Crimean-Congo Hemorrhagic Fever (A Review)

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ABSTRACT

Introduction: Crimean-Congo Hemorrhagic Fever (CCHF) is a common febrile hemorrhagic disease common between humans and the livestock. The virus is transmitted to a healthy human through getting bit by infected livestock, direct contact with the freshly slaughtered infected animals, and exposure to blood, body secretions, and aerosols dispersed in space, especially in epidemics and in health centers.

Methods: Searches were conducted by two independent researchers in international (PubMed, Web of science, Scopus and Google scholar) and national (SID, Magiran) databases for related studies from the inception of the databases to September 2017 (without time limitation) in English and Persian languages. To ensure literature saturation, the reference lists of included studies or relevant reviews identified through the search were scanned.

Discussion: Antibodies are not usually produced sufficiently in patients with a fatal illness. In these patients, who are experiencing early adages of the disease, low level of antibody can be used to identify the virus in the blood and tissues. Replacing water and electrolytes and lost components of blood should be thoroughly coated. Oral and injectable ribavirin has been successfully applied to treat proven disease. There is currently no effective and safe vaccine for humans. People who work in endemic areas should wear protective clothing. They should apply anti-arthropods lotions on their skin and protect their cloths by using certain chemical to prevent the closure of possible infected cases. Patients are required to adhere to comprehensive standards, as there is a risk of hospital transmission and the blood and tissue contaminated by the patient can be a threat to healthcare personnel.

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in Asia from the Far East to The Middle East, Africa, and moderate regions of Europe (2). The dispersion of this virus is almost equal to the distribution of halo-moles in the affected areas, which indicates a special relationship between the epemics of the disease and the hyaloma genuses (3). The Congo-based Crimean hormonal hemorrhagic fever is quite asymptomatic in the livestock; this disease has high transmission potential especially when the animal is experiencing early stages of infection (4). CCHF infects human beings as well and the infection rate of the virus has been reported to be between 20-100%. The disease has a high mortality rate and reported mortality rate is between 10-50%; epidemics occurring in the environment of the hospital belong to this category as well (5). The mortality rate of this disease varies considerably in different parts of the world; the main causes of such difference include, not only, difference in the diagnostic and therapeutic medical services of different regions, but rather the pathogenicity of different types of the virus in different parts of the world; the disease is milder, with a lower mortality rate of 5-10% in southern Russia; however, the mortality rate was 35% during 1981-1986 in South Africa; this rate has been reported to be between 35-50% in Central Asia and the Middle East; it must be noted that mortality rates are higher in hospital epidemics (6).

Methods:

Search strategy:

Searches were conducted by two independent researchers in international (PubMed, Web of science, Scopus and Google scholar) and national (SID, Magiran) databases for related studies from the inception of the databases to September 2017 (without time limitation) in English and Persian languages. To ensure literature saturation, the reference lists of included studies or relevant reviews identified through the search were scanned. The specific search strategies were created by a Health Sciences Librarian with expertise in systematic review search using the MESH terms and free terms according to the PRESS standard. After the MEDLINE strategy was finalized, it was adapted to search in other databases. Accordingly, PROSPERO was searched for ongoing or recently related completed systematic reviews. The key words used in the search strategy were “Crimean-Congo, Hemorrhagic Fever, Fever” and Iran which were combined with Boolean operators including AND, OR, and NOT.

Study selection:

Results of the Literature review were exported to Endnote. Prior to the formal screening process, a calibration exercise was undertaken to pilot and refine the screening. Formal screening process of titles and abstracts were conducted by two researchers according to the eligibility criteria, and consensus method was used for solving controversies among the two researchers. The full text was obtained for all titles that met the inclusion criteria. Additional information was retrieved from the study authors in order to resolve queries regarding the eligibility criteria. The reasons for the exclusion criteria were recorded. Neither of the review authors was blinded to the journal titles, the study authors or institutions.

Discussion:

The sudden onset of symptoms start with fever, muscle aches, dizziness, pain and stiff neck, back pain, headache, sore eyes and light scarring (light sensitivity). In the early stages of the disease, nausea, vomiting and sore throat may be reported with diarrhea and abdominal pain (7). The most common ways of transmitting an infection to humans include contact with blood, secretions and tissues of infected animals, as well as contact with infected humans and getting bit by infected insects (8). Several studies have been conducted on possible risk factors for the disease. Butcherries, veterinarians and shepherds seem to be at great risk with regard to the risk of contamination of animal tissues and blood. Diagnosis based on epidemiological and clinical manifestations is based on the detection of specific anti-CCHF antibodies. These antibodies are 5 IgG and IgM 6 types which can be measured by ELISA method (9).

Crimean-Congo Hemorrhagic Fever was first reported in Iran in 1970, in which 45 samples of 100 sheep from transferred from Tehran slaughterhouse to the Polio Institute and Moscow's viral encephalitis were reported as positive for the CCHF virus infection (10). In 1978, the CCHF virus was isolated from the Lahorensis Alveonasus mite for the first time in the northeastern region of the country (11), after which no case was reported until 1999, when the disease reappeared, and within 5 years, the number of annual infections increased
from June 7, 2000 to October 15, 2004, where 683 serum samples from suspected cases were sent to the National Laboratory for Arbuscular Diseases of the Pasteur Institute of Iran in Tehran from several regions in Iran. 248 specimens were diagnosed with CCHF-Anti-virus antibodies positive, of which 169 were from Sistan and Baluchestan province (12). Animals are infected with this virus through getting bit by infected mites. Hyalomma mites are considered to be the most important cause of disease transmission; these insects have the ability to transmit the virus to their eggs through sexual contact (13). Symptoms appear suddenly like fever, muscle aches, dizziness, neck pain and pain, back pain, headache, eye pain and photophobia. Nausea, vomiting, sore throat and abdominal distension are also, possible symptoms (14).

Antibodies are not usually produced sufficiently in patients with a fatal illness. In these patients, who are experiencing early adages of the disease, low level of antibody can be used to identify the virus in the blood and tissues (15). Replacing water and electrolytes and lost components of blood should be thoroughly coated. Oral and injectable ribavirin has been successfully applied to treat proven disease. There is currently no effective and safe vaccine for humans. People who work in endemic areas should wear protective clothing (16). They should apply anti-arthropods lotions on their skin and protect their clothes by using certain chemical to prevent the closure of possible infected cases. Patients are required to adhere to comprehensive standards, as there is a risk of hospital transmission and the blood and tissue contaminated by the patient can be a threat to healthcare personnel (17).

**References:**


