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CRIMEAN CONGO HEMORRHAGIC FEVER CASES IN ISLAMABAD OUTBREAK INVESTIGATION REPORT - MAY 2014

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INTRODUCTION:

Crimean-Congo Hemorrhagic Fever (CCHF), caused by a tick-borne virus (Nairovirus), is a zoonotic viral disease that is asymptomatic in infected animals, but a serious threat to humans.[1] Human infections begin with nonspecific febrile symptoms, but progress to a serious hemorrhagic syndrome with a high case fatality rate (10 – 40%)[2]. It is one of the most widely distributed viral hemorrhagic fevers occurring in parts of Africa, Middle East, Asia and Europe[3]. The occurrence of this virus is correlated with the distribution of Hyalomma species.[4]

In Pakistan, Since the diagnosis of first human case of CCHF in 1976, the sporadic cases have continued to occur.[5] Mass scale animal movements anticipated prior to Eid ul Azha could serve as a source of propagation for ticks infested with CCHF virus thereby increasing the risk of disease transmission during late summer months.

Three suspected cases of Viral Hemorrhagic Fever were reported from Pakistan Institute of Medical Sciences (PIMS) Islamabad on 15th, 16 and 20th May 2014. On the formal request of PIMS administration, a multidisciplinary team of experts visited PIMS to carry out an epidemiological investigation with the following main objectives:

- To investigate possible source of infection
- To enlist all close contacts to rule out possibilities of disease transmission
- To assess the hospital infection control practices
- To recommend preventive & control measures.

METHODOLOGY:

Standard outbreak investigation steps and operational case definitions were followed. Review of the hospital record, history and investigations carried out was undertaken besides personal interviews with the concerned physician, doctors, nursing staff and attendants. Active contact tracing was undertaken among the staff of the Isolation ward and at house of the deceased/cases. Observed the infection control practices in the hospital. Data was collected through a structured questionnaire and analyzed through Epi-info-7 software.

RESULTS:

A total of 04 patients reported to hospital during May 2014. All had history of contact with animals or confirmed patient. All were treated in hospital where three died and one escaped from hospital. Isolation ward in hospital is situated in the end of a general medical ward and entry/exit is through corridors of the wards which pose risk of infection transmission to other patients and staff. The isolation ward is not properly designed and located. According to attendants, paramedical/nursing staff remained reluctant to visit isolated patient rooms. Patients presenting to emergency room are kept mixed with other patients due to shortage of space and are not properly triaged.

Details of the individual patient are as follow:

- **Mr. MA; suspected case**
  Resident of Kabul, cattle handler by profession.

1st May 2014: developed high grade fever, hemorrhagic spots on legs, gums bleeding, epistaxis, bloody loose stools and generalized body aches at Kabul.
2nd May, 2014: Reached Northwest General Hospital Peshawar, where he remained admitted for 24hours.
3rd May 2014: He was shifted to Hayatabad Medical complex Peshawar and remained there for two days
5th May 2014: He was shifted to PIMS Islamabad, reached afternoon and admitted in Isolation ward. He was given supportive therapy, platelets transfusion and cap. Ribavirin.
6th May 2014: at 5:30 am, the patient was declared dead. His dead body was shifted back to Kabul.

- **Mr. MAK,**
A retired government employee, from Aurakzai Agency, currently resided at Golra Islamabad.
12th May, 2014: He developed high grade fever, body aches and burning micturation. He was taken to private doctor.
14th May, 2014. He developed hemorrhagic spots on legs and other parts.
15th May 2014: After having bleeding from rectum, gums, nostrils, and hemoptysis, he was admitted in PIMS where he was give supportive therapy, platelets transfusion and IV fluids. At 4:45pm he was declared dead. His sample was tested positive for CCHF.
Exposure history: There were goats in the house and the team found tick there. Mr. SA, his nephew was also symptomatic and positive.

Mr. SA:
Age 35yrs, nephew of the fatal case (Mr. MAK), was found symptomatic during the visit. He had maximum contact with his uncle. He was shifted to PIMS. He was given Cap Ribavirine and transfused platelets. On the same evening he disappeared along with his treatment file and medicine. On 24th May 2014, he was located at Kohat and counseled to report to DHQ Hospital Kohat but he refused. The patient was re-located at Aurakzai agency, his native village. Fortunately, he continued with Cap Ribavirine and recovered. Agency Surgeon Aurakzai Agency was advised to enlist his close contacts.

- **Mr. BAZ:**
He is 24yrs old, a taxi driver and resident of Wah cantt Rawalpindi.
16th May 2014: He developed high grade fever and vomiting.
17th May 2014: He developed gums bleeding and epistaxis and admitted at PIMS. He was transfused platelets, given IV fluids and given supportive therapy.
19th May 2014: At 1:15am, he was declared dead.
Exposure History: As driver, he used to carry/shift animals and raw meat, so possibly remained in contact with either an infected animal/raw meat or experienced tick bite.

Table 1: Patients summary:

Names Parameters	Mr. M.A	Mr. MAK	Mr. BAZ	Mr. SA
Age/Gender	45yrs/Male	92yrs/Male	24yrs/Male	34yrs/Male
Address	Kabul	Islamabad	Wah Cantt	Islamabad
Date of onset of symptoms	2nd May 2014	12thMay, 2014	16th May 2014	18th May, 2014
Date of Admission	5th May 2014	15th May, 2014	17th May 2014	23rd May 2014
Exposure history	Animal Handler	Having Goats at home	No direct contact	Animals at home Tick found
Clinical features	High grade fever, spots on legs, gums bleeding, epistaxis, bloody stools	high grade fever, gums bleeding, epistaxis, hemorrhagic spots	high grade fever and vomiting, gums bleeding and epistaxis	high grade fever and vomiting

Labs	**Platelets**	12000	18000	3000	18000
	PT/APTT	Deranged	Deranged	Deranged	Deranged
	ALT	2268	1514	60	104
	Bilirubin	8.9	6.4	1.3	2.2
	Urea	206	107	44	56
	Dengue	Negative	Negative	Negative	Negative
	CCHF	No sample sent	Positive	Positive	Positive
Outcome		Expired on 6th May 2014	Expired on 15th May 2014	Expired on 19th May 2014	Located at Aurakzai Agency at home
Dead body buried at		Kabul	Aurakzai agency	Wah cantt	Remained alive
Contacts status		Not known	One close contact got symptoms and was hospitalized	Stable/ Asymptomatic	Symptomatic

Doctors, nurses and other paramedical staff (15 persons) and 13 household contacts were kept under surveillance for 14days after the last contact. All remained healthy.

CONCLUSION:

- Patient presenting with hemorrhagic manifestations are not handled with care in ER at hospitals and pose great risk for infection transmission.
- Golden time for initiation of treatment and sampling is usually missed and so most of the patients expired without specific treatment and diagnosis.
- Infected patients visit hospitals and doctors (Doctor Shopping) on their own and no system of referral exist
- Infection prevention & control practices in hospitals is not practiced properly.
- Behavior of the health staff with isolated patient was not appropriate. Most of the staff was not aware of proper infection control precautions.

RECOMMENDATIONS:

- Bio-safety measures/standard precautions must be practiced at every step to avoid nosocomial infections.
- Conduct Refresher trainings on Infection Prevention & Control and handling suspected hemorrhagic fever case management
- Establish proper isolation wards equipped with necessary Personal Protective Equipments and trained staff
- High risk patient must be triaged through proper clinical examination and history to avoid infection transmission.

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