POST-OPERATIVE ILEUS
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How to avoid post-operative ileus? Create the smallest incision possible, decrease manipulation of bowels and treat all the concomitant diseases to avoid hypocalcemia, endotoxemia and peritonitis. Sometimes, even if everything is performed with state of the art techniques, post-operative ileus occurs and is difficult to treat. The most important thing to do is to differentiate between a functional ileus and a mechanical ileus. The functional ileus is most likely caused by pain and electrolyte imbalances. The electrolytes, especially potassium and calcium, need to be monitored frequently. Calcium is taken care of with fluid therapy alone. A combination of intravenous (no more than 0.5 mEq/kg/hr IV) and oral administration is needed to get potassium values back to normal (50g/100kgBW/day)1.

Pain control is important to prevent post-operative ileus. After surgery such as bowel resection and anastomosis, a combination of NSAID and opioids is needed. Flunixin meglumine (1 mg/kg SID or even BID) provides good pain relief in cattle. Care must be taken in anorexic cattle. Giving more than 3 doses of any type of NSAID in anorexic cattle puts them at risk of developing abomasal ulcers. Opioids can be combined with NSAID or can be used alone if abomasal ulcers are suspected. Butorphanol at a dose of 0.05mg/kg SQ TID seems to alleviate mild pain effectively. Because of butorphanol’s cost (nearly a 100$/day), morphine is instead being used. For a long time we avoided using morphine because of its potential side effects on the GI tract (ileus). However, our recent clinical impression is that morphine used at similar doses than butorphanol (0.05mg/kg SQ TID) has similar effects without significant side effects, but costs less. On very painful cattle, CRI of opioids and ketamine have been used and seemed to control pain better than repetitive doses of opioid. The drip frequently used in our clinic is a combination of ketamine (0.5mg/kg/hr) and butorphanol (0.02mg/kg/hr). A bolus of ketamine (0.5mg/kg) is given 15 minutes before the drip is started. The result of this drip is sometime impressive (increased food intake and fecal output). The animal might look mildly sedated with this combo. Lately, butorphanol has been changed for morphine to decrease the cost of the drip. Research is needed to objectively evaluate the effect of those drips.

If the electrolyte imbalance is corrected and the pain is controlled, but the ileus remains, it is important to eliminate the possibility of a mechanical ileus. The clinical evolution of the animal helps us detect mechanical ileus. A sudden change in the general status of an animal that was improving could be a sign of mechanical ileus. The important thing with mechanical ileus is to avoid denial. If you do, you may lose critical time. Rectal exam findings combined with a detail trans abdominal ultrasound help you decide if a second look laparotomy is needed. Don’t forget that a negative ultrasound does not mean that you don’t need to go to surgery. With the ultrasound you will be looking at abdominal fluid, bowel size and motility. If fluid is noted, an abdominocentesis might help you in your decision process (only if you were unsure whether or not the animal needs a second surgery).

If there is no evidence of mechanical obstruction, prokinetics can be added to the therapy. They can be used early or later in the management of the animal. In cattle, many studies demonstrated that the most potent prokinetic for the abomasum or the small intestines is erythromycin, a macrolide antibiotic that stimulates motilin receptors on the bowel. Other macrolides have been tested, but their prokinetic properties were less potent than those of erythromycin. This drug can be given at a single dose of 8.8 mg/kg IM2 or can be given
intravenously (1 mg/kg) three times daily. Over time, erythromycin loses its effect. It is rarely given more than 24 hours.

Lidocaine has been used in horses to treat post-operative ileus. It has been shown that it does not have a prokinetic effect in horses. However, the horse that receives lidocaine seems to do better. It has been speculated that the effect of lidocaine could be more analgesic and anti-inflammatory than prokinetic. In cattle, studies are lacking regarding the use of lidocaine. A bolus of 1.3mg/kg of lidocaine given slowly followed by a CRI of lidocaine (0.05mg/kg/min) seemed to have helped some cases of post-operative ileus in our clinic. It is important to give the initial bolus slowly since cattle appear to be more susceptible than horses to side effects of lidocaine.

References