Equine News

IN THIS ISSUE

Ponies may have an increased disposition to PPID as they age.

Equine Cushing's disease: a common ailment often confused with other metabolic disorders

Equine Cushing's disease is a common affliction that affects horses over the age of 18. A typical situation might be an owner who notices her 25-year-old horse did not shed out his winter coat very well. Then over the summer, the horse seemed to have lost some weight, despite keeping his "hay belly."

Equine Cushing's disease, otherwise known as pituitary pars intermedia dysfunction (PPID), is a condition that results in increased levels of circulating cortisol, an important stress hormone. The disease begins when a benign tumor of the pituitary gland develops, which causes over-stimulation of the adrenal gland. This in turn leads to increased cortisol production. The problem can occur in all horse breeds, although pony breeds and Morgans may be more predisposed. Older horses, primarily in their late teens or twenties, are most commonly affected. It has been reported, however, in horses as young as seven years of age.

The most classic sign associated with PPID is delayed shedding of the winter haircoat or a persistently long haircoat, termed hirsutism. Affected horses may also lose weight and muscle condition, developing a "pot-bellied" appearance. They will often have abnormal areas of fat accumulation, even though overall they are underweight. This most commonly occurs in the neck, resulting in what is called a "cresty neck." These fat deposits may also occur over the eyes, at the base of the tail, or in random areas over the body.

Horses with PPID are especially prone to developing laminitis, and may be more susceptible to infections or have slower healing from wounds or surgery. This susceptibility also increases a horse's risk of parasite infections.

"The presence of a persistently long abnormal haircoat is in and of itself diagnostic for PPID since there is no other disease that results in this condition," said Dr. Siddra Hines, a Washington State University equine medicine resident with experience dealing with this problem. "Several diagnostic tests are also available for PPID. Most commonly performed is the dexamethasone suppression test, which can be done by your veterinarian in the field. There are some limitations to this test, however. One of the most important things to keep in mind is that many false positive results occur in the fall, especially in the month of September. A false positive occurs when the test comes back positive, when in fact the horse is negative for the disease.

"The domperidone response test is a newer test that may be less prone to this problem, but it is more difficult to perform in the field," she said. "It is not commonly used yet by most veterinarians based on practicality and the inability to get quick results. Both tests are offered at WSU, but the results of the dexamethasone suppression

Continued on page 2

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Cushing's *continued*

test can be available within 24 hours, whereas the domperidone response test requires several days."

PPID is most often confused with Equine Metabolic Syndrome, because horses often present with nearly identical symptoms. There is no diagnostic test for Equine Metabolic Syndrome; therefore diagnosis of the condition is often contingent on a negative test result for PPID. Another disease that PPID is commonly mistaken for is hypothyroidism. Most horses that have historically been diagnosed with hypothyroidism have actually been affected by PPID.

Treatment

Once a diagnosis is made, horses are most commonly treated with a drug called pergolide, which is generally considered very effective. Response to the drug may take time, however, because the signs of PPID are somewhat non-specific or not quickly reversible. Over time, owners may notice improved shedding or loss of an abnormal haircoat, as well as improved weight gain. The dosage can be increased or decreased based on response to therapy.

Unfortunately, there is no surgery to remove the tumor that causes PPID. The condition is gradually progressive, and signs worsen over time if it is not treated. This can lead to debilitating laminitis or significant weight loss and infections.

Other treatments that may be necessary include management of laminitis with pain medications such as non-steroidal anti-inflammatory drugs (NSAIDs), and potentially special trimming and/or shoeing. PPID horses often need to be restricted from pasture, especially during the summer when the grass is lush and green, as grazing pasture can spark a flare-up of laminitis.

Horses that are losing weight will also require additional supplementation to their diet. "It is important to provide enough calories without adding high levels of sugars," Dr. Hines said. "This can be accomplished by utilizing complete pelleted senior diets in addition to good quality grass hay. Owners ideally should get their hay tested for levels of 'non-structural carbohydrates,' which should be low in feeds provided for horses with PPID or even just laminitis."

Fat supplements such as corn oil, other commercial horse fat supplements, or high-fat feeds can also be used to increase the caloric content of a horse's diet. Horses with a persistently long haircoat may require clipping during the summer in warm areas to prevent overheating and excessive sweating. In addition, horses with PPID must be monitored closely for injuries or infections since their immune system is impaired.

"PPID is a condition that owners should be familiar with, especially if they own an older horse," Dr. Hines said. "Early diagnosis and treatment can often slow the progression of the disease. Horses that are treated can often go on to live relatively normal, productive lives." One of the main limiting factors is the severity of lameness associated with laminitis, which results in a poor quality of life for a severely affected horse.

For more information about PPID, contact the WSU Veterinary Teaching Hospital at 509-335-0711. More information about the facts and myths of equine hypothyroidism will be featured in our spring 2010 issue.

Best management practices for breeding a mare

Breeding season for horses usually occurs in the spring. This makes winter a good time for breeders to plan for the upcoming season. Though people have many reasons for breeding a horse, whether for commercial purposes or as a hobby, there are some important factors that all breeders should consider before getting started.

The mare's age is important, as well as the number of pregnancies and foals she has produced in the past. Older mares that have not had a foal may have more difficulty becoming pregnant. Mares with a history of abortion or pregnancy with twins may be categorized as high risk.

Also consider the mare's health and if she is in good body condition. Does she have any potentially heritable disorders? Does she have any musculoskeletal problems that carrying a foal would exacerbate, such as lameness due to tendon injuries or arthritis?

"Another question horse breeders should ask themselves is why they want to breed this mare, in particular, when so many unwanted horses are out there," said Dr. Lisa K. Pearson, a Washington State University large animal theriogenology resident. "If an owner would be just as happy adopting or rescuing an adult horse for training, showing, or pleasure riding, then perhaps bringing another horse into the world would not be to their advantage. Also, will the owner accept responsibility for the foal for its lifetime? If the foal is to be sold, will there be provisions that if that new owner cannot keep it, it can be returned to the breeder? If it is to be raised and used by the breeder, will they provide for it regardless of the foal's potential use as an athletic animal? All of these questions should be addressed before a mare is bred."

Dr. Lisa Pearson performing a transrectal ultrasound examination for diagnosis of pregnancy in a mare.

Breeding soundness evaluations

Once the decision is made to proceed, it is essential that the owner involve a veterinarian from the very beginning. First, a breeding soundness evaluation (BSE) should be performed to assess the mare's reproductive potential. This important examination has several components. Mares undergo a physical examination, including an assessment of the conformation of the mare's perineum (the rectal and vulvar area). Transrectal palpation and ultrasound of the reproductive tract are also performed to assess where the mare is in the estrous cycle and to evaluate any pathology, such as abnormalities of the ovaries, uterus, cervix, vagina, or bladder. Mares are seasonally polyestrous, meaning that they have a distinct breeding season.

Continued on page 3

Best management *continued*

"Ideally, we'd like to see mares bred from March to June but there are techniques for extending this window," Dr. Pearson said. "Some mares may cycle year-round."

A BSE also includes sample submission for laboratory analysis. Uterine culture and cytology are used to screen for infection or inflammation, and a uterine endometrial biopsy can provide information regarding the potential of the uterus to carry a foal to term.

"Owners should schedule the BSE with their veterinarian early in the season, as mares may need treatment for any diagnosed conditions," Dr. Pearson said. "Additionally, starting early allows for several cycles to pass to try and establish a pregnancy. The BSE is a very important and common examination that is performed here at WSU on a regular basis. One advantage we have here is that we have a laboratory on-site to examine samples, so we can get results faster than those who have to ship them to a laboratory."

Tracking a mare's cycle

Once a mare is judged reproductively sound, the next step is tracking her cycle. This is best done using ultrasound to examine the ovaries and uterus. One examination will not provide enough information to know when a mare should be bred. Typically, examinations are performed several days apart until a dominant follicle is established on one or both ovaries. Thereafter, daily ultrasound examinations may be needed to accurately time insemination. Insemination can be accomplished through artificial insemination using fresh cooled semen or frozen semen, or by live cover.

"Assuming we are using fresh cooled semen," Dr. Pearson said, "once the mare has a sufficiently large follicle, she can be induced to ovulate by injecting commercial hormone preparations. Ovulation will usually follow within 36 hours. Insemination is timed around ovulation, and usually two doses of semen are administered, once before and once after ovulation. Ultrasound examinations are performed after insemination to ensure that ovulation occurred, and to assess the amount of post-insemination inflammation in the uterus.

"All inseminations cause inflammation," she said. "Some mares, however, tend to have more severe reactions than others, causing the uterus to accumulate fluid. If this fluid remains when the embryo travels down the oviduct to the uterus, the embryo will not survive. Veterinarians can lavage or flush the uterus with sterile fluid solutions and administer the hormone oxytocin to help remove fluid from the uterus."

A pregnancy diagnosis can be made 12-14 days after breeding. Ultrasound is used to visualize an embryonic vesicle. If the mare is not pregnant, she will return to estrus usually within one week. A mare's cycle is 21 days long, so she may be developing a new dominant follicle which can then be tracked. A mare can also be "short-cycled" if she is not pregnant, meaning that an injection can be given to hasten the next heat. This typically causes an advancement of approximately five days.

If the mare is pregnant, the veterinarian will check for the presence of one or two embryonic vesicles, and if two are present (twins), the veterinarian will discuss options with the owner. Twins have a very high rate of abortion, and twins that survive to birth are usually smaller, weaker, and may require extensive medical care.

If one vesicle is seen, the veterinarian will make a schedule with the owner for subsequent evaluations: 25-30 days of gestation to assess the fetal heartbeat; 45 and 60 days to assess health of the pregnancy, and periodically in mid to late gestation (gestation is on average 342 days). The highest rate of pregnancy loss is before 60 days of gestation. Determining the foal's sex may be done between 60 and 70 days of gestation. Blood drawn from pregnant mares can be analyzed for serum progesterone levels, the hormone that maintains pregnancy. Mares with low progesterone levels can be supplemented orally.

"Working closely with a veterinarian ensures a mare has the best chance of becoming pregnant, and will not be bred needlessly if she has any problems that may prevent her from becoming pregnant," Dr. Pearson said. "Planning ahead ensures that when breeding season arrives, owners have a good idea of what to expect both for their mare and from their veterinarian."

For more information regarding mare breeding, including concerns about high risk pregnancies, contact Dr. Ahmed Tibary, head of WSU's large animal theriogenology service, at 509-335-1963 or tibary@vetmed.wsu.edu. To schedule a breeding soundness evaluation, contact WSU's Veterinary Teaching Hospital at 509-335-0711.

Prudent use of Non-steroidal Anti-inflammatory Drugs (NSAIDs)

Equine veterinarians commonly prescribe non-steroidal anti-inflammatory drugs (NSAIDs) for horses to treat a myriad of diseases, including colic, respiratory disease, and lameness. NSAIDs are also very common in human medicine, and include such drugs as aspirin and ibuprofen. Most horse owners have probably used NSAIDs too, such as phenylbutazone, or "bute," in one of their horses at some point in time.

"NSAIDs are an invaluable medication and have a multitude of uses in equine medicine. When used appropriately, they are very safe for horses," said Dr. Bradley Nelson, a WSU equine medicine and surgery intern. "Like any medication, however, there can be side effects with NSAID use. It is important that horse owners only use these medications as directed by their veterinarian and when they are aware of the symptoms that horses with NSAID toxicity will demonstrate."

The positive effects of NSAIDs include pain relief (analgesia) and the reduction of inflammation and fever. When a horse is injured, the body responds by producing inflammation. The horse will then likely have some associated swelling, pain, heat, or redness in the affected area. This inflammatory process is a multiple-step pathway in the body and involves many enzymes. NSAIDs work by inhibiting an enzyme called cyclo-oxygenase (COX), which shuts down the pathway and reduces the inflammatory process. Depending upon the NSAID, other positive effects include blood thinning and the reduction of endotoxemia, or the presence of bacterial byproducts in the bloodstream.

The most commonly used NSAIDs are flunixin meglumine (Banamine©) and phenylbutazone or "bute." Other NSAIDs equine veterinarians use include firocoxib (Equioxx©), ketoprofen (Ketofen©), etodolac (Etogesic©), aspirin, naproxen, and diclofenac (Surpass©). Flunixin meglumine is typically given to horses with pain originating from an internal organ, such as colic. Phenylbutazone is given for conditions that involve lameness or other problems involved with the horse's bones, ligaments, and tendons.

"While some NSAIDs have similar potency and activity, they are not interchangeable," Dr. Nelson said. "For example, although aspirin is the best medication for decreasing excessive blood clotting, it is not usually the best choice for musculoskeletal problems in horses."

Some NSAIDs are reportedly safer to use than others, but no NSAID is risk free. When used under recommended dosages, NSAIDs can be a valuable and economic choice for treating many equine diseases, but they can produce side effects when used inappropriately. Moreover, even at recommended doses, some horses can develop adverse effects.

The main side effects seen in horses occur in the gastrointestinal tract and kidneys. The pathways that regulate inflammation also help by producing substances called prostaglandins, which are needed to promote blood flow, increase mucus secretions, and decrease gastric acid secretions. Prolonged high doses of NSAIDs can decrease these prostaglandins and make the horse susceptible to ulceration.

Clinical signs that can be seen with NSAID toxicity include diarrhea, colic, ulceration throughout the gastrointestinal tract (including the mouth), and weight loss. Kidney toxicity usually develops due to changes in the kidney's blood flow. If these medications are given to dehydrated horses or those with preexisting kidney disease, they are more susceptible to toxicity. Clinical signs seen with kidney disease may include increased or decreased urination or straining to urinate. While some of these side effects are mild, severe disease can develop.

"If a horse is on an NSAID medication and develops some of these symptoms, stop giving the NSAID and consult a veterinarian," Dr. Nelson said.

NSAIDs are formulated for horses in several ways, including oral, injectable, or topical. Phenylbutazone and flunixin meglumine come in oral and injectable formulations. A veterinarian will prescribe the most appropriate medication for an individual horse and help owners with the proper way to administer it.

"The injectable formulation should only be administered into the vein, and not in the muscle because tissue damage can result. In addition, the injectable form of flunixin meglumine has been associated with causing serious secondary bacterial infections," Dr. Nelson said. "The flunixin meglumine injectable formula is readily absorbed when given orally to the horse and is an excellent alternative to giving it in the muscle if an oral formulation is not available.

"The topical NSAID Surpass© is marketed to be applied on an affected area without exposing the entire body," he said. "However, this NSAID is typically not as effective as phenylbutazone for moderate to severe lameness."

He also recommended that typical safe doses for phenylbutazone (for an average 1,000 lb horse) should not exceed 3 grams daily for three days unless on the advice of a veterinarian. After three days, the dose should be decreased to prevent any adverse side effects. In many horses, these lower doses can be safely maintained for longer periods of time, possibly for several months. But some horses are more sensitive to NSAID toxicity and may develop problems with lower doses.

For an average sized horse, flunixin meglumine use should not exceed 500 mg (10 mLs) every 12 hours. These doses are also reserved for more painful conditions and should not be given for more than two days prior to decreasing the dose.

"When these doses of phenylbutazone or flunixin meglumine are exceeded, usually the horse does not benefit from increased pain relief and is much more likely to be harmed by the side effects," Dr. Nelson said. "If a horse is given too much of an NSAID, a veterinarian should be consulted as they can help prevent severe side effects before they occur."

Generally, horses should not be given NSAIDs if they have preexisting kidney or gastrointestinal disease. But depending upon the disease, a veterinarian can determine if NSAIDs can safely be used in these cases.

For any questions or concerns about the use or administration of NSAIDs, or if toxicity is suspected, contact your veterinarian or call the WSU Veterinary Teaching Hospital at 509-335-0711, which is open 24 hours a day for emergencies.

WSU now seeing patients with advanced eye problems in Pullman

It is not unusual for horses to develop an eye problem, be it from an infection, injury, or cancer. While many veterinarians treat eye issues, there are some that can turn into serious problems and may need advanced eye care. These can include non-healing corneal ulcers, deep ulcers, traumatic injuries, perforations, cancers in and around the eye, and an inflammatory disease of the eye called equine recurrent uveitis (ERU).

In the past, eastern Washington horse owners had to go to Spokane for advanced eye care, or over to western Washington near Seattle. Now horses with difficult eye problems can come to WSU's Veterinary Teaching Hospital in Pullman for treatment.

Several years ago, WSU teamed up with Spokane veterinary ophthalmologist Dr. Bill Yakely to form a combined ophthalmology residency program to treat animals with eye problems and train veterinarians seeking board-certification as eye care specialists. Dr. Yakely has practiced veterinary ophthalmology for more than 30 years and owns the Animal Eye Clinic of Spokane. In December, the practice will move into WSU's satellite clinic in Spokane.

Dr. Terri Schneider, a WSU clinical assistant professor and veterinarian, recently completed her residency training through this program and is in the process of becoming a board-certified ophthalmologist. She is currently seeing both large and small animals at WSU's Veterinary Teaching Hospital on Thursdays and Fridays. She also sees cases at the Animal Eye Clinic of Spokane on Mondays and Tuesdays.

Patients that can be seen include horses, dogs, cats, alpacas, and exotic animals. To schedule an appointment at WSU, horse owners can contact Lynette Kinzer at the equine desk at 509-335-0711.

"Animals can be seen by referral or owner scheduling. Typically, the cases we see are referred because of a failure to respond to treatment or the animals have complicated ocular problems," Dr. Schneider said. "Many times, general practitioners refer eye problems because certain conditions can deteriorate rapidly and the eye is not very forgiving.

"Some problems are curable, and others such as ERU need to be managed and controlled to keep the animal's vision," she said.

"Even if the animal can't see, there are ways to make the animal more comfortable."

Many conditions like chronic eye ulcers can be treated medically. Surgery can also be performed for traumatic injuries or other qualifying conditions. Some cases that come to WSU with cancers in and around the eye, including squamous cell carcinomas, are handled in a team fashion with the equine medicine and surgery service and oncology service.

"WSU is a great place for us to see horses because of the combined services offered here and the available equipment," Dr. Schneider said. "One thing we do not do is cataract surgery on horses either at WSU or the Animal Eye Clinic in Spokane."

In addition to treating patients, Dr. Schneider teaches an ophthalmology course to second-year WSU veterinary students, and trains fourth-year veterinary students about ophthalmology as they work alongside her treating patients that come to the Veterinary Teaching Hospital.

For more information about ophthalmology care for horses or to make an appointment, contact the WSU Veterinary Teaching Hospital at 509-335-0711 or the Animal Eye Clinic of Spokane at 509-535-9394.

WSU Ophthalmology Service

When: Every Thursday and Friday
Where: WSU Veterinary Teaching Hospital in Pullman
Who: Dr. Terri Schneider
Contact: Lynette at the equine desk at 509-335-0711

WASHINGTON STATE UNIVERSITY

Veterinary Teaching Hospital
Department of Veterinary Clinical Sciences
College of Veterinary Medicine
PO Box 646610
Pullman, WA 99164-6610

Meet Dr. Lisa Pearson

Horse owners coming to WSU for reproductive issues regarding their mares or stallions may meet Dr. Lisa Pearson, our newest theriogenology resident who works with the WSU equine team. The equine theriogenology or reproduction service at WSU provides a diverse range of services including breeding soundness evaluations of stallions and mares, pregnancy and fetal well-being evaluations, semen collection and freezing, embryo transfers, and artificial insemination with fresh-cooled or frozen semen. The service is led by Dr. Ahmed Tibary, a WSU professor and board-certified and internationally renowned large animal theriogenologist who has served WSU clients for more than 12 years.

WSU Veterinary Teaching Hospital residents are veterinarians who have completed their veterinary degree and at least one year of an internship or equivalent practice experience. As residents, they pursue advanced clinical training in a veterinary specialty area such as internal medicine, surgery, or theriogenology. Completion of a residency qualifies them to pursue specialty board certification with the American College of Veterinary Internal Medicine, the American College of Veterinary Surgery, or the American College of Theriogenology. Residents typically practice at the WSU Veterinary Teaching Hospital for at least three years and are involved in many cases that contribute to the development of their high-level skills. Many residents also engage in master's or doctoral degree research programs to enhance their competence as clinical scientists and future academicians.

Dr. Pearson is a WSU alumnus who graduated in May 2008 with her DVM from the College of Veterinary Medicine. She returned to WSU to begin her large animal theriogenology residency in July 2009 after completing a year-long internship at the Equine Medical Center of Ocala in Ocala, Florida. There she was involved in equine surgery, internal medicine, anesthesia, theriogenology, and emergency medicine. She is especially interested in mare reproduction. Her goals are to become board certified in theriogenology and to enter into a doctoral program.

"As a former WSU student, I found the faculty engaging, the facilities exemplary, and the combined advanced degree/residency program to be unparalleled," Dr. Pearson said. "I am honored to return to such an institution and to contribute to its continued growth."

WSU Veterinary Teaching Hospital Switchboard

Main Hospital Switchboard and Emergencies	509-335-0711
Equine Appointments	509-335-0711
Agricultural Animal Appointments (Non-Theriogenology)	509-335-5377
Theriogenology (Equine and Ag Animal)	509-335-0741
Small Animal Appointments	509-335-0711
Dean's Office	509-335-9515
VTH Fax Number	509-335-3330
Billing	509-335-0711
Pharmacy	509-335-0736
Pet Partnership Program	509-335-7347
Pet Loss Hotline	509-335-5704

Want to know more about our equine clinical services, research, and accomplishments, or receive our quarterly newsletter online? Visit the equine Web site at www.vetmed.wsu.edu/depts-vth/equine/index.aspx or the WSU Veterinary Teaching Hospital Web site at www.vetmed.wsu.edu.

1/10 130199