

Cushing's Disease in Horses A Metabolic Disease

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Cushing's Disease, also known as Pituitary Pars Intermedia Dysfunction or PPID, is a dysfunction of the pituitary gland. Studies show that between 20 and 33% of all horses develop PPID by the age of 20, making it the most common endocrine condition of horses. Clinical signs of Cushing's include excessive hair growth or lack of seasonal shedding, recurrent laminitis, muscle-wasting and pendulous abdomen, recurrent infections (e.g., sole abscess, skin infections), abnormal sweating patterns, excessive thirst and urination, and behavioral changes, primarily dullness or depression. Most of these clinical signs result from excess cortisol levels circulating in the body.

Pathophysiology

The pituitary gland (an organ in the brainstem) drives the production of hormones in the body to maintain homeostasis (a state of balance). PPID results from a benign growth of a specific region of the pituitary gland called the pars intermedia. As the mass grows, it produces excessive amounts of various hormones, such as adrenocorticotropin hormone (ACTH) in which drives cortisol levels in the body. Cortisol, or the stress hormone, controls several body functions, including maintenance of blood sugar levels, generation of energy during exercise, activation of the "fight or flight" response, detoxification, antioxidation, and infection-fighting pathways. Excessive levels of cortisol, however, have an effect on virtually every body system. Consistently elevated cortisol causes muscle-wasting, increases susceptibility to infection, and contributes to insulin resistance and laminitis.

Diagnostic

After a complete physical examination and routine blood work (complete blood count and chemistry), your veterinarian has a few options for specifically diagnosing Cushing's. These include measuring the resting ACTH level, performing a TRH (thyrotropin-releasing hormone) stimulation test, and others. In cases of suspected PPID, the best test to perform is a TRH stimulation test. This test involves obtaining a blood sample, administering TRH, and collecting a second blood sample exactly 10 minutes later. If ACTH levels in the blood samples increase excessively in response to TRH, the test is considered positive for PPID. Alternatively, advanced cases of PPID can still be diagnosed by identifying elevated ACTH levels in circulation.

Treatment

Although there is no definitive treatment for equine Cushing's disease, there are a handful of ways to manage and effectively control it. In addition to diet changes (see below), horses can be treated with Pergolide, the only FDA-approved medication for PPID. Anywhere from 0.2 to 5 milligrams orally per day has been shown to stabilize the cortisol levels in most horses. If effective, the veterinarian may then gradually reduce the dosage.

Management

Because insulin and blood sugar metabolism may not be functioning properly in Cushing's horses, it is recommended to avoid food that is high in sugars and starches. Avoid feeding traditional grains, treats or pasture is an important part in managing a horse with PPID. Instead, feed a multi-vitamin/mineral supplement or low-sugar/high-fiber feed made especially for senior horses. Adding canola oil is a great fat supplement that can help increase a horse calorie intake if needed. Cushing's often compromises the immune system, causing horses with this condition to be more prone to infections and other health problems. Because of this, Cushing's horses should be seen by a veterinarian at least twice per year with special attention paid to vaccinations, deworming, dental health, hoof care, and other preventive maintenance.

Equine Cushing's Disease: Back to the basics. Kentucky Equine Research. January 15, 2018