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ORIGINAL ARTICLE

Clinical manifestations, laboratory findings and clinical outcome in 6 pregnant women with Crimean-Congo hemorrhagic fever

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ABSTRACT

Background: Crimean-Congo hemorrhagic fever (CCHF) is caused by Nairovirus, genus Bunyavirus in family of bunyaviridae, and is spread by the tick Hyalomma spp or via blood transfusion and contaminated blood of human and animal. During the recent years, disease has been reported from Iran, especially from Sistan and Baluchestan, Isfahan, Kermanshah and Kohkilouyeh-bouyerahmad provinces. Now, CCHF is endemic in Sistan and Baluchestan province. the resent study describes the clinical features of CCHF among pregnant women.

Materials and methods: We report our experience with six pregnant women with CCHF, who were admitted to Boo-Ali hospital during 2000 to 2005. All patients were treated by Ribavirin. We studied the clinical manifestations, laboratory findings and clinical outcome of disease in all cases.

Results: Our results showed that, fever, headache, myalgia and gingival bleeding were the most common clinical manifestations. Thrombocytopenia, anemia and decreased protrombin time were the commonest laboratory findings. Abortion was observed in 3 patients and stillbirth in one patient. In fact, 66.6% of pregnant women had fetal loss.

Conclusion: It is found that fetal loss is high in CCHF parturients, however, it should be further studied in endemic areas.

Keywords: *Crimean-Congo hemorrhagic fever, Pregnant women, Vaginal bleeding, Abortion.*
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INTRODUCTION

Crimean-Congo hemorrhagic fever (CCHF) is caused by a virus found in domestic and wild mammals and birds. The vector is a tick of the genus Hyalomma. The disease has been reported from Eastern Europe, Africa and Middle East including Iran, Afghanistan and Pakistan (1,2). The first case of the disease was reported from Crimea, Russia in 1944; later in 1956, it was observed in a febrile patient in Zaire. Disease transmission occurs mainly through tick bite, however, contact with blood and tissues of infected animals is another route of transmission (1-4). Incubation period depends on route of transmission, in tick bite instances it is two to seven days while in cases following contact with blood and infective secretions of animals it may range from 10 to 14 days. The disease onset is rapid and is characterized by fever, headache, vomiting, severe

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myalgia and low back pain. The hemorrhagic manifestations appear on days 3 to 5 in the form of epistaxis, hematemesis, melena, mucosal bleeding or generalized petecchiae and purpurae. There is usually tender hepatomegaly as well as tenderness in the epigastrium and splenic region. In patients who are recovering, fever subsides on days 10 to 20 and the hemorrhagic manifestations disappear. The convalescent period lasts up to four weeks. In severe cases, death occurs as a result of bleeding on days 7 to 9 (5,6). Several epidemiologic studies have been performed in Iran and other places where the disease was reported (1-10) but the manifestations and course of pregnancy has not yet been studied in pregnant women. We hereby report 6 cases of pregnant women with CCHF and review their clinical manifestations, laboratory test results and pregnancy course.

PATIENTS and METHODS

Six pregnant women were identified from 182 patients with CCHF treated with ribavirin in Boo-Ali Hospital in Zahedan during 2000 to 2005. Pertinent information, including clinical manifestations, complications, and pregnancy course, was extracted from their medical records and studied. Age ranged from 19 to 38 years (mean=27 years).

RESULTS

All six were house-keeper in whom the disease had started with acute onset of fever, severe myalgia, headache, and nausea with subsequent appearance of such hemorrhagic manifestations as bleeding from mouth, gums and vaginal bleeding on days 3 to 6.

In two patients, cutaneous bleeding was noticed as petecchiae and purpurae. All six had a history of contact with meat and chopping meat during eleven days ago. Treatment with ribavirin was commenced in all patients and blood samples were sent for the Health Center and Pasteur Institute. Moreover, transfusion of blood and platelets was performed according to lab results and patient requirement. In all six the diagnosis was confirmed by serologic (ELISA) tests and RT-PCR according to the report of Pasteur Institute. Patients were treated with ribavirin (initially at a dose of 30mg/kg followed by 15mg/kg for four days and eventually 7.5mg/kg for six days for a total of 10 days). Despite prompt treatment, four patients (66.6%) lost their fetuses. Another woman died because of massive hemorrhage and severe thrombocytopenia in spite of treatment at 16th week of gestation. Data extracted from medical records including clinical manifestations, complications, and pregnancy course are shown in tables 1,2.

Table 1. *Clinical manifestations and out come of pregnancy of 6 patients with CCHF hospitalized in Boo-Ali hospital, Zahedan*

	Patient					
Clinical features	1	2	3	4	5	6
Fever	+	+	+	+	+	+
Headache and myalgia	+	+	+	+	+	+
Nausea	+	+	-	+	+	+
Vaginal bleeding	+	+	-	+	-	-
Gingival bleeding	+	+	+	+	+	+
Petecchiae-purpura	+	-	-	+	-	-
Out come of pregnancy	A	A	N	A	S	N

A: Abortion, N: Normal, S: Stillbirth

Table 2. *Laboratory findings of 6 patients with CCHF hospitalized in Boo-Ali hospital, Zahedan*

Clinical features	Patient					
	1	2	3	4	5	6
Platelets (/ml)	20000	25000	38000	15000	39000	45000
WBC (/ml)	3000	4000	3800	2750	5100	5000
Hematocrite (%)	24	24	33	18	30	33
Prothrombin time (s)	17	15	14	16	15	17
AST&ALT>3 times the upper limit	+	+	-	+	-	+

DISCUSSION

Crimean-Congo hemorrhagic fever (CCHF) is usually transmitted by tick bite. However, it is also observed in slaughterhouse workers, butchers, and those who have been in contact with fresh blood and infected tissue. In house-keepers who are also likely to be exposed to contaminated meat, CCHF was also diagnosed (1,4-6). In our study, from 67 infected women all were house-keeper and all infected pregnant women had a history of chopping fresh meat during 11 days before the onset of symptoms. All cases kept and slaughtered their animals in the house and were exposed to fresh blood and tissues.

Nosocomial infection has been reported in health care workers who were in contact with infective secretions of the patients (6). The disease has been even reported among children who had no direct contact with the infected animals or tissues but played in the area where the animals were kept or lived in the village (11). Several epidemiologic reports have been published from Iran and other parts of the world. In one of these works by Chinikar, the prevalence of the disease was reported to be 523 cases in 2005 (6). In 2004, Metanat reported a total of 176 hospitalized patients in Sistan and Balouchestan (12). However there is a need for a study focusing on pregnant women. As noted earlier abortion occurred in 4 women despite timely treatment. Vaginal bleeding was observed in all women who had an abortion. It seems that the risk of abortion is increased in severe cases that lead to hospitalization and are accompanied with vaginal bleeding. The limited number of our cases (n=6) makes prognostic conclusions impossible. We are not able to compare our findings with similar studies as such studies do not exist at the moment. However, our findings showed that hemorrhagic manifestations especially bleeding from the mouth, gums, fever, headache, and myalgia are the most prevalent clinical manifestations. Thrombocytopenia was a major paraclinical finding that caused hemorrhage in patients. Anemia and impaired protrombin time (PT) was also present in all patients. Abortion was observed in three cases. We recommend that pregnant women avoid contact with animals, especially livestock, chopping fresh meat and traveling to villages or areas where the disease is endemic until the end of pregnancy. They are also recommended to seek immediate medical care and treatment in case of suspicion of infection.

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