

## Updates on Equine Health and Wellness

Horses are subject to numerous health challenges including bone malformations, soft tissue or skeletal injuries, and infections of various kinds. Research continues to turn up information that broadens our knowledge of causes, treatment, and prevention of some common equine health problems.

- **Cervical vertebral malformation myelopathy (CVCM)** refers to weakness and incoordination caused by narrowing of the vertebral space through which the spinal cord passes. Bone remodeling in the spine can compress the **spinal cord**, affecting nerves and muscles that allow the horse to move. Researchers at Texas A&M University studied records of horses with this condition and found that geldings were affected twice as frequently as mares. Stallions were almost two and a half times as likely as mares to develop the problem. The age range of six months to seven years was the most common time for CVMC to occur.
- **Equine protozoal myeloencephalitis (EPM)** is difficult to diagnose because, while many horses have antibodies to the disease-causing protozoa, relatively few show clinical signs of the malady. These signs may be subtle and are similar to those caused by other diseases. **Two newly developed tests** may aid in the diagnosis of EPM. The SarcoFluor and NeoFluor tests are immunofluorescent antibody tests that detect *Sarcocystis neurona* and *Neospora hughesi*, the two known causative agents. The tests yield titer results that indicate the likelihood that a particular horse is actually infected with EPM rather than simply having produced antibodies after exposure to the protozoa. The procedures were developed at The UC Davis School of Veterinary Medicine.
- Ponazuril, a drug used to treat **EPM**, is effective in killing *Sarcocystis neurona*, but treated horses may still show disease signs such as stumbling and incoordination because of damage to the central nervous system caused by the protozoa. Treatment with **stem cells** has shown good results in at least one horse with neurologic problems, and it is possible that stem cell treatment could also benefit horses recovering from EPM.
- **Shipping fever** is a general term used to describe **respiratory infections** that sometimes occur after horses are transported for several hours. Untethered horses spend considerable amounts of time with their heads lowered, allowing bacteria and secretions to drain from their nostrils. In the head-high position in which horses are often transported, these microorganisms may spread back into the respiratory system, causing irritation or infection. A study commissioned by the Japan Racing Authority showed the incidence of shipping fever started at about eight hours in a small number of horses, increased to around 10% after 24 hours of transport, and rose to almost 50% of horses following 40 hours of transport.
- **Sarcoids** are skin tumors that are notoriously hard to get rid of. EcoBiotics, a pharmaceutical company that uses rainforest products to develop new drugs, has produced a **compound that disintegrates sarcoids** and allows the skin to heal. Called EBC-46, the compound contains an inflammatory substance that belongs to a new class of chemicals. It was isolated from seeds that were spit out by rainforest marsupials, leading scientist to wonder why the animals were reluctant to chew the seeds along with the fruit pulp. The chemical, a diter-

pene ester, initiates death of tumor cells, disrupts blood flow to the tumor, and recruits the body's neutrophils to attack the tumor. Though the drug is being developed for use in humans, trials using horses, dogs, and sheep showed that the substance destroyed tumors and promoted skin healing in two to three weeks.

- Prior to the development of modern antibiotics, **solutions or creams containing silver compounds** were used to **treat infections**. Research from the University of Liverpool has shown that this older treatment may have found a new application. **Infections caused by MRSA** (methicillin-resistant *Staphylococcus aureus*) bacteria are difficult to treat, but of the 33 known MRSA strains, only two carry a silver-resistant gene, and even those strains succumbed to silver treatment in the lab. An article in International Wound Journal indicated that silver-containing antiseptic dressings or silver-permeated mesh implants might be effective in treating chronic MRSA wound infections.
- **Early and aggressive anti-inflammatory therapy** may ward off the destructive effects of **laminitis**, according to a study at the University of Pennsylvania's New Bolton Center. Researchers analyzed 15,000 genes from the hoof tissue of horses in the beginning stages of laminitis before damage to the sensitive laminae was evident. In the tissue samples, more than 150 genes governing inflammatory and protein-degrading processes were abnormally activated, suggesting that the **inflammatory response begins well before signs may be obvious** to a casual observer. For at-risk horses, anti-inflammatory therapy in this earliest stage could prevent development of the disease.
- **Hendra virus** most commonly affects fruit bats, guinea pigs, and cats. Fruit bats are thought to be the primary host. Horses and humans can also be affected, though the method of transmission is unknown. The virus, which so far has not been found outside of Australia, was first isolated from horses in 1994. So far, **four humans as well as a number of horses have died** from Hendra infection. The virus seems to have low infectivity but rather high mortality, according to the Queensland Department of Employment, Economic Development and Innovation. Work is progressing toward developing a preventive vaccine, although funding is scarce because research money preferentially goes to diseases that are more widespread than this one.
- **Quantitative ultrasound (QUS)** may eventually be a helpful tool in predicting which horses are at increased risk for **bone injuries**. Using this technology, veterinarians can measure various factors of bone quality such as volume, elasticity, microarchitecture, and mineral density. According to Dr. Antonio Cruz of the Ontario Veterinary College, advanced capabilities are seen in newer QUS units that use an axial signal mode rather than the older transverse transmission mode. This leads to greater accuracy in measuring the speed of sound waves as they penetrate various regions of bone. After examining a set of 2- and 3-year old Thoroughbred racehorses in Canada, the researchers found significant differences in measurements between horses with normal cannon bones and those that had fractures, splints, or bucked shins. Cruz and his colleagues are working on ways to use QUS to identify the **characteristics of bones that are just entering an at-risk state**. Horses in this situation could be eased out of work while bone remodeling progressed to a stage where exercise could safely be resumed.

*This article is for information purposes only and is not intended to take the place of veterinary advice. Kentucky Equine Research urges horse owners and managers to seek the assistance of a qualified veterinarian to provide care and treatment of any equine illness or health problem.*