Equine Cushing’s Disease (ECD) or Pituitary Pars Intermedia Dysfunction (PPID) is a condition that develops due to an abnormality of the pituitary gland found in the brain. Just like Equine Metabolic Syndrome (EMS), PPID is also linked with laminitis, and although some horses can suffer from a combination of both, these conditions should not be confused. Specialised treatment and management of PPID can help prevent laminitis and improve your horse or pony’s quality of life.

Equine Cushing’s Disease (ECD) or Pituitary Pars Intermedia Dysfunction (PPID) is a condition that develops due to an abnormality of the pituitary gland, which is found in the brain. The pituitary gland is responsible for the production of a number of important hormones that control basic body functions. In horses affected by PPID, there is a slow-growing tumour that develops in the pars intermedia section of the pituitary gland. The tumour causes dysfunction of the pituitary gland, reducing the production of some hormones and increasing the production of others. Abnormal levels of the adrenocorticotrophic hormone (ACTH) and alpha-MSH (melanocyte stimulating hormone) are the most commonly detected in the testing process. Cortisol, considered an important ‘stress hormone’ is produced by the adrenal glands in response to ACTH production and is also used in the testing process. As a result of these hormonal imbalances we see these horses fail to shed their winter coat, the coat becomes long and curly, these horses may drink and urinate excessively, be prone to infection and some horses can develop laminitis.

Clinical signs of PPID include:
- Curly coat
- Excessive or inappropriate sweating
- Muscle wasting
- Lethargy
- Increased thirst/urine production
- Predisposed to infections
- Delayed and slow wound healing
- Laminitis

Who is affected by PPID?
Older horses and ponies, usually over 15 years old, although it has been reported in horses under 10 years old. Ponies are more commonly affected but horses can also develop PPID. Horses can have both PPID and EMS.

Dexamethasone suppression (DST) This test is based on measuring baseline cortisol levels, then administering a dose of dexamethasone (a corticosteroid medication) to suppress the body’s natural production of cortisol. If the horse has PPID, the medication will fail to suppress cortisol production.

The Advantages of measurement of the ACTH concentration are that it requires only a single blood sample and there is no risk to the horse. The main disadvantages are that the levels of ACTH in a normal horse vary with season, making interpretation of results difficult early in the disease, especially in summer when levels are naturally higher. The sample also needs to be collected and processed immediately, rather than sitting in the vet’s car for the day. Dexamethasone is administered intramuscularly, and a second blood sample is collected the following morning to 24 hours after dexamethasone administration.

The disadvantages of DST are that cortisol is not always abnormal in the early stages of the disease; it requires two vet visits; there is a low risk of laminitis following the dexamethasone injection; and some seasonal effects can affect the test results.

Other testing methods
Several other testing methods are used in the USA and UK but are not currently available in Australia. These include measurement of alpha-MSH, TRH stimulation test and the Dopperpine response test.

Testing pitfalls
Stress and/or concurrent disease may falsely elevate levels of ACTH and cortisol, especially animals suffering from painful disease like laminitis. Autumn – normal animals may have false positive test results. However affected animals can have a more exaggerated response during this time too.

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Equine Cushing’s Disease

by Dr Kath Mitchell BVSc, Bsc (Hons)
Regular dental check ups
Regular farrier visits
Regular monitoring of Clipping

The most common cause of tooth loss and in fact the most common

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One of the most important effects of Cushing’s disease in relation to a

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There is no need to remove any teeth from the mouth if the opposing tooth has been extracted; the teeth used to grind against the extracted tooth, is the tooth that extracted tooth used to grind against. If you use the tooth on the opposing tooth that is used to grind against the extracted tooth, you may use this to grind against, so this means that as a horse has lost 25% of its grinding surface.

Teeth can become infected by a tooth root abscess and other infections.

Good quality diet

Aim to maintain a healthy body condition as many of these animals may struggle to maintain weight, especially during winter. Good quality forage and a complete feed, supplying appropriate nutrients, vitamins and minerals will help keep the pony as healthy as possible.

If the pony also has signs of EMS and insulin resistance, then it will be very important to reduce the amount of carbohydrates (sugars, NSC) in the diet, replacing them where necessary with protein and fats.

The use of natural anti-oxidants such as Vitamin E and omega-3 fatty acids may help

Concurrent testing for EMS

Horses with PPID that have insulin resistance are at higher risk of developing lamination than those without IR, and concurrent baseline insulin testing may be helpful to identify these at risk horses.

Medical management of PPID

Pergolide: Pergolide is the most widely used treatment for PPID. Pergolide is a dopamine receptor agonist. Dopamine is a chemical that is lacking in horses with PPID. Pergolide increases the effectiveness of dopamine which improves the function of the pituitary gland. Daily treatment with Pergolide can reduce the excessive production of ACTH and lead to significant improvement in the quality of life for these ponies and horses. The coat quality can improve, laminitis can be prevented and the horse’s heart rate slows and the horse has improved immune function.

Pergolide is very well tolerated at a once a day oral medication. It is important to realise that these horses will require treatment for the rest of their life as this disease is not curable.

Other treatment options are available if a poor response to pergolide is seen. These include cyproheptadine, bromocriptine and trilostane.

General health care

It is very important to realise that ponies and horses with PPID need comprehensive care to help them stay healthy. Affected animals can live a long and happy life if they are well looked after.

• Regular dental check ups are essential, as these horses can be slow to heal and can be prone to tooth root abscesses and other infections.

• Regular monitoring of faecal egg counts and deworming when appropriate as affected horses can be prone to high parasite burdens due to immune suppression.

• Clipping the thick coat especially during summer

• Regular farrier visits as these animals can be prone to seedy toe, hoof abscesses and abnormal hoof growth following laminates episodes.

• Preventing all horses and ponies from developing the debilitating disease lamination.

Dental care and Cushing’s

All horses need regular dental care, and this especially true of older horses. Older horses (like older people) undergo changes in their metabolism and often undergo changes in body shape. When older horses lose weight it can be very hard to regain and the impact that dental disease has on losing condition can be severe.

One of the most important effects of Cushing’s disease in relation to a horse’s dental care is the effect it has on wound healing. A wound or injury caused by a sharp tooth or by the rough handling of a poorly trained operator may not heal without the intervention of your equine dental vet. This is because Cushing’s disease suppresses the horse’s immune system and prevents the production of cells called fibroblasts.

These cells are a vital component in the formation of new tissue (wound healing). Some of the more common locations in the horse’s mouth to see what we call ‘cushingoid’ wounds are the cheeks, the tongue, the lips, and gums (see image on right). It is also important to understand that for every tooth a horse has to have removed, they really lose two teeth. This is because the opposite tooth (the tooth that extracted tooth used to grind against) now has nothing to work a against, so this means that as a horse has lost 25% of its grinding surface.

The most common cause of tooth loss and in fact the most common dental disease of horses is periodontal disease with around 80% of horses being affected. Periodontal disease is advanced gum disease and involves loss of tooth, bone, ligament and gum, if the disease is not identified and treated by an equine dental vet then the result is pain, infection and tooth loss.

Again if your horse has Cushing’s disease then the chances of complications when treating the infection are much higher, so your best defence is to schedule regular dental exams with your equine dental vet, and follow their advice.

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