

CCHF

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- ▶ It depends on the geographic region
- ▶ Other viral hemorrhagic fevers :
- ▶ Dengue, Ebola, Marburg, Lassa, and yellow fever can cause hemorrhagic fever
- ▶ These illnesses can all cause severe multiorgan system illness
- ▶ Relevant epidemiologic exposure and polymerase chain reaction or serologic testing can help diagnosis.

Dengue

- ▶ Dengue is a febrile illness caused by infection with one of four dengue viruses (DENV) transmitted by *Aedes aegypti* or *Aedes albopictus* mosquitoes
- ▶ Infection may be asymptomatic or present with a broad range of clinical manifestations including a mild febrile illness to a life-threatening shock syndrome
- ▶ There are four closely related but serologically distinct DENV types of the genus *Flavivirus*, called DENV-1-4
- ▶ Dengue fever
- ▶ Dengue hemorrhagic fever
- ▶ Detection of viral nucleic acid or viral antigen has high specificity but is more labor intensive and costly; serology has lower specificity but is more accessible and less costly.

Yellow fever

- ▶ Prototype member of the family Flaviviridae
- ▶ Single-stranded RNA
- ▶ mosquito-borne viral hemorrhagic fever with a high case-fatality rate
- ▶ South America and sub-Saharan Africa
- ▶ Clinical manifestations include hepatic dysfunction, renal failure, coagulopathy, and shock
- ▶ Serologic diagnosis is best accomplished using an enzyme-linked immunosorbent assay (ELISA)
- ▶ PCR
- ▶ Culture

Ebola

- ▶ The family Filoviridae consists of three genera: Ebolavirus and Marburgvirus (which are among the most virulent pathogens of humans and Cuevavirus, which has only been detected in bats in Spain)
- ▶ Patients with Ebola virus disease typically develop leukopenia, thrombocytopenia, and serum transaminase elevations, as well as renal and coagulation abnormalities
- ▶ Ebolavirus consists of six species: Zaire, Sudan, Bundibugyo, Tai Forest, Reston, and Bombali

Marburg

- ▶ Marburg virus caused the first recognized epidemics of filovirus disease in humans
- ▶ Similar to Ebola virus, Marburg virus causes a rapidly progressive febrile illness that leads to shock and death in a large proportion of infected individuals

Lassa

- ▶ The animal reservoir is the rodent "multimammate rat" (*Mastomys natalensis*)
- ▶ Lassa fever is endemic in parts of West Africa including Guinea, Liberia, Sierra Leone, Nigeria, Benin, Ghana, and Mali

Malaria

- ▶ Fever, chills, malaise, fatigue, diaphoresis, headache, cough, anorexia, nausea, vomiting, abdominal pain, diarrhea, arthralgias, and myalgias

are clinical manifestations of malaria

Microscopy or rapid diagnostic testing are used for diagnosis

Giemsa-stained blood smears by light microscopy is the standard tool for diagnosis of malaria

Two types of blood smears are used in malaria microscopy: thin and thick smears. Thin smear preparation maintains the integrity and morphology of erythrocytes so that parasites are visible within red blood cells.

Rickettsial infection

- ▶ Some Rickettsial infections like scrub typhus and African tick bite fever may develop high fever, headache, and myalgias, and an eschar or rash may develop in a subset of patients.
- ▶ Mites
- ▶ The diagnosis is confirmed via serology

Q fever

- ▶ Acute Q fever most commonly presents as a flu-like illness, pneumonia, or hepatitis, typically in association with animal exposure.
- ▶ Acute or chronic
- ▶ Flu-like illness
- ▶ Pneumonia
- ▶ Hepatitis
- ▶ Acute endocarditis
- ▶ Maculopapular or purpuric rash (10 percent).
- ▶ Bone and joint infection ,culture negative
- ▶ The diagnosis is established via serology

Brucellosis



Leptospirosis

- ▶ Abrupt onset of fever, rigors, myalgias, and headache; conjunctival suffusion is an important sign.
- ▶ The clinical course of leptospirosis is variable. Most cases are mild and self-limited or subclinical, while some are severe and potentially fatal.
- ▶ The organism infects a variety of both wild and domestic mammals, especially rodents, cattle, swine, dogs, horses, sheep, and goats.
- ▶ The diagnosis is established by PCR or serologic testing.
- ▶ Culture and serologic detection also can be used
- ▶ microscopic agglutination test (MAT), macroscopic agglutination test, indirect hemagglutination, and enzyme-linked immunosorbent assay (ELISA)

Relapsing fever

- ▶ Relapsing fever, caused by spirochetes of the *Borrelia* genus, is an arthropod-borne infection that occurs in two major forms: tick-borne (TBRF) and louse-borne (LBRF)
- ▶ TBRF: *Borrelia hermsii* and *Borrelia turicatae* and LBRF :*Borrelia recurrentis*
- ▶ Clinical manifestations of relapsing fever include acute febrile episodes punctuated by an intervening afebrile period; headache, neck stiffness, arthralgia, myalgia, and nausea may accompany the fever.
- ▶ Relapsing fever presents with the sudden onset of fever, punctuated by an intervening afebrile period, and then recurrent fevers
- ▶ The diagnosis is established by blood smear.

Viral hepatitis

- ▶ Clinical manifestations of viral hepatitis include jaundice, hepatomegaly, and elevated aminotransferases.
- ▶ The diagnosis is established via serology.

Meningococccemia

- ▶ Fever, nausea, vomiting, headache, myalgias, and petechial rash
- ▶ Culture

IMN



CMV



TSS



4S



Drugs

- ▶ Quinidine
- ▶ Quinine
- ▶ Chloramphenicol
- ▶ Gold
- ▶ Rifampin
- ▶ Methyldopa
- ▶ PAS
- ▶ Digoxin

Heparin

Aspirin poisoning



Hematologic causes

- ▶ Acute leukemia
- ▶ Lymphoma
- ▶ ITP
- ▶ DIC
- ▶ TTP
- ▶ Aplastic Anemia

Collagen vascular

- ▶ Acute vasculitis
- ▶ SLE
- ▶ Henoch

Diagnosis

- ▶ Definite diagnosis :
- ▶ PCR or culture
- ▶ Culture is expensive and need time and equipment ,so not routinely used
- ▶ Ag detection: hemagglutinin , Immunohistochemical, immunofluorescence and Elisa
- ▶ First 5 days is the best time
- ▶ Genome : RT-PCR Days 7 or occasionally 9

Diagnosis

- ▶ Indirect : Ab detection :
- ▶ Hemagglutination ,CF and Elisa
- ▶ 5-7 days IgM
- ▶ 7-9 days IgG

Iran

- ▶ Pasteur
- ▶ RT-PCR
- ▶ IgM