

Repairing the Colon Lining, Post-colic

Project Title: “Effects of Acetylcysteine on Recovery of Equine Large Colon from Ischemic Injury”

University: University of Florida

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The Need

A 1997 study found that “colic was second to old age as the leading cause of death in horses over 30 days of age.” Torsion (or twist) of the large colon is one of equine colic’s most common and deadliest forms. This type of colic severely damages the colon’s lining by restricting its blood supply; the damage often results in endotoxic shock and multiple organ failure. Severe damage to the colon lining happens fast, but if the disease processes causing it are inhibited, the lining can begin to repair itself within hours. How quickly it repairs can increase a horse’s chances for full recovery.

However, veterinarians don’t have a treatment to protect the colon lining from those processes that continue to damage it even after the twist is corrected.

The Goal

Veterinarians believe that the drug acetylcysteine could improve the ability of the colon’s lining to heal itself. The lining of the colon is a mucosal membrane, a type of membrane that lines body cavities exposed to the outside, such as in the intestines or lungs. (In humans, acetylcysteine is used to treat conditions affecting other mucosal membranes in the body, such as bronchitis or emphysema in the lungs.)

When the blood supply is cut off the colon’s mucosal membrane begins to break down at the cellular level, eventually allowing toxins and bacteria to leak into the body. Researchers believe that the presence of acetylcysteine could protect the membrane tissue, reduce the inflammatory response and actually hasten the cellular repair process in the membrane. The intravenous treatment is inexpensive and simple, and could greatly improve a horse’s chances for recovery from this type of colic.

Using established methods, veterinarians will evaluate tissue samples from the linings of large colons damaged by torsion, comparing those horses treated with acetylcysteine to those not treated.

Other diseases involve the same processes that damage the mucosal membrane in large colon torsion. Findings from this study could be applied to them, as an added benefit.

The Results

Pending