**What are they?**

A Non-Steroidal Anti-Inflammatory Drug (NSAID, pronounced “EN-sed”) is a medication that falls into the category of anti-inflammatory drugs and painkillers that are commonly used to minimize swellings associated with an injury or tissue irritation.

**How do NSAIDs decrease pain and swelling?**

Inflammation is a natural response that the body produces when an injury takes place. Tissue irritation triggers the release of prostaglandins, which are “messenger molecules” found throughout the body. When released, prostaglandins cause specific fluids (swelling) to be purposefully flooded into the injured site, supplying that area with the substances (platelets, collagen, etc.) needed by the body to repair itself. In a nutshell, inflammation is the body’s way of delivering healing substances to the injured site, and prostaglandins trigger this action. This same principle applies for healing intestinal ulcerations - prostaglandins are required.

When NSAIDs are given, whether orally or by injection, they block the body’s release of prostaglandins. What you see after giving NSAIDs is that the symptoms of swelling and soreness decrease - not that healing has occurred. What you don’t see is the negative effect of decreased prostaglandin production on the mucosal lining in the digestive tract.

**The Important Mucosal Lining**

The mucosal lining (mucous membrane) is a mucous substance that is continuously secreted in the digestive tract and from many other tissues (nose, lungs) and continuously performs several important functions:

1. Provides a protective barrier that prevents toxins and harmful molecules from passing through the intestinal walls (“leaky” gut, colitis)
2. Forms a “mucoid cap” that provides immediate “first aid” to intestinal irritations at the microscopic level before serious tissue damage can occur (ulcerations)
3. Provides lubrication to ensure an easy and continuous flow of digested foodstuff from mouth to anus (constipation, impaction-type colics)
4. Is an integral part of gut microbe functions - together they are responsible for nutrient absorption and synthesis
5. In conjunction with gut microbes, it performs 70-80% of the immune function
6. It forms a hydrophobic layer that protects gastrointestinal surfaces from acidic pH levels (acidic stomach and hind gut acidosis)

Ulceration of the equine stomach and hind gut are not the only side effects from NSAID use. The Merck Veterinary Manual indicates that clinical signs of NSAID use can occur days to weeks after NSAID therapy is discontinued and these range from colitis, scarring of the bowel (serious enough to block intestinal function), oral and esophageal ulcerations, even reduced blood flow to the kidneys.

Research literature makes it apparent that even when using minimal doses of NSAIDs, detrimental effects are triggered immediately. Once in the body, NSAIDs show up in bile which is released into the small intestine on a continual basis. It has been shown that NSAIDs continue to circulate in the body sometimes for weeks after the drug therapy has been discontinued.

It is unhelpful for an animal who’s trying to recover from an injury to have its digestive system disrupted. This not only negatively impacts nutritional absorption, but can have long-term consequences such as diarrhea, colic and reduced immune function.

**What can you do?**

In cases where NSAID use is truly warranted, be proactive in minimizing the damage they cause.

- Find out which NSAID is the most effective for that particular tissue injury. NSAIDs must not be used in combination with other NSAIDs and certain other types of drugs.
- Use minimal dosages for as few days as possible. Certain new NSAIDs indicate that they are less disruptive; but less disruptive is still disruptive. The real side effects are not known until the drug has been
NSAIDs, cont’d

in use for several years and time-tested.

• Give the horse’s digestive system the best resources to repair and maintain a healthy mucosal lining:

  High quality roughage, a good mineral and vitamin supplement, loose mineral salt (not processed salt blocks) and a supply of clean water should be available 24/7. Minimize carbohydrate intake, including processed feeds containing grain, to help decrease the acidity levels in the gut.

- Provide physical exercise - movement is what stimulates healthy digestion.

- Administer a high-quality, digestive probiotic that contains a combination of live yeasts and bacteria during and after NSAID therapy. Although the probiotic does not stop the harm being done to the mucosal lining, it works to offset damage. New research indicates that betaglucans found in specific MOS prebiotics have a healing effect on intestinal mucosa. An effective probiotic and prebiotic will also enhance the digestion process, increasing the absorption rate of nutrients. What about omeprazole? Under normal situations, acid secretions in the stomach are a necessary part of the digestive process and do not pose a problem. This is because the portion of the stomach that is normally in contact with these acidic secretions is protected by a thick, healthy mucosal lining which continually renews and replaces itself. When NSAIDs are administered and prostaglandins production is diminished, the mucosal lining cannot repair and replace itself.

While omeprazole does diminish the release of stomach acid, it does not offset NSAID damage to the mucosal lining in the stomach and increases NSAID damage in the small intestine. In order to heal an ulcer, the mucosal lining must be restored and to do that requires the release of prostaglandins.

Your choice

It is evident that NSAID damage to equine digestive tracts is rising sharply and it is important to keep in mind that ulcers in the digestive tract are indicative of an unhealthy mucosal lining. By understanding the effect that NSAID use has on your horse’s digestive tract, you can be proactive about removing this cause of digestive tract damage. An unhealthy digestive tract cannot produce a healthy horse. Without a healthy horse, sustainable winning performances are not likely, but vet bills are.

Note: A list of the references used for this article is available at www.healthyhorses.ca under “Articles” tab.

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