KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING CRIMEAN – CONGO HAEMORRHAGIC FEVER AMONG HEALTHCARE WORKERS IN BALOCHISTAN

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Background: The objective of this study was to determine the knowledge, attitude and practices regarding Crimean-Congo Haemorrhagic Fever (CCHF) among healthcare workers at a tertiary care referral hospital in Balochistan. **Methods:** A cross-sectional survey was conducted in April - May 2000 among the doctors, nurses and laboratory technicians of Sandeman Provincial Teaching Hospital, Quetta, Balochistan. A questionnaire was formulated which included the demographic data of the respondents and their knowledge, attitude and practices towards CCHF. **Results:** A total of 235 healthcare personnel including 150(63.8%) doctors, 50(21.2%) nurses and 35(15%) laboratory technicians were interviewed during the survey. Seventy percent (164) of the subjects were males while 30% (71) were females. One fifty-five (66%) of the total respondents claimed to know what CCHF was. By designation 120 (80%) of doctors, 30 (60%) of nurses and 5 (14%) of laboratory technicians had a prior knowledge about CCHF. One twenty (80%) of the doctors knew the most common presentations of CCHF. All categories of the respondents had a poor knowledge regarding the burial procedure of dead patients. **Conclusion:** This study was an indicator of the poor level of knowledge of healthcare workers regarding the clinical presentations and the modes of spread of CCHF. It is the dire need of the time to educate the healthcare workers about the common preventive measures of this disease, which has resulted in the loss of several important lives in the past in this region.

KEY WORDS: Viral Haemorrhagic Fever, Haemorrhagic Fever, Crimean Congo Haemorrhagic Fever.

INTRODUCTION

Viral Haemorrhagic Fever (VHF) is an acute illness that is caused by geographically restricted viruses more commonly found in Africa, Central Asia and South America.[1] Of the various types of oraganisms that cause VHF, Lassa, Ebola and Marburg are restricted to Sub-Saharan Africa whereas Crimean – Congo Haemorrhagic Virus is widely distributed in Africa, Mediterranean, Middle East, Central Asia and China.[2,3] Crimean – Congo Haemorrhagic Fever (CCHF) occurs sporadically in the regions of Africa, Asia and Eastern Europe[4], with case fatality rates ranging from 13-90%.[5-7] The virus causes a severe haemorrhagic fever, first described in Soviet Union.[8] The virus has been isolated from ticks in Pakistan.[9] The disease has also caused nosocomial outbreaks in Pakistan.[10] In the majority of cases, the index patient presents with haemorrhagic manifestations and dies from related complications.[3] Exposed healthcare personnel are at risk to develop the disease and its complications.[11] Though rarely diagnosed, CCHF is known and feared in Pakistan among medical staff.[3]

The risk of person-to-person transmission is highest during the later stages of illness, VHF has not been reported in persons whose contact with an infected patient occurred only during the incubation period i.e. before the patient became febrile.[12] Epidemiological studies of VHF in humans indicate that infection is not readily transmitted from person-to-person through the air-borne route.[1,13] Nosocomial spread of VHF has been reported as a major cause of epidemics in Pakistan.[3,14]

Crimean – Congo Haemorrhagic Fever is characterized by a febrile illness with headaches, myalgia and petechial rash, which is usually followed by bleeding and necrotic hepatitis. In Pakistan, the disease was recognized in 1976 when a laparotomy was performed on a patient with abdominal pain, haemetemesis and melena. Three deaths occurred including a surgeon operating on patient and an attendant of operation theatre while 11 patients were found infected.[3] CCHF is known to be sensitive to in-vitro and in-vivo ribavirin,[15,16] a drug which is effective against several RNA viruses.[17]

An outbreak of CCHF was reported in Quetta, Balochistan in December 1994, resulting in the death of a patient while two surgeons, who operated upon him and a healthcare personnel at Agha Khan University Hospital (AKUH), Karachi, where the surgeons were treated, became infected with the virus.[4]

This study was conducted to determine the knowledge, attitude and practice regarding CCHF among healthcare personnel at Sandeman Provincial Teaching Hospital, Quetta, the largest and the only tertiary care centre of Balochistan.

MATERIAL AND METHODS

This study was conducted as a cross-sectional survey in April - May 2000 at the Sandeman Provincial Teaching Hospital, Quetta, the only tertiary care centre in the province of Balochistan. Our target population consisted of healthcare personnel, which included doctors, nurses and laboratory technicians.

A questionnaire was formulated after a thorough literature search, which included the demographic data of the respondents along with the knowledge regarding Viral Haemorrhagic Fever, its management and measures taken to prevent its spread.

Written consent was obtained from the Medical Superintendent of the concerned hospital. Permissions were granted to the team of the doctors conducting the study to interview healthcare personnel at the Casualty Department, Department of Medicine, and the laboratories as well as the Nursing Staff of the hospital. The healthcare personnel of these departments were targeted because they were directly or indirectly exposed to the patients with CCHF. Following this, individual verbal consent was obtained from all participants prior to filling-in the questionnaires. Questionnaires not completely filled were disregarded. For the purpose of maintaining respondents privacy no names were recorded; only designations were taken.

Frequencies of the answers to each question were calculated for all the questions in the questionnaire. The frequencies were also calculated on the basis of the designation of the respondent (doctors, nurses and laboratory technicians) so that each group could be examined separately.

Respondents who claimed prior knowledge of CCHF answered two sets of questions. The first set was divided into two categories: questions pertaining to the disease itself and questions pertaining to the management and prevention of the disease.

The second set of questions comprised of questions answered by respondents who knew what CCHF was. It allowed subjects to assess their own level of competence in handling patients with CCHF.

Respondents who did not know what CCHF was then answered a third set of questions comprising of three questions. These questions were designed to examine the level of knowledge concerning general infection prevention measures, the desire to learn more about CCHF and the knowledge as to where useful information could be sought.

RESULTS

A total of 235 healthcare personnel including 150(63.8%) doctors, 50(21.2%) nurses and 35(15%) laboratory technicians were interviewed during the survey. Women represented approximately 30% of the respondents and the remaining 70% were men.

The participants of the study were inquired whether they knew CCHF or not. If the response was affirmative, the subjects were further asked a set of 17 questions regarding the disease, its management and the necessary precautions to prevent its spread. If the response was negative, the subjects were asked a 3-question sub-set of those 17. About 155 (66%) of the total respondents claimed to know what CCHF was. By designation, 120 (80%) of doctors, 30 (60%) of the nurses and 5 (14%) of the laboratory technicians said they knew what CCHF was.

The healthcare personnel awareness level with regards to common signs and symptoms of CCHF offer an insight into their knowledge of the disease itself.

Fever was reported as a feature by 120 (80%) of doctors, 30 (60%) of nurses and 5 (14%) of laboratory technicians interviewed. Bleeding from any site was reported as a feature by 135 (90%) of doctors, 20 (40%) of nurses and 18 (51%) of laboratory technicians. Approximately 30 (20%) of doctors, 9 (18%) of nurses and 7 (20%) of laboratory technicians responded that headache was a feature of CCHF. Regarding the other clinical features including vomiting, abdominal pain and bodyaches, all categories of the subjects had a poor knowledge. Table-1 depicts the respondents response about common presentations of CCHF.

The subjects who claimed prior knowledge regarding CCHF were asked what precautions were necessary for healthcare personnel while managing patients with CCHF. About 105 (70%) of doctors suggested use of gloves while dealing with blood and secretions of CCHF patients; only 4 (11%) of laboratory technicians, who mainly deal with these materials, suggested use of gloves as precautionary measures.

Table 2 presents the information obtained from the subjects regarding their attitude about precautionary measures.

Table 1: Respondents' knowledge about common presentations of CCHF* (N=235)

Sr. No	**Clinical Features**	**Doctors No (%) (n=150)**	**Nurses No (%) (n=50)**	**Lab. Tech. No (%) (n=35)**
1.	Fever	120 (80%)	30 (60%)	5 (14%)
2.	Headache	30 (20%)	9 (18%)	7 (20%)
3.	Vomiting	15 (10%)	12 (24%)	1 (2.8%)
4.	Abdominal Pain	18 (12%)	5 (10%)	-
5.	Bodyaches	15 (10%)	4 (8%)	-
6.	Bleeding	135 (90%)	20 (40%)	18 (51%)

CCHF* : Crimean – Congo Haemorrhagic Fever

Forty eight (32%) of doctors believe that afflicted patients should be isolated while 4 (8%) of nurses and only 2 (5%) of laboratory technicians agreed. Of the healthcare personnel interviewed 78 (52%) of doctors, 33 (66%) of nurses and 31 (88%) of laboratory technicians did not know whether CCHF patients should be isolated or not.

Once an afflicted patient has died 60 (40%) of the doctors, 35 (70%) of the nurses and 21 (60%) of the laboratory technicians surveyed suggested that the body be buried normally without any special precautions. Thirty-two (21%) of doctors suggested cremation, 23 (15%) suggested burial in a polyethylene bag and 12 (8%) suggested burial in a sealed casket. Amongst nurses and laboratory technicians 4 (8%) and 1 (2.8%) respectively suggested cremation, 1 (2%) and 0% respectively suggested burial in a polyethylene bag and none of the nurses or the laboratory technicians suggested burial in a sealed casket. Table 3 gives the respondents' practices regarding CCHF afflicted patients.

Of those respondents who claimed some prior knowledge of CCHF 23 (15%) of doctors, 4 (8%) of nurses and 1 (2.8%) of laboratory technicians felt that their level of knowledge was sufficient for them to safely and effectively handle an afflicted patient. Amongst the healthcare personnel interviewed 207 (88%) felt that they wanted to know more about CCHF.

The respondents were also asked to identify reliable sources from which they could obtain further information on CCHF. One sixty-nine (72%) of respondents suggested that they would seek for information on the internet, 40 (17%) would seek advice from senior personnel and 26 (11%) would look for information in text books.

Table 2: Respondents' attitude about precautionary measures while managing CCHF* patients (n=235)

Precautionary Measures	Doctors No (%) (n=150)	Nurses No (%) (n=50)	Lab. Tech. No (%) (n=35)
Gown	33 (22%)	5 (10%)	1 (2.8%)
Gloves	105 (70%)	26 (52%)	4 (11%)
Mask	60 (40%)	6 (12%)	2 (5.7%)
Goggles	8 (5%)	1 (2%)	-

CCHF* : Crimean – Congo Haemorrhagic Fever

Table-3: Respondents' behaviour towards CCHF* afflicted patients. (n=235)

Measures	Doctors No (%) (n=150)	Nurses No (%) (n=50)	Lab. Tech. No (%) (n=35)

Isolation of Patient	48(32%)	4 (8%)	2 (5%)
Normal burial of dead	60(40%)	35 (70%)	21 (60%)
Cremation of Dead	32(21%)	4 (8%)	1 (2.8%)
Burial in Poly-ethylene bag	23(15%)	1 (2%)	-
Burial in Sealed bag	12 (8%)	-	-

CCHF* : Crimean – Congo Haemorrhagic Fever

DISCUSSION

The majority of the healthcare staff interviewed, 75% of doctors and 52% of nurses, claimed some prior knowledge regarding CCHF. However, only 8% of the respondents felt that their knowledge was adequate to effectively handle an infected patient. About 80% of doctors knew the most common symptoms; 70% of the doctors thought it was necessary to use at least latex gloves when handling infected patients or blood products. The overwhelming response from the interviewees was that they wanted to know more about the disease and its control measures.

There seemed to be some variation in the level of information among different types of hospital personnel i.e., laboratory technicians knew least and doctors were most informed because of obvious reasons but laboratory technicians are at equal risk of acquiring nosocomial infection and should be given education and awareness about this illness. The laboratory technicians do not need to know the signs and symptoms but they need to know about the mode of spread of disease and precautionary measures.

The results of this study indicate the need to increase knowledge level among healthcare personnel regarding CCHF at all levels including the housekeeping staff and privision of better management facilities including isolation rooms and availability of at least some protective gears for health workers.

An education campaign consisting of seminars, pamphlets and workshops would be useful in disseminating information and could form one arm of this approach. As indicated by our respondents, the newspaper, television and internet are the sources that healthcare personnel would most readily consult; therefore, some resources for education should be allocated accordingly.

This study could be an indicator of the level of knowledge of healthcare workers regarding the mode of spread of diseases and therefore efforts to educate about the common preventive measures may decrease the burden of other diseases which are more prevalent in this area.

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