Zoonotic virus disease

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Viral Hepatitis Type A (HA)

Etiology:

Hepatitis A virus (HAV); RNA virus, genus Enterovirus, family Picornaviridae

Syndrome:

Human:

1. Sudden onset of fever, malaise, anorexia, and nausea.
2. Dark urine and jaundice may also develop.
3. Generally more serious in adults, often subclinical in children .

Animal:

Nonhuman primates are susceptible to HA infection , although many are subclinical. Range from mild respiratory involvement to nonspecific gastrointestinal signs. Anorexia and persistent diarrhea may occur .

Confirmatory tests: Serologic testing to detect IgM anti-HAV in paired sera .

Transmission:

1. Shed in feces.
2. Among humans ,transmission is primarily person-to-person, usually by the fecal-oral route,
3. Poor hygiene.
4. Infected food handlers are often the cause of outbreaks.
5. Intravenous drug users are frequently infected.
6. Sexual and other intimate contacts of acutely ill.
7. Contaminated water or food also may be sources.
8. Clams, oysters ,and other filter-feeders from contaminated waters are often a source.

CONTROL AND PREVENTION

1. Food handlers should practice careful hygiene and wash hands frequently.

2. Travelers to endemic areas who may be at high risk should receive pre-exposure IG.
3. While in endemic areas, avoid drinking unbottled water or beverages with ice and eating uncooked shellfish or uncooked fruits or vegetables.
4. Care in handling nonhuman primates is important to avoid contact with excreta .
5. Good hygiene, especially thorough hand washing and the sanitary disposal of feces.
6. Proper sewage and water treatment systems should be provided.

Influenza

Etiology: RNA genome virus Influenzavirus of the family Orthomyxoviridae. Three types are recognized: A, B, and C.

The Disease in Man:

1. The incubation period is one to three days.
2. The disease has a sudden onset, with fever, chills, cephalalgia, myalgia, fatigue, and sometimes prostration. Other frequent symptoms are conjunctival inflammation, intense lacrimation, nonproductive coughing, sneezing, runny nose, sore throat, and painful swallowing. The disease has a rapid course, with recovery in about seven days.
3. The influenza types A and B have similar symptoms, while the type C virus causes a much milder illness, which is usually afebrile with more pronounced coryza.

The Disease in Animals: The symptoms in animals are usually similar to those of human influenza.

Equine influenza

1. has an incubation period of two to three days.
2. It is characterized by high fever, acute nasal catarrh with a serous discharge, dry cough, myalgia, tracheobronchitis, dyspnea, and depression.
3. The illness lasts from 2 to 10 days, and convalescence takes one to three weeks.

The equine 2 virus (H3N8) usually produces a more serious disease than equine 1 (H7N7).

In birds

1. the influenza virus infection can be in apparent or range from a mild illness to severe disease.

2. The usual symptoms are lack of appetite, decreased egg production, loss of egg pigment (especially in turkeys), and eggs that are deformed and sometimes fail to develop a shell.
3. Common symptoms are coughing, sneezing, lacrimation, sinusitis, facial edema, cyanosis, nervous disorders, and diarrhea. In chicks, the case fatality rate can be high.

Diagnosis:

1. diagnosis is almost always based on the clinical picture.
2. Laboratory confirmation consists of isolating the virus. To obtain an isolation, chick embryos and cell cultures are inoculated with washings or swabs taken from the nose and throat during the first days of the illness.
3. Various serologic techniques are used to identify and classify the virus. The hemagglutination inhibition, complement fixation, and serum neutralization tests can be used.

Transmission:

1. Mainly by inhalation of aerosols
2. direct contact with droplets,
3. By the fecal-oral route.
4. Several persons in contact with pigs have developed influenza with the same serotype as found in the swine.

Control

1. Inactivated type A vaccines are highly effective when the serotypes in the vaccine match those currently circulating. Because of the frequent changes in antigenic structure of type A viruses, vaccination is generally effective for only one season.
2. Avoid crowds during epidemics.
3. Amantadine or rimantadine administered early in the illness can help alleviate symptoms and reduce the amount of virus in secretions.

Bovine spongiform encephalopathy (mad cow disease)

Bovine spongiform encephalopathy (BSE), or *mad cow disease*, is a progressive, neurological disorder of cattle. It was first discovered in the United Kingdom in 1986. It

has been suggested that BSE is a mutated form of scrapie, seen in sheep and goats, which has been around for centuries. The appearance in cattle may be related to feeding contaminated sheep and/or goat-derived protein supplements to cattle. The word "spongiform" in the name refers to the fact that when an animal dies of BSE its brain is full of holes, like a sponge.

Morbidity: +

Mortality: ++++

Etiology: PRION

BSE is caused by a poorly understood protein called a *prion*. When BSE prions are transmitted to humans, the resulting disease is known as *variant Creutzfeldt- Jakob disease* (vCJD). Different prions cause scrapie in sheep and goats, and other neurological diseases in humans. A prion cannot be classified as bacterial or viral. It is a modified form of a normal component of a cell surface, known as a *prion-related protein*, or *PrP*.

Transmission

1. Transmission of prions from one animal to another and from animals to humans is not well understood.
2. Evidence points to ingestion of food contaminated with tissues containing the prions.
3. In animal-to-animal transmission, this could happen when an animal is fed protein supplements containing rendered BSE-infected tissues from an infected animal.
4. People can become infected by eating beef that has been contaminated with BSE prions during slaughter of infected animals and packaging of beef products from these animals.

Disease in cattle

1. Infected cattle begin to show apprehension, excitability, fixed staring, incoordination, and muscle tremors and fall down.
2. They become hypersensitive to light and touch.
3. Death is most often occurs in less than 2 weeks, although some cases have been known to linger for a year.

Disease in humans

1. It is associated with depression, coordination problems, mood swings, “pins and needles” or pains in the limbs and feet, bad headaches, cold extremities, rashes, and short-term memory loss.
2. Death is inevitable, and most often occurs after 6 months.

Diagnosis

There are no clinical, serological, or immunological tests available for diagnosis of BSE or vCJD. Diagnosis is tentatively based on clinical signs and history, and is confirmed by studying a microscopic section of the brain after death.

Treatment

There are no specific treatments for BSE or vCJD. Supportive treatment is given until the patient dies.

PREVENTION

BSE

Cattle should not be fed ruminant-derived protein supplements. Public health control measures have been instituted in many countries to prevent potentially prion-infected tissues from entering the human food supply.

VCJD

Travelers to countries that have reported cases of BSE can avoid eating beef and beef products. The alternative would be to eat only solid pieces of meat muscle, such as steaks and roasts, which have a lower risk of being infected with BSE prions. Avoid brain or mixed beef products, such as hamburger or sausage, which have a higher risk of being infected with BSE. There is no evidence that milk or milk products transmit BSE prions.

Psittacosis

AGENT

Chlamydia psittaci

Syndrome: Human:

1. Febrile respiratory tract disease.
2. Chills.
3. Cough.

4. Epistaxis.
5. Anorexia.
6. Chest pain.
7. Splenomegaly.
8. Myocarditis, and bradycardia.

Animal:

1. Diarrhea and pneumonitis are usual signs in birds ,
2. Occasionally with high mortality rate.
3. Drop in egg production in turkeys.
4. Among the diseases seen in mammals, causes abortion in sheep and cattle.

Confirmatory tests:

1. Microscopic examination of stained tissue smears .
2. Isolation of agent from patient sputum or blood, or from avian spleen, liver, heart, intestine by mouse or cell culture inoculation .
3. Test paired sera by complement-fixation.

Transmission:

1. Inhalation
2. Mouth-to-beak
3. Direct contact

CONTROL AND PREVENTION

1. Treat human patients with tetracyclines for 21 days .
2. Treat pet birds 45 days with chlortetracycline-medicated feed to eliminate infection.
3. Maintain records of bird transactions
4. Never purchase or sell sick birds
5. Isolate newly acquired, ill or exposed birds at least 30 days
6. No vaccine

7. Good sanitation wear clothing, gloves, cap.

Q fever

AGENT

It is caused by a rickettsia, Coxiella burnetii,

Syndrome: Human:

1. Sudden onset of fever.
2. Retrobulbar or frontal headache.
3. Chills.
4. Myalgia.
5. Sweating.
6. Weakness.
7. Malaise.
8. Pnewnonitis.
9. Endocarditis.
10. Hepatitis.

Animal: In Europe, abortion, and bronchopneumonia in ruminants , elsewhere subclinical.

Confirmatory tests: Isolate agent from acute blood or sputum. Test paired sera by complement-fixation or agglutination.

Transmission:

1. Inhalation.
2. Ticks.
3. Raw milk ingestion .
4. Direct contact with carcass or placenta.

CONTROL AND PREVENTION

1. Treat patients with tetracyclines for at least 15 days .
2. Prognosis good, recovery often slow.
3. Segregate livestock at parturition, and destroy placenta.

4. A vaccine, effective in preventing infection in cattle, has been used in people at high risk but causes severe local reactions .
5. Pasteurize milk at 62.9"C for 30 minutes or at 71.6"C for 15 seconds.