

Viral diseases in rabbits and rodents

Hello. In this video we will learn about how viruses affect a group of animals that we have included generically as “rabbits and rodents” and we will highlight some of the diseases that they produce due to their special interest.

Both rabbits and hares and the variety of species of rodents are of interest in various fields. They can be considered as production animals for meat, such as rabbits, or skin, such as chinchillas laboratory animals (such as rats, mice, Guinea pigs, etc.) and even more and more, as pets. In addition, you must not forget their importance in nature, forming part of the food chain in varied ecosystems.

Viruses that affect these animals belong to different families. Their morphology is varied, as well as their composition and also the cycles of replication in the cells that they infect. Some of these viruses are transmitted by arthropods, so it is easier for them to spread from one animal to another. Some viruses can cause very important diseases in these animals due to their sanitary, economic, and even sentimental consequences. They can also affect humans, thus causing zoonotic diseases.

Myxomatosis and rabbit haemorrhagic disease are the major viral diseases that affect Lagomorphs, which are the only susceptible animals. Both processes are of worldwide distribution, and due to their severity and their ability to spread, they are included in the list of notifiable diseases of the World Organization of Animal Health (OIE).

Myxomatosis is caused by a Poxvirus. These viruses are large, and have an amorphous structure and a lipoproteic envelope. Their genome is composed of a double-stranded DNA molecule. The causal agent of rabbit hemorrhagic disease is a Calicivirus, which are very small, icosahedral and non-enveloped viruses. Its genome consists of a single strand of RNA.

Both viruses are spread by arthropods (mosquitoes, fleas, ticks, lice), but they are also transmitted directly from one animal to another, as well as by contact with fomites (inanimate contaminated objects).

The animal most susceptible to these viruses is the European rabbit, *Oryctolagus cuniculus*. In these animal both diseases are often severe. Other species of Lagomorphs, such as the American wild rabbit, *Sylvilagus* spp., or hares, show different susceptibility to one or the other virus.

The typical sign of myxomatosis is the presence of cutaneous tumours. The disease is systemic, and animals develop a febrile process. Animals often die after two weeks of being infected.

Rabbit haemorrhagic disease is associated with respiratory and nervous signs, hemorrhages, apathy, and anorexia. Animals die quickly, normally a few days after infection.

As is the case with most of the viral processes, there is no treatment for these diseases. It is essential to use vaccines as a prevention measure.

As for rodents, they are also susceptible to various viral diseases. Some of them can be transmitted to people, i.e., they are zoonoses. The main viruses causing zoonotic diseases are the Hantaviruses (family *Bunyaviridae*) and the arenaviruses (family *Arenaviridae*). These viruses have a spherical morphology, are enveloped, and they have a single-stranded RNA linear and segmented genome.

Infected animals release viruses through the saliva, urine and faeces. The infection is transmitted to people mainly through the inhalation of aerosols originating from excreta of infected rodents, as well as through bites.

These viruses can cause serious illnesses in people. Outbreaks of these diseases have been described with thousands of casualties, and indeed, Lassa fever is regarded as an emerging severe disease.

The best preventive measure is to avoid contact with potentially infected animals or their excreta. Rapid diagnosis of the disease and immediate treatment are critical.

We have introduced you to the main viruses related to rabbits and rodents, due to their importance as pathogens both for domestic and wild animals, but also because some of them can infect people.

That's all, Folks!