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Carbohydrate Overload

Clinical Signs

Clinical signs (i.e. colic, laminitis, diarrhea, trembling, sweating, elevated respiratory rate, elevated heart rate) generally occur within 1 to 48 hours post-ingestion. You may see all, some, or none of these clinical signs depending on your horse's specific situation (how much they ate, what their normal diet is, how long ago they consumed the excess grain/grass, etc). There is no specific amount of grain or grass clippings a horse must consume to result in these clinical signs. Regarding grain overload, horses consuming large amounts of a senior feed, which are lower in carbohydrates, are less at risk than those consuming a sweet feed for example.

Pathophysiology

Grass clippings are high in carbohydrates, specifically fructan. When a horse ingests a large volume of carbohydrates in a short amount of time, the capacity of the small intestine to digest the carbohydrates is overloaded, and the carbohydrates spill over into the hindgut, which predominantly digests fiber. Hindgut function relies heavily upon its diverse microbial population. During the state of carbohydrate overload, certain microbe populations ferment carbohydrates more efficiently than others leading to their overgrowth. At the same time, other populations begin to die-off. As the acidity of the hindgut increases and its health becomes impaired, a dangerous substance called endotoxin is released into the bloodstream. This results in a systemic inflammatory state that can have detrimental effects to not only the body as a whole, but also the lamella of the hoof leading to laminitis.

Treatment

If your horse ate a significant amount of grain or grass clippings, your vet will discuss with you the option of lavaging (pumping) the stomach to remove as much feed material as possible. Mineral oil with epsom salts may also be administered to encourage water consumption and expedite transit through the gut. Cryotherapy or "icing the feet" is also of benefit to the horse to induce vasoconstriction to help decrease the amount of endotoxin within the hoof capsule. To further help combat this inflammatory state, anti-inflammatories such as banamine are prescribed. Other medications that may be discussed include activated charcoal, biosponge, polymyxin b, and IV fluids. Lastly, in very serious cases, hoof radiographs may be taken to give you a baseline for comparison of any potential rotation that may develop.

Prognosis

If treatment is instituted before clinical signs develop, the prognosis is excellent. The prognosis becomes guarded to poor once a horse begins showing clinical signs such as those listed above.

What YOU can do

Contact your veterinarian right away to discuss your specific situation. If you are not able to contact your vet immediately, or if you are waiting for them to arrive, please remove any feed from your horse's stall. Continue to monitor your horse's vital signs such as respiratory and heart rate, as well as general demeanor and comfort level. You may also assess their digital pulses by palpating the backside of their fetlock along the sides of their sesamoid bones. Bounding/increased digital pulses may signify impending laminitis. Depending on the severity of the situation, your vet may even have you begin icing the horse's feet before arriving. As in any stressful situation you encounter with your horse, it is important to remain calm. Contacting your vet is the first step to help relieve your stress and provide you and your horse with the most favorable outcome.