

The Zellmer Lab is planning to start another project on the use of tiludronate by way of regional limb perfusion in horses, pending funding approval (expected in February).

Tiludronate is a drug used for the treatment of osteoporosis in people, as it alleviates the abnormally high bone loss in these patients. Recently, this drug has been shown to improve lameness in certain horses with navicular disease when given systemically into the jugular vein. Anecdotally, practitioners have begun treating navicular disease locally by giving tiludronate via so-called "regional limb perfusion" (RLP). Based on our own previous studies, we strongly suspect that the high levels reached with the anecdotally used dose are easily high enough to be harmful to cartilage. Our previous data also suggests that much lower levels of tiludronate may actually be beneficial for the cartilage. Thus, we here propose to determine a safe dose for RLP with tiludronate.

We will first determine a dose of tiludronate administered via RLP, resulting in joint fluid levels that we consider to be safe for articular cartilage. For this, we will measure the level of tiludronate in joint fluid following RLP with 2 low doses of tiludronate (0.05, 5 mg; we already have samples for the 0.5 mg dose). Each dose will be tested on one front limb of 6 horses, performing a RLP on both front limbs of each horse. Tiludronate levels in fluid samples taken from coffin and fetlock joints and navicular bursa will be measured. Further, horses will be examined for any negative effects of the treatment for 14 days. Based on results from our previous studies, we consider any dose that results in joint fluid levels of 1.9 mg/L or less to be safe for cartilage, and we will choose the highest dose of tiludronate given via RLP that requirement to be investigated as a safe dose in the 2nd part of our study, to be performed in the summer of 2014.

In case we will not be able to secure funding, we will perform a study investigating the effects of the drug buscopan (butylscopolamine) on abdominal ultrasound and rectal exam findings in normal and colic horses. Buscopan is a relatively new drug used to treat spasmodic colics in horses, as well as to facilitate rectal examination in horses with colic. We will use 8 normal horses that will undergo abdominal ultrasound and rectal exams before and after receiving a dose of buscopan, as well as after receiving fluids (12 l over 3 hours) via nasogastric tube and a dose of buscopan. In addition, we will obtain informed consent from owners of colics that present to the OSU VTH Large Animal Clinic to have the receiving house officer perform abdominal ultrasound and rectal exams before and after administration of buscopan. We expect to find differences in appearance of the small intestines both on ultrasound and rectal exam before and after buscopan administration. Our hypothesis is that in certain colics, ultrasound and rectal exams falsely point towards the horse having a surgical small intestinal lesion. The results from this study will allow veterinarians to more accurately interpret their abdominal ultrasound and rectal exam findings after administration of buscopan.