Equine Cushing's Disease

Equine Cushing's disease, also referred to as Equine Pituitary Pars Intermedia Dysfunction (PPID) or hyperadrenocorticism, is one of the most common endocrine diseases of horses. It is most commonly seen in horses older than 15 years of age. There are many recognized syndromes of hyperadrenocorticism in people, dogs, and other species that are commonly referred to as "Cushing's disease," but the problem can vary as to the organ source and underlying endocrine dysfunction that results in indistinguishable symptoms. In the horse, it is generally a more consistent underlying process, but the specific cause (or pathophysiology) remains largely unknown.

The pituitary gland is a normal part of the typical mammalian brain, sitting at the base of the brain just above the two optic nerves (one from each eye). There are three lobes in the pituitary gland – one of which is the "pars intermedia." For reasons unknown, the cells in this region begin to increase in size, increase in number, and/or change into a benign tumor – called an adenoma. This underlying change seems to be the primary contributor to Cushing's disease in the horse, which is different from, say, a dog, who may develop Cushing's due to a problem in the pituitary gland or the adrenal gland. The pituitary gland, in both species, regulates the adrenal glands' production of cortisol (commonly known as adrenaline). It is primarily the effects of cortisol that result in the symptoms seen with PPID.

Symptoms of PPID can vary based on the stage of the disease and specific proteins that are being overproduced by the horse's pituitary gland. The average age is 20 years, but horses 7 years or older can develop the disease. Ponies and Morgans have a high incidence of the disease. The most commonly recognized sign of PPID in horses is a long, curly hair coat with abnormal shedding patterns. Another common sign is excessive drinking (considered >25-30L in the normal horse) and/or urination. Bulging eyes, abnormally located fat deposits, inappropriate lactation, muscle atrophy, and/or weight loss may also be seen. Related problems that can occur in horses with PPID include laminitis, fertility problems, chronic infections or recurrent hoof abscesses, and blindness. Blindness in horses may occur when growth of the pituitary gland results in compression of the optic nerves.

There is more than one way to diagnose Cushing's disease in your horse. The "gold standard" test is called the Dexamethasone Suppression Test – it is considered the most reliable. It requires two blood samples 19 hours apart, generally performed at 5 p.m. on the first day and 12 p.m. the following day. The horse is given an injection of dexamethasone, a type of steroid, following the first blood sample. If the horse is not able to reduce his own level of cortisol in response due to overproduction of proteins by the abnormal pituitary ("doesn't suppress"), he is considered positive for Equine PPID. This test can be performed with the horse in-hospital overnight, or with two farm call visits. The other test for Equine Cushing's is a baseline ACTH measurement (a hormone that is produced by the normal and abnormal pituitary). If, at rest, the ACTH is above a certain level, it can be presumed that the excess production is a result of PPID. These are the two most reliable and commonly performed diagnostic tests for Equine PPID.

While treatment of PPID is not curative, it can significantly improve your horse's quality of life, ability to fight off infections, and potentially fertility in older broodmares. The most effective treatment for

Equine PPID is pergolide powder, given by mouth as a top-dress to feed or via syringe once daily. Sometimes the initial dose of pergolide must be adjusted to fit your horse's disease severity and response – repeating the above diagnostic tests once your horse is started on pergolide treatment can help determine if the given dose is appropriate. Pergolide treatment costs about $80 per month, and is given for the remainder of the horse's lifetime. While expensive, it may reduce your animal's future discomfort, and your future medical expenses related to management of laminitis, chronic infections, or infertility. Other treatment options include cyproheptadine, which is generally less expensive, but seems to show less consistent benefits than what has been seen in studies when compared with pergolide. It has been used in combination with pergolide with the purpose of improving its efficacy. Other important aspects of treatment and management of PPID in horses include a good preventative medicine program (vaccines, deworming, dentals), clipping of the long hair coat in summer, management of infections with antibiotics, corrective farriery for laminitis and hoof abscesses, and maintaining a good body condition with an appropriate feeding schedule.

If you suspect your horse may be affected with Equine PPID, and are interested in diagnostic testing and/or treatment, please contact the office to schedule an appointment. For any further questions about this newsletter, feel free to contact Dr. Lacher or Dr. King by phone or email.