

Anthropozoonoses

Zoonoses are the diseases of animals which are transmitted to humans. The source is an animal but can also be a man eg salmonellosis. All ways of transmission are possible. Salmonellosis is the most frequent zoonoses in Czech Republic.

Brucellosis:

Generalised infection of Man involving primarily the reticuloendothelial system, caused by the *Brucella* species (Gram-negative rod). *Brucella abortus* usually infects cows and is the usual organism causing human infection in the UK. *B. melitensis* is more common in the Mediterranean region and affects goats.

Infection is contracted from animals (cattle, swine, goats, sheep, dogs, coyotes). Transmission of infection from humans rarely, if ever, occurs.

Mode of transmission: by contact with tissue, blood, urine, ingestion of raw milk and dairy products.

Brucellosis is particularly common in Kuwait and Saudi Arabia; it is prevalent in many areas including: Africa, south America, Mediterranean.

Leptospirosis:

Leptospirosis is a bacterial infection which is acquired through direct or indirect contact with animals, especially rodents.

The commonest form, also called Weil's disease, is caused by *Leptospira icterohaemorrhagiae*.

Mode of transmission: contact of skin especially mucous membrane with water, moist soil, vegetation contaminated with the urine of infected animal.

Occurrence: worldwide, in urban and rural developed and primitive areas. It is an occupational hazard to rice and sugar cane field workers, farmers, sewer workers.

Listeriosis:

Listeriosis is a rare infection caused by *Listeria monocytogenes*, an aerobic gram positive rod found in some semiprocessed foods including soft cheeses and pâté.

Listeriosis is rarely recognised in healthy adults except when pregnant. Pregnant women may also be infected from sheep at lambing time.

Pregnant women should be offered information on how to reduce the risk of listeriosis by: drinking only pasteurised or UHT milk, not eating mould-ripened soft cheese such as Camembert, Brie, and blueveined cheese (there is no risk with hard cheeses such as Cheddar, or cottage cheese and processed cheese), not eating pâté (of any sort, including vegetable), not eating uncooked or undercooked ready-prepared meals.

Anthrax:

Anthrax is primarily a disease of animals. Man is only rarely afflicted. It is caused by the bacterium *Bacillus anthracis*. The spores of this organism are highly resistant and can survive almost indefinitely.

Anthrax is mainly a disease of herbivores and especially cattle.

Transmission of the disease is through direct contact with an infected animal and is seen in farmers, butchers and dealers in wool and animal hides. The *Bacillus anthracis* spores may be ingested or inhaled.

Anthrax has diminished in incidence in the U.K. over the last century due to effective disposal of infected animal carcasses, the directing of all animal hide imports to one port (Liverpool) and the advent of antibiotics.

Anthrax has also been used as biological weapon: in the terrorist attacks that followed 9/11 *B. anthracis* spores were sent to people via post.

Rabies:

Rabies is an acute infectious viral disease of the central nervous system of mammals, causing an illness that is almost always fatal in humans.

Rabies is an acute viral encephalomyelitis caused by members of the *Lyssavirus* genus.

Infection is usually via the bite or scratch of a rabid animal, most frequently a dog. In some parts of the world, other animals such as bats, cats and monkeys are important sources of exposure.

Urban Rabies - is most frequently transmitted to humans through rabid dogs. Transmission may also occur via rabid cats.

Sylvian (wild) rabies - is maintained in the wild by a host of animal reservoirs including foxes, skunks and bats

This disease is a major problem in some countries and carries a high mortality. Nearly all cases of human rabies are attributable to dog bites in developing countries where canine rabies is endemic. Highest rates of human rabies occur in Asia - probably between 1 per 100,000 and 1 per million persons per year.

Areas where the disease is well controlled, e.g. USA, dogs account for less than 5% of animal cases. Areas where canine rabies has not been well controlled, e.g. parts of Asia and Africa, canine cases account for more than 90% of reported animal cases.

Principal wildlife vectors vary with respect to location: fox in Europe, Canada, Arctic and sub-Arctic regions, mongoose and jackal in Africa, wolf in western Asia, vampire bat in Latin America. In countries where rabies is endemic - measures such as control of stray animals, mandatory vaccination have been used.

Psittacosis:

Infectious disease caused by *Chlamydia psittaci* and is most frequent in people who are closely associated with birds. The disease is primarily a pneumonitis but often has a marked systemic prodrome.

Chlamydia psittaci may be acquired from most birds but psittacines - parrots, parakeets, and budgerigars - are the most frequent source of infection.

The bacterium is present in the nasal secretions, excreta, tissues and feathers of infected birds.

Transmission most commonly occurs through the respiratory tract when in an environment previously occupied by an infected bird.

There is no evidence of transmission from eating poultry products.

Person-to-person spread is possible and there is a risk to laboratory workers handling specimens from patients.

Toxoplasmosis:

Acute or chronic, widespread disease of animals and humans caused by *Toxoplasma gondii*.

Protozoal organism of the order of Eucoccidia, transmitted by oocysts in the faeces of cats. The cat family is the definitive host for reproduction of the parasite.

The disease is acquired in humans by: ingestion of cysts or meat contaminated with them, particularly lamb and pork, by (in)direct contact with cat faeces that transfer the sporocyst form, by transfer within organ transplant

Pregnant women should be informed of primary prevention measures to avoid toxoplasmosis infection, such as: washing hands before handling food, thoroughly washing all fruit and vegetables, including ready-prepared salads, before eating, thoroughly cooking raw meats and ready-prepared chilled meals, wearing gloves and thoroughly washing hands after handling soil and gardening avoiding cat faeces in cat litter or in soil

Q fever:

Form of *atypical pneumonia* caused by the rickettsia-like organism *Coxiella burnetii*. The name originates from the term 'query' fever which was applied to the disease when first seen in abattoir workers in Australia. It accounts for less than 1% of pneumonias in the UK.

About 100 cases of Q fever occur each year in the UK. Q fever occurs worldwide, usually in rural areas. Ticks, sheep, cattle and goats are important reservoirs of infection.

Transmission can occur independent of an arthropod vector. Inhalation of infected dust is the most common route of infection. Others include: contaminated milk, aerosols, handling of infected carcasses in abattoirs, tick bites.

Tularemia

Aetiology: *Francisella tularensis* Also known as: rabbit fever or deerfly fever Host: wild and domestic mammals, birds and house pets Vectors: tick, lice and mites Infection in humans: contact with infected animal tissue or the bite of an infected arthropod Incidence: most common in summer (reflects arthropod transmission of the disease) during winter, smaller peak incidence reflects exposure of hunters to infected animal carcasses.

Occupational risk: veterinarians, hunters trappers, domestic livestock worker, and meat handlers. Recreational activities (increase exposure to ticks and biting flies) Symptoms: cutaneous inoculation- produces a papule that ulcerates after several days and may persist for weeks and longer organism spread from lesion to regional lymph nodes which becomes large and tender and may suppurate

Disease: ulceroglandular tularemia- ulcers result from contact with contaminated animal product from insect bites, lymphadenopathy Laboratory: culture from ulcer scrapings, lymph node biopsy HIGHLY INFECTIOUS- potential bioterrorism

Plague

Aetiology: *Yersinia pestis* Reservoir: rats (urban plague), prairie dogs and ground squirrels (sylvatic plague), household pets (cats) Vectors: fleas Other route of transmission: ingestion of contaminated animal tissue or via the respiratory route (pneumonic plague) Symptoms: organisms is carried by the lymphatic system to regional lymph

nodes. affected lymph node displays hemorrhagic necrosis Disease: 3 types of plague- a) bubonic plague- pronounced swelling of the lymph nodes and surrounding edema located at groin, axilla and neck b) pneumonic plague- purulen pneumonia, highly contagious and fatal if untreated c) septicemic plague- massive bacteremia, septic shock and death

Cat scratch disease

Aetiology: Bartonella henselae Reservoir: cats Vector: none Route of transmission: cat sratch or bite Symptoms: small abscesses at the site of cat scratch or bite. this is followed by fever and local lymphadenopathy in immunocompromised patient (HIV): the bacteria can cause bacillary angimatosi- a disease of small blood vessels of the skin amd visceral organs.

Links

Related Articles

- Source of Infection

Bibliography

- ELLNER, Paul D, et al. *Understanding infectious disease*. 1. edition. 1992. ISBN 0-8016-1892-4.