

Equine Leptospirosis Animal and Humans at Risk Dr. Ella Pittman

Equine leptospirosis is a sporadic disease (occurring occasionally, or in scattered instances), which can be acute or chronic. Infection is acquired through exposure to the organism via the mucous membranes or abraded skin. The leptospiral organisms are shed in the urine of infected horses (additionally the placenta, fetal fluids and urine of the mare in abortion cases) and a number of wildlife hosts that can shed *Leptospira spp.* in the urine.

Data indicates that it is common for healthy horses to carry titers to multiple serovars (a distinct variation within a species of bacteria). In diseased horses, *Leptospira interrogans* serovar *pomona* is the most commonly incriminated pathogen/serovar in the U.S. Though we mostly think of leptospirosis living in moist environments, a study showed that the incidence of positive titers for various serovars was evenly distributed across the country and has become more prevalent over the years.

Pathogenesis of the infection

Leptospirosis in horses is caused by a pathogenic spirochetes belonging to *Leptospira interrogans*. The bacterium is an anaerobe (needs oxygen to survive) and likes moist environments. It invades the host through direct contact with mucous membranes or through abrasions in the skin. It then enters the bloodstream and the lymphatic system, spreading through the body (and can cause the horse to become septic). The bacterium then exits via the urine (source of the infection) and spreads in the environment.

Clinical signs

Clinical signs associated with acute infection are nonspecific, such as fever, depression, anorexia and generalized pain. The most common clinical entities include recurrent uveitis (which can lead to blindness), abortions (most commonly late-term abortion) and renal failure. All these factors have an economical and emotional impact to the owners. Definitive diagnosis requires a fourfold rise from baseline titer on the microscopic agglutination test (MAT). A single high titer does not differentiate between exposed and infected animal.

Treatment

Horses usually need supportive medicine for addressing kidney failure, anti-inflammatory medications to limit ocular and systemic problems, and antimicrobial therapy. Treatment strategies for leptospirosis depend on the organ systems affected by infection, and the severity and duration of clinical signs. Usually, antimicrobial therapy with penicillin or derivatives (ampicillin, ticarcillin-clavulanic acid, amoxicillin), cephalosporins, erythromycin, enrofloxacin, ciprofloxacin, tetracycline or doxycycline achieves the best results. Success using antibiotics is somewhat influenced by the duration of clinical signs, i.e., whether the horse is experiencing acute versus chronic disease. Intravenous

fluid therapy support is important particularly for horses in acute kidney failure. Giving the diuretic furosemide further helps to dislodge leptospira organisms from the kidneys.

Prevention

There is currently one vaccine approved for use in horses. It is a killed, whole cell bacterin. The product is labeled for vaccination of healthy horses 6 months of age or older as an aid in the prevention of leptospirosis. However, the duration of immunity of this product has not been determined. With no pathognomonic signs of acute infection and difficulties with diagnostic testing, leptospirosis is likely underdiagnosed in horses.

Reference

Leptospirosis, AAEP guideline

Equine leptospirosis, current insights into disease pathogenesis, risk factors and prevention.