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Nutrition and analgesia in canine acute pancreatitis cases for the RVN

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ABSTRACT: Cases of canine pancreatitis are often seen in first opinion general practice. However, research into the treatment of pancreatitis cases in both human and veterinary care is limited. This article aims to give an overview of the acute condition and examine best practice for patient care in relation to analgesia and nutrition.

Keywords: pancreatitis; analgesia; nutrition; pain management

What is pancreatitis?

Pancreatitis is inflammation of the pancreas caused by autolysis (self-digestion) of the pancreas (Gear & Mathie, 2013). The condition can be acute or chronic.

The chronic condition is a low-grade but continual inflammation of the pancreas. The acute condition can be life threatening as resulting complications such as peritonitis can occur.

Acute pancreatitis

Hall et al., (2005) note that pancreatitis is more prevalent in obese animals and that the disease is less severe when seen in lean dogs. Some causes of pancreatitis may include infection, duct obstruction, trauma, drugs and hypercalcaemia (Orpet & Welsh, 2011).

The patient may present in the first instance with vomiting and/or diarrhoea, anorexia and depression. Most cases also present with dehydration depending on the length of illness and in severe cases there may also be signs of shock and collapse. The patient may display signs of abdominal pain on palpation and a mass may be detected which is often the inflamed pancreas (Hall et al., 2005).

The veterinary surgeon will undertake several tests to come to the conclusion of pancreatitis. Tests may include radiography, mainly to rule out other causes, ultrasound which may show an enlarged pancreas with

or without localised peritoneal effusion and a blood test (SpecPI) which most practices will be able to run in house or if not, send to an external lab for results usually within 24 hours.

Treatment

The treatment plan for acute pancreatitis is usually supportive until the inflammation has reduced and the patient's dehydration status has been corrected. As a result, the care of the acute pancreatitis patient will be heavily nurse based. Care will include administering prescribed medication, monitoring pain levels, encouraging feeding, maintaining intra-venous fluid therapy and monitoring hydration status. In addition the nursing team will need to take care of the general well-being of the patient (keeping the patient clean and mentally stimulated when appropriate). As such, the veterinary nurse should consider the care plan carefully with the aim to alleviate the patient's clinical signs and provide supportive therapy whilst enabling the pancreas to return (as much as possible) to its normal function (Orpet & Welsh, 2011).

Analgesia

Pain is a common clinical sign of pancreatitis patients and management of pain is key to assisting with recovery and management of any other clinical signs. Canine pancreatic patients typically demonstrate a crouched appearance and tense abdomen on palpation which may result in a guarded reaction (Mansfield & Beths, 2015).

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Table 1. Parameters to monitor in acute pancreatic cases.

Body system	Relevance in acute pancreatic patient	How to monitor
Respiratory	May be tachypnoeic due to pain. Vomiting patients are at risk of aspiration pneumonia.	Monitor respiration rate. Auscultate chest – listen for crackles.
Cardiovascular	At risk of hypovolaemia if large amounts of fluid are lost in vomit and diarrhoea. At risk of distributive shock, or systemic inflammatory response syndrome (SIRS) due to inflammatory stimulus such as severe pancreatitis.	Perfusion parameters: Heart rate Pulse quality Mucus membranes and capillary refill time Blood pressure
Urinary system	May develop acute renal failure due to dehydration. Monitor for Diabetes Mellitus which can manifest in acute pancreatitis patients due to the pancreas' role in producing insulin. (Puylaert et al., 2011)	Monitor changes to fluid intake (oral) and urine output. Urinalysis (including specific gravity, dipstick and sediment analysis)
Gastrointestinal System	Vomiting and diarrhoea will alter fluid requirements. Wait for cessation of vomiting to introduce enteral nutrition.	Monitor for vomiting, diarrhoea and changes to bowel movements. Monitor appetite, food consumed and ensure sufficient nutritional requirements are met

All pancreatic patients are highly likely to be experiencing some degree of pain, even if they do not demonstrate obvious symptoms and as such all patients should be given analgesic therapy (Hall et al., 2005). The most effective way of assessing a patient's pain is by completing regular pain scores. There are different models available which can be completed quickly and the quantitative result provides a consistent approach to what otherwise may be the subjective assessment of the nurse. When a patient's care is shared between shifts, using a recognised pain scale can ensure the patient is assessed regularly and adequately and provided with interventional analgesia at the earliest opportunity ensuring the welfare of the patient and improving recovery time.

Pain monitoring should be tailored to the patient by regular assessment allowing the development of a pain management plan. This can ultimately result in the administration of less analgesia and fewer side effects being observed (McMillan, 2016). For example, the analgesic effect of buprenorphine (Buprecare, Animalcare Group Plc) is 6 to 8 hours. If pain is returning or not reducing before this time then the nurse should speak to the veterinary surgeon who may consider a multimodal approach to analgesia. If the patient is able to keep food down then oral medication may be an option.

According to Mansfield and Beths (2015), buprenorphine has been shown to have good analgesic effect in pancreatic patients with the minimum side effects. Alternatives suggested include morphine (Synthadon, Animalcare Group Plc) or ketamine (Anaestamine, Animalcare group Plc) on

constant rate infusion. They also examined oral medication in cases for home management and found that gabapentin was preferred to tramadol due to the side effects that come along with tramadol (sedation, inappetence and dysphoria). The author has found a limited amount of research and clinical studies on the best analgesic protocol for acute pancreatitis patients. Therefore it is important that the nursing team monitor the pain levels of acute pancreatitis patients regularly and keep the veterinary surgeon informed. This will ensure that pain medication is administered regularly or altered if necessary. A multimodal approach to analgesia should be considered if pain is difficult to manage.

To feed or not to feed?

There are varying opinions as to whether the pancreatic patient should be fed or not. According to Hall et al. (2005) both parenteral and enteral nutrition have been well tolerated by patients with pancreatitis. They advise there is some evidence that enteral nutrition is better than parenteral. Patients that may require a restricted or parenteral diet are those with incessant vomiting and then for as short a period as possible.

Orpet and Welsh (2011), however, provide contradicting advice to nursing the pancreatic patient and state that food should be withheld.

Mansfield and Beths (2015) discuss a study by Mohr et al., (2003) in which dogs with parvoviral enteritis were given enteral nutrition via a naso-oesophageal

tube resulting in faster clinical improvements to the patients. In another smaller study by Mansfield et al., (2011), dogs with severe acute pancreatitis which were given oesophageal feeding showed a more rapid reduction in the severity of their clinical symptoms and inflammatory markers in comparison to the canines who were given no enteral feeding. Mansfield and Beths (2015) advise feeding patients with mild acute pancreatitis when they are able to do voluntarily unless they have reached five days of anorexia (including the pre-hospital period) in which case enteral feeding should be initiated. Patients with severe acute pancreatitis should be given enteral nutrition as soon as possible via a naso-oesophageal or oesophageal feeding tube.

What to feed?

Hall et al. (2005) suggest that small amounts of water are offered after the patient has stopped vomiting followed by a gradual introduction of a high carbohydrate diet allowing the digestive system to rest. Long term, the patient should be introduced to a low fat maintenance diet as low protein, high fat diets may induce pancreatitis.

Many convalescent diets may have a fat content too high for the pancreatic patient. Human convalescent diets supplemented with protein could be given via a naso-oesophageal tubes which, due to the lumen size, require a very liquid consistency food (Mansfield & Beths, 2015).

Patient monitoring

With any patient in medical crisis it is very important the veterinary nurse monitors all the patient's parameters closely and regularly and reports any changes to the veterinary surgeon as soon as possible. Table 1 details parameters to monitor, why and how (Aldridge and O'Dwyer 2013).

In conclusion, although there is still a need for research into canine pancreatitis, it is clear that analgesia and nutrition play an important role in the treatment of patients. Communication between the veterinary surgeon and veterinary nurse should be maintained regularly to ensure the patient's progress and treatment is evaluated and reassessed. This is most important when it comes to analgesia and pain monitoring as it should be assumed all pancreatitis patients are experiencing some degree of pain. Nutrition should also be addressed regularly to ensure the patient eats as soon as is practically possible and is introduced to a suitable maintenance diet in preparation for discharge to

prevent or reduce the risk or re-occurrence of pancreatitis.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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