



DAVIE COUNTY LARGE ANIMAL HOSPITAL

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Pituitary Pars Intermedia Dysfunction (PPID) – a.k.a Equine Cushing’s Disease

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What is PPID?

Pituitary pars intermedia dysfunction (PPID), also known as Equine Cushing’s Disease, is a common endocrine disorder that affects older equids. It is a slowly progressive degenerative disease of the hypothalamic dopaminergic neurons. Loss of dopaminergic neurons inhibits control of the pars intermedia melanotropes and gives rise to formation of hyperplasia and adenomas in the pars intermedia. What this means is that the hypothalamus and pituitary gland fail to communicate properly. This leads to hyperactivity of the pituitary gland and over production of the hormones cortisol, glucose, insulin, and adrenocorticotropin hormone (ACTH).

What are the clinical signs of PPID?

Early clinical signs of PPID include: lethargy; regional hypertrichosis (long, curly hair occasionally coupled with color change); delayed hair coat shedding; loss of topline muscle; a “pot-bellied” appearance; excess or decreased sweating; infertility; abnormal heat cycles in mares; polydipsia; polyuria; tendonitis/desmitis; recurrent laminitis; recurrent hoof abscesses. As the disease progresses, the clinical signs become more severe, evolving into generalized hypertrichosis, loss of seasonal coat shedding, recurrent infections, tendon laxity, suspensory ligament laxity, dry eye, and recurrent corneal ulcers.

What horses are at risk for PPID?

PPID is a disease that effects all older horses, ponies, donkeys, and mules regardless of breed or sex. Most commonly seen in equids over the age of 15, PPID has been documented in those as young as 10. As age increases, so does the risk of PPID. Studies have indicated a prevalence of 20% in equids over 20 years old and 30% prevalence in those over 30. Ponies seem to have a higher occurrence of PPID than horses and any equid previously diagnosed with Equine Metabolic Syndrome (EMS) are at higher risk than others.

What tests can be done to diagnose PPID?

There are a couple of options to test your horse for PPID:

1. A Resting Adrenocorticotropin Hormone (ACTH) Concentration Test is a simple blood test that can be done on the farm to measure blood ACTH levels in a resting horse. While this test is an option, it is not ideal for early stages of PPID and can be skewed due to stress and pain levels of the horse.
2. A Thyrotropin-Releasing Hormone (TRH) Stimulation Test is a more accurate testing of blood ACTH levels that can also be done on the farm. For this test, a veterinarian will draw a baseline blood sample from the horse and then give an intravenous injection of TRH. The

TRH will stimulate the pituitary gland to release more hormones and the concentration of ACTH in the blood will significantly increase in horses with PPID. After 15 minutes, the veterinarian will draw another sample of blood and the levels of ACTH will be measured from both samples.

3. The Overnight Dexamethasone Suppression Test is a blood test to measure the amount of plasma cortisol. For this test, a veterinarian will draw a pretreatment blood sample late in the afternoon and then administer a low dose intramuscular injection of dexamethasone. The posttreatment sample will then be collected around noon the next day and both samples will be measured for plasma cortisol. In a normal horse, this test would create a negative-feedback response in the adrenal glands and therefore drastically decrease the levels of plasma cortisol in the posttreatment blood sample. In a horse with PPID, the negative-feedback loop does not respond correctly and the levels of plasma cortisol will decrease only slightly, if any, between the two samples.

What treatments are available to treat PPID?

Treatment and management for PPID will be necessary for the remainder of the equid's life. While medical management is essential, owners should also make lifestyle changes to prevent the associated complications of the disease. In order to address the hypertrichosis, owners should body clip regularly, especially in the warmer months. A strict diet and special attention to the horse's temperature and hooves are also important considerations for an owner. Taking these necessary precautions will help to decrease the likelihood of infection, laminitis, and hoof abscesses.

The current most effective medical treatment on the market is pergolide mesylate (Prascend). A daily, oral medication, pergolide mesylate reduces the amount of ACTH and other hormones released from the pituitary gland. The dose may have to be increased as the equid ages, so yearly testing for blood ACTH is recommended.

Another drug that targets the pituitary gland is cyproheptadine. Studies have shown cyproheptadine to not be as effective at reducing hormone secretion as pergolide mesylate, but some horses who are not responding to pergolide benefit from the addition of cyproheptadine.

What is the prognosis for a horse with PPID?

PPID is an incurable condition that can be managed through medication, diet, and exercise. The main challenge for a horse with PPID is to manage and prevent recurrent bouts of laminitis, hoof abscesses, and infection. With proper diet and exercise management, careful monitoring, regular testing, a horse with PPID can live a long, comfortable life.

If you are concerned your horse might be suffering from PPID, please contact Davie County Large Animal Hospital to set up an appointment or talk to one of our veterinarians. Our veterinarians will work with you to find a suitable treatment plan including nutritional consultation personalized to you and your horse.

If you wish to know more about Pituitary Pars Intermedia Disease (PPID)/Equine Cushing's Disease, please read the following article from our partners at Cargill:

<https://www.vetnutritioninfo.com/page/equine-cushings-disease>