

Principles of Treatment in Alimentary Tract Disease

Removal of the primary cause of the disease is essential, but a major part of the treatment of diseases of the alimentary tract is supportive and symptomatic.

.- This is aimed at

1- relieving pain and distension,

2-replacement of fluids and electrolytes,

3- correcting abnormal motility, and

4- relieving tenesmus and

5- reconstitution of the digestive flora if necessary.

6- Specific treatment for individual diseases is presented with each disease. General principles are outlined here.

1-Relief of abdominal pain

-The relief of abdominal pain is of prime importance from a humane aspect, to prevent the animal from self-injury associated with falling and throwing itself against a wall or other solid objects, and to allay the concerns of the owner.

-No single analgesic is completely satisfactory for every situation.

- Nonnarcotic and narcotic analgesics that are in general use and the analgesics used in the important subject of equine colic are presented later.

2-Relief of distension

The relief of distension of the gastrointestinal viscera is a critical principle to minimize shock and to prevent rupture of the viscus.

1-Relief of distension of the stomach of the horse with colic is accomplished by nasogastric intubation.

2-Distension caused by bloat in cattle can be relieved by stomach tube or trocarization of the rumen.

3- Relief of distension of the large colon by percutaneous or per rectal trocarization is used in horses.

Either technique can be useful in relieving distension and signs of abdominal pain, **but potential complications include peritonitis, infection, and abscessation at the site of trocarization.**

4- Relief of distension may be possible by medical means alone with the use of laxatives and purgatives when there is accumulation of ingesta without a physical obstruction.

5-Surgical intervention is often necessary when the distension is associated with a physical obstruction.

6- In functional distension (paralytic ileus) Paralytic ileus is common in cow in late pregnancy or in 1st two week after parturition. It is a state of functional obstruction of intestine was tone and motility of intestine lossed. It occurs as result of reflex inhibition of alimentary tract tone and movement in acute peritonitis. It is also an important sequel to intestinal obstruction and to traumatic abdominal surgery in which handling of viscera is unavoidable , **relief of the atony or spasm can be effected by the use of drugs such as metoclopramide.**

7-Distension caused by intestinal or gastric accidents requires surgical correction.

3-Replacement of fluids and electrolytes

Replacement of fluid and electrolytes lost in gastrointestinal disease is one of the most important principles of treatment.

- In gastric or intestinal obstruction, or when diarrhea is severe, it is **necessary to replace lost fluids and electrolytes by the parenteral administration of large quantities of isotonic glucose-saline or other physiologically normal electrolyte solutions.**

The amount of fluid lost may be very large and fluids must be given in quantities to replace losses and to support continuing losses and maintenance requirements.

1- In acute, severe dehydration in horses, such as occurs in acute intestinal obstruction, the amount of fluid required before and during surgery ranges from 50 to 100 mL/kg BW per 24 hours.

-It is critical that administration of fluid is commenced at the earliest possible time because of the need to maintain homeostasis.

2-In young animals the need is much greater still and amounts of 100 mL/kg BW, given slowly intravenously, are commonly necessary and not excessive.

3- The treatment of shock includes the administration of fluids, plasma or blood, and nonsteroidal antiinflammatory drugs (NSAIDs).

4- the use of intravenous administration of hypertonic saline followed by the ingestion of large quantities of water by the animal is another aspect of fluid therapy in gastrointestinal disease

4- Correction of abnormal motility

Increased motility

1 -When **motility is increased**, the **administration of atropine or other spasmolytics such as dipyron or proquamezine** is usually followed by the disappearance of the abdominal pain and a diminution of fluid loss.

2- some drugs inhibit regular cyclic myoelectric activity in the jejunum.

- There is a need for some scientific clinical investigation into the desirability of treating intestinal hypermotility, if it does exist in enteritis, for example, and the **efficacy of anticholinergics #**.

5- Decreased motility

1-When gastrointestinal motility is decreased, the usual practice is to administer **parasympathomimetic drugs or purgatives #**, usually combined with an analgesic.

- **Prokinetic drugs** such as **metoclopramide hydrochloride** increase the movement of ingesta through the gastrointestinal tract.

They are useful because they induce coordinated motility patterns.

- **Metoclopramide** Metoclopramide, acting in the upper gastrointestinal tract, increases acetylcholine release from neurons and increases cholinergic receptor sensitivity to acetylcholine. It is a dopamine antagonist and stimulates and coordinates esophageal, gastric, pyloric, and duodenal motor activity.

- It increases lower esophageal sphincter tone and stimulates gastric contractions, while relaxing the pylorus and duodenum. **This results in accelerated gastric emptying and reduced esophageal reflux.**

-The transit time of ingested material from the duodenum to the ileocecal valve is reduced because of increased jejunal peristalsis. It has little or no effect on colonic motility.

-**The pharmacokinetics of metoclopramide in cattle** has been studied. Metoclopramide crosses the blood-brain barrier, where its dopamine antagonist activity at the chemoreceptor trigger zone can result in an antiemetic effect. It can also result in involuntary activity including tremors, restlessness, and aggressive behavior characterized by charging and jumping walls. This can be reversed by the use of an anticholinergic such as diphenhydramine hydrochloride intravenously at 0.5 to 2.0 mg/ kg BW.

- Indications for metoclopramide include reflux esophagitis and gastritis, chronic gastritis associated with delayed emptying, abomasal emptying defects in ruminants, gastric stasis following gastric dilatation and volvulus surgery, and postoperative ileus. It is contraindicated in animals with physical obstruction of the gastrointestinal tract.

In horses, the dose is 0.125 to 0.25 mg/kg BW diluted in multiple electrolyte solution and given intravenously over 60 minutes. It is used for stimulating equine gastric and small-intestinal activity at dose rates of 0.25 mg/kg BW per hour when there is intestinal hypomotility.

Given as continuous intravenous infusion of 0.04 (mg/kg)/h it can decrease the incidence and severity of persistent postoperative ileus following resection and anastomosis of the small intestine in horses without serious side effects.

In cattle and sheep metoclopramide is used at 0.3 mg/kg BW subcutaneously every 6 to 8 hours. Metoclopramide did not alter cecocolic myoelectrical activity in cattle.

6-Relief of tenesmus

Tenesmus can be difficult to treat effectively. **Long-acting epidural anesthesia and sedation are in common use.**

-**Combinations of xylazine and lidocaine may be used.**

- **Irrigation of the rectum with water and the application of topical anesthetic in a jelly-like base are also used.**

7-Reconstitution of rumen flora and correction of acidity or alkalinity

When prolonged anorexia or acute indigestion occurs in ruminants, the rumen flora may be seriously reduced. In convalescence, **the reconstitution of the flora can be hastened by the oral administration of a suspension of ruminal contents from a normal cow, or of dried ruminal contents, which contain viable bacteria and yeasts and the substances necessary for growth of the organisms.**

-The pH of the rumen affects the growth of rumen organisms, and hyperacidity (such as occurs on overeating of grain), or hyperalkalinity (such as occurs on overeating of protein-rich feeds), should be corrected by the administration of alkalinizing or acidifying drugs as needed.

Notes

Paralytic ileus is defined as functional obstruction caused by paralysis of intestinal muscles in response to various stimuli. The common causes of paralytic ileus are postoperative state, following an episode of infectious gastroenteritis, sepsis, peritonitis, or intestinal ischemia. Other causes of paralytic ileus are drugs (narcotics, laxative abuse, anticholinergics), electrolyte disturbances (hypokalemia, hypercalcemia), endocrinopathies (hypothyroidism), status post-chemo- or radiotherapy, or injuries (spinal fractures). Intestinal contents fail to progress, causing abdominal pain and vomiting. Typically, the bowel sounds are decreased or absent; there may be abdominal distention. Signs of ileus may follow signs of intestinal obstruction; in this context, ileus is an ominous sign. Treatment of ileus requires correction of any correctable provocative abnormalities and nasogastric tube decompression until normal peristalsis resumes.

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Shock

Shock is a life-threatening condition that occurs when the body is not getting enough blood flow. Lack of blood flow means the cells and organs do not get enough oxygen and nutrients to function properly. Many organs can be damaged as a result. Shock requires immediate treatment and can get worse very rapidly.

The main types of shock include:

- Cardiogenic shock (due to heart problems)
- Hypovolemic shock (caused by too little blood volume)
- Anaphylactic shock (caused by allergic reaction)
- Septic shock (due to infections)
- Neurogenic shock (caused by damage to the nervous system)

Causes

Shock can be caused by any condition that reduces blood flow, including:

- Heart problems (such as heart attack or heart failure)
- Low blood volume (as with heavy bleeding or dehydration)
- Changes in blood vessels (as with infection or severe allergic reactions)
- Certain medicines that significantly reduce heart function or blood pressure

- Slow heart rates and changes in blood vessel tone from spinal injuries

Shock is often associated with heavy external or internal bleeding from a serious injury.

Toxic shock syndrome is an example of shock that is caused by an infection.

Anticholinergic drugs

are common ingredients in antidiarrheal preparations because they appreciably decrease intestinal motility and secretions. Their parasympatholytic effects decrease segmental and propulsive intestinal smooth muscle contractions and relax spasms of smooth muscle. Although they do not alter the course of disease,

anticholinergic drugs decrease the urgency associated with some forms of diarrhea in small animals as well as the amount of fluid secreted into the intestine and abdominal cramping associated with hypermotility.

Because of the types of diarrhea observed in animals (few cases can be classified as hypermotile), anticholinergic drugs are limited for use in veterinary medicine. Intestinal motility is already impaired in many patients with diarrhea, and these drugs may actually worsen the diarrhea by creating a stovepipe effect.

Anticholinergic drugs also have profound systemic pharmacological effects. If they are administered in sufficient doses to affect intestinal motility, possible adverse effects include severe ileus, xerostomia, urine retention, cycloplegia, tachycardia, and CNS excitement. Longterm administration of anticholinergic drugs may lead to serious intestinal atony.

#- Parasympatholytics are the drugs that block or inhibit the actions of acetylcholine at postganglionic nerve endings and cholinergic receptors. They are also referred to as anticholinergics or cholinergic blocking agents or antispasmodics.