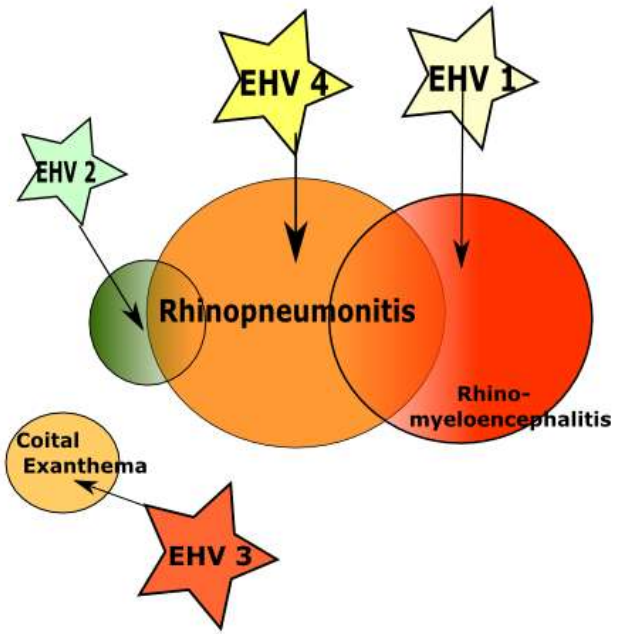

EQUINE VIRAL RHINOPHEUMONITIS

Equine rhinopneumonitis (ER)

It is a collective term for any of many highly contagious, clinical disease entities of equine. that may occur as a result of

Cause

Infection by either of two closely related herpes viruses,

- Equine herpesvirus-1 (EHV-1).
- Equine herpesvirus-4 (EHV-4).

- *Herpes viruses* are very common in all animal groups. They are usually specific and do not transfer from species to species.

Infection by EHV-1 or EHV-4 is characterized by:

*primary respiratory tract disease of varying severity that is related to the

- Age.
- Immunological status of the infected animal.

- Infections by EHV-1 in particular can cross respiratory mucosa to cause the more serious disease characterized by:
  *Abortion, perinatal foal death.
  * or neurological form of the disease.

Transmission:

1. inhalation of aerosolized secretions from infected coughing horses, by direct and indirect contact with nasal secretions.
2. Ingestion of contaminated materials. In the case of EHV-1, contact with aborted fetuses, fetal fluids, and placentae associated with abortions.

Like herpes viruses in other species, these viruses establish **latent infection** in the majority of horses, they do not show clinical signs but may experience reactivation of infection and shedding of the virus when stressed.

PATHOGENESIS

EHV-1 INFECTION: Virus exposed to upper respiratory tract ⟶

A. Detected in the soft palate & main stem bronchus within 12 hours ⟶ within all levels of respiratory tract within 24 hours.

B. Initial phase of infection ⟶ rapid viral proliferation in nasal, pharyngeal and tonsillar mucosae ⟶ blood vessels ⟶ systemic viremic phase ⟶ associated with lymphocytes ⟶ infection of lung- placenta -fetus and nervous system ⟶ severe inflammation in placenta, fetus ⟶ Abortion, stillbirth, weak foals that die soon.

Clinical signs: Symptoms vary in severity from:

- **Sub-clinical** (unnoticeable).
- **Severe;** characterized by fever, lethargy, anorexia, nasal discharge, cough, respiratory disease, abortion, or neurological signs.

1. Respiratory form (EHV-1 & 4); The first and most common is *Rhinopneumonitis*. This manifests itself as ”Common Cold or Flu” type symptoms that are associated with upper respiratory tract disease.

- Bilateral nasal discharge, severe congestion of nasal mucosa
- Pyrexia
- Congested eyes, swollen eyelids with tearing.
- Dry Cough
- Anorexia
- Constipation or diarrhea

2.EHV-1

a. PREGNANT MARES Asymptomatic; abortion 4-5 mo after respiratory signs; Last trimester (7-11 mo); aborted fetus is not autolyzed and fresh.

b. b. FULL TERM FOALS: General weakness. Pneumonia, Death

c.Neurological form (Rhino-Myeloencephalitis-Equine herpes virus-1 myeloencephalopathy - EHM -):

- This is a debilitating and life threatening syndrome caused by EHV 1.
  Symptoms include:
- fever
- Weakness &tremors.
- in-coordination, ataxia, typically most apparent in the hind limbs and in severe cases, signs may progress to inability to stand (paralysis)

- Lower leg swelling.
- Inability to pass urine or manure.

Due to collapse and paralysis of the bladder, dribbling of urine.

* Due to or secondary to vasculitis of the spinal cord and brain.

*The neurologic form of EHV-1 has become more prevalent in recent years and is frequently associated with disease outbreaks.

Diagnosis:

Because:

- ER is a highly contagious disease.
- with the potential for occurring as explosive outbreaks.
- with high mortality from abortigenic or neurological sequelae, rapid diagnostic methods are important.

1. ELISA.

2.PCR.

3. Virus isolation and identification.

- Samples:

* Naso-pharyngeal swabs, with as soon as possible carried in transporting fluid.

* Aborted fetus, placenta , vaginal discharge.

Treatment:

- No specific treatment exists for EHV-1.
- Non- specific treatment, therefore, consists primarily of:
- * supportive and nursing care,
- *aggressive anti-inflammatory treatment. *Horses may be treated with drugs that inhibit viral replication, such as Acyclovir, however the efficacy of these medications in horses is still speculative.

Prevention:

1. Vaccination:

Two types of vaccines :

- Inactivated with the two types.
- Attenuated EHV-4.

- The most important preventive strategy for Rhinopneumonitis would be vaccination.
- pregnant mares; administered three times at 2 month intervals during pregnancy.

- young horses vaccinated at least three times monthly to prevent contracting the severe forms of the disease.
- In instances where the animals move around between farms and to places where other horses are present, frequent vaccination is required more than the usual annual vaccination Immunity from natural infection and also from vaccination is short lived.

2. Avoiding contact between infected and non-infected horses is the main method of prevention.

Clean and disinfect stables, dispose the infected materials as discharges , placenta, fetuses.

- Zoonosis:

  - the Rhino virus cannot cause an infection in humans,
  - people can transmit the virus with their hands and/or clothes from one horse to another.