47%), followed by health centers (35.23%), and the lowest was general parks (14.28%). Statistically there was no significant difference between groups.

Table 5. Site risk of infection to participant according to educational level.

Education level	Health centers	Gathering	General parks
University	35	47	14
Secondary	1	1	0
Primary	1	2	0
Illiterate	0	3	1
Total	37 (35.23%)	53 (50.47%)	15 (14.28%)

Chi Sq=3.295 df.=6 P>0.05

Table 6, shows the knowledge of participant on prevention and control. It was found that the highest percentage of participants knowledge on prevention and control are authority notification (99.04%), followed by isolation of patients (93.30%), treatment of contacts (45.71%) and the least was personal protection (39.05%).

Table 6. Knowledge of participant on Prevention and control.

Prevention & control	Number	Percentage
Isolation of patients	98	93.30
Personal protection	41	39.05
Treatment of contacts	48	45.71
Authority Notification	104	99.04

Discussion

According to our knowledge, till the writing of this paper there is no paper published that has evaluated thoroughly knowledge, attitude and perception of Kirkuk Community about viral haemorrhagic fever.

For treatment of patients with viral haemorrhagic fever, good preventive and control measures are needed effectively (13).

Many respondents had deficiency in practice and attitude toward the disease inspite of continous efforts and trial to promote IPC performance in both urban and rural areas, and VHF awareness in health care facilities, this study hints at a gap in IPC in training in Kirkuk area especially in rural areas This finding is also reported in some West African countries (14). It seems that HCW in rural area have principal rule in preventing the current and future outbreak in rural areas, this reflect a sanitary problem in that area. Raab et al., (5) found no significant difference between urban and rural regarding knowledge of VHF.

In Turkey it has been noted an attracting observation about the increased number of morbidity and mortality related to the disease, as in 2008 more than 1400 cases were reported and 63 death were reported; accordingly the Turkish health authorities has set up educational programs that were conducted by specialists on case management , isolation methods and prevention as well as control methods (15, 16).

The highest percentage of knowledge of causative agent, mode of transmission and risk factors was among university level participant, this may be due to university students who have enough awareness of the disease. While animal breeders has good knowledge on the transmission and the disease being zoonosis, being in contact with veterinary personale who gave them instructions about the disease and the instructions about the disease and the importance of its notification.

A study was carried out in Baluchistan, Pakistan showed obviously that the studied group had good knowledge on the cause of the disease while they had poor view and lack major information about the transmission, epidemiology and treatment of disease, again returning to gender differences in the levels of knowledge among female than male. (17).

It has been reported that CCHFV continues to increase in Pakistan between 2014 and May 2020, with around 356 CCHF patients confirmed across the country by the National Instit. Pakistan , with a 25% mortality rate (14-16) of these patients. Zohaib et al reported 2.7% of CCHF seroprevalence in Pakistan with increased prevalence in rural residence, possibly due to increased exposure to animals. High risk of nosocomial of CCHFV was reported for the first time in 1976 when laporatomy of CCHF patient was performed. In Pakistan CCHF endemic region where previously frequent nosocomial transmission have been reported (18).

Ahmed (17, 19), has mentioned that about 54.3% of all health care practioners have fair knowledge , while Rahnawandi reported higher rate of population with good knowledge regarding the disease in a rate of 50.34%. The higher knowledge among Iranian may be related to the group of the population who participated in the study being mostly paramedical and laboratory personale (20,21). From the results of the current study, it seems that Turkish and Irannian population had higher knowledge than our studied samples being 90.20% and 84.27% respectively (20,21).

The results of the current study explored better knowledge among a previous study carried on in Pakistan among medical and pharmacy students which may be explained by a logical explanation being that our participants are in direct contact with patients and possibly they are better prepared scientifically as well as practically (22). It has been reported by Sadiq and Hussein (23), level of education was not associated with knowledge of studied groups.

Of note, that, according to an Iranian study when the question was asked, CCHF can be transmitted through percutaneous contract from an infected individual, 89.5% participants provided correct answer while in our study 71% study participant provided correct answers similarly in Turkish study 98.2% physicians correctly answer this question (19, 20).This finding is of particular interest as the similar study was carried out in Forest Guinea; the study explored that the knowledge of health care workers had excellent knowledge of VHF in both urban and rural areas, and they reflect the recommendations of WHO in dealing with suspected cases of VHF. (5).

Sheikh et al has demonstrated that HCP's knowledge was poor in regard to prevention and burial techniques for CCHF deaths (22). Our study have shown a

significant association between higher education, experience, and higher knowledge , which was in agreement with that of Turkish as well as Iranian studies consistent with that of Turkish and Iranian studies (20,21). Officials employed in secondary care setting had lower levels of knowledge than those working in tertiary care setting, possibly because of better training and more sophisticated facilities, more training workshops, which was in agreement with a study conducted in India (24).

Health care practioner working in emergency had higher risk of percutaneous infection as in Pakistan 64% believe that Pakistan Health cannot be able cope perfectly with such incidence if occur. Similarly Haq et al mentioned the deficient health care of the country to deal with such cases(25) . The results of the current study was in agreement with both Georgian and Turkish studies which showed that the vast majority of study subjects knew that animal breeders and pets owners are of higher risk to contract of CCHF (26,27).

Although there was good and positive attitude and perception of HCPs towards CCHF, the knowledge was poor that might be due to busy schedule and overwork.

ICP should share in education in CCHF which must be continuously used to set up and promote knowledge of CCHF on prevention, control and treatment, improving diagnostic tools and illustrating the epidemiology of ticks regarding seasonal distribution, route of transmission and occurrence of disease

Conclusions

Deficient knowledge of the participants on the air–born transmission of the disease, among all educational levels except the university level participants.

Regarding other correct information's the participants had good knowledge, also the animal breeder had optimal knowledge about the disease being zoonosis.

Strength and limitation

According to our knowledge this is the only study that is carried out in Kirkuk to explore the perception of the different groups of the community on their myths and knowledge on this important and fatal disease.

The limitation however are the data were collected by using questionnaire assessment which may result in recall bias or social credibility bias.

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