

DIFFERENCES IN NUTRITIONAL MANAGEMENT OF PANCREATIC DISEASES IN DOGS AND CATS

S.I. Petrescu^{1*}, M. Matei¹, C.G. Radu- Rusu¹, D.M. Lăpuşneanu¹, I.M. Pop¹

¹Faculty of Food and Animal Sciences, “Ion Ionescu de la Brad” Iasi University of Life Sciences, 8 Mihail Sadoveanu Alley, 700489 Iasi, Romania

Abstract

Pancreatitis is an inflammatory condition of the pancreas, which is divided into two types: acute pancreatitis, which can occur suddenly, and chronic pancreatitis, characterized by persistent inflammation of the pancreas. One of the most commonly cited causes of inflammation of the pancreas is inadequate nutrition in dogs and cats.

Current research aims to clarify the need for species-differentiated nutritional management in both the prevention and treatment of pancreatic disorders.

Medical studies that emphasize the dietary management of pancreatitis indicate the use of low residue and highly digestible diets in cats with pancreatic disorders, while in dogs low fat diets are recommended.

Key words: pancreatitis, nutritional management, dogs, cats

INTRODUCTION

The pancreas is a glandular organ located in the right cranial - abdominal region next to the stomach [1]. The anatomy of the pancreas is similar in dogs and cats, but the pancreatic ducts responsible for the transportation of digestive enzymes are different in number in the two species [1], which predisposes them to different manifestations of a disease such as pancreatitis [2].

Pancreatitis is an inflammatory condition of the pancreas, which is divided into two types: acute pancreatitis, which can occur suddenly, and chronic pancreatitis, characterized by persistent inflammation of the pancreas. [3].

Studies in cats have shown that cats suffer more frequently from chronic inflammation of the pancreas [4], while dogs most often have acute episodes of pancreatitis [5].

The prevalence of pancreatitis varies significantly by species.

According to histopathologic diagnostic data in cats, the prevalence of pancreatitis is estimated to be between 0.6% and 67% of the feline population [6]. In contrast, in dogs, although the diagnosis of pancreatitis is easier to make, the literature reports a clinical prevalence of between 0.3% and 2% [7].

Medical studies focusing on the nutritional management of pancreatitis suggest that a low-residue, easily digestible diet is indicated for cats with pancreatic disease. In contrast, diets with the lowest possible fat intake are recommended for dogs, similar to recommendations for human patients.

Through this research, we aim to highlight the importance of implementing species-differentiated nutritional management in both the prevention and treatment of pancreatic disorders.

* Corresponding author: silvia.petrescu@iuls.ro

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MATERIAL AND METHOD

This review-type study was conducted by analyzing expert-reviewed articles, veterinary consensus statements or guidelines on nutritional support, veterinary clinical nutrition textbooks to evaluate nutritional management strategies for dogs and cats diagnosed with pancreatitis.

Articles that were published between 1984 and 2024 were studied and integrated, the most frequently accessed databases were PubMed, Google Scholar and Science Direct.

RESULTS AND DISCUSSIONS

Regarding endogenous factors, such as breed, age, sex and reproductive status of dogs, there are divergent opinions in the literature. Some researchers suggest that there is no specific predisposition related to age, breed or sex, and that the disease can occur regardless of these factors [8].

However, more recent studies indicate that pancreatitis is more common in dogs

over 5 years of age [9], this being considered the age of adult maturity to senior age according to AAHA guidelines [10].

In addition, a review published in 2022 highlights an increased predisposition in neutered dogs to develop pancreatitis, this association is also correlated with a high body score [11], obesity itself being a risk factor for the development of pancreatic disease.

The risk factors for pancreatitis in dogs and cats have been summarized in Table 1, therefore, conditions such as obesity and hyperlipidemia are frequently associated as predisposing factors, with a high incidence among some genetically predisposed breeds of dogs, including the breed most frequently affected by hyperlipidemia - Miniature Schnautzer. In addition to metabolic factors, chronic intestinal inflammations, such as inflammatory bowel disease (IBD), are an important cause predisposing cats in particular to pancreatitis.

Table 1 Causes of pancreatitis [12]

Nutritional and metabolic	Inflammatory	Infectious and parasitic diseases	Mechanical (obstructions)
Diet Obesity Hyperlipidemia (Miniature Schnautzer) Hypercalcemia Intoxications (zinc, organophosphorus)	Inflammatory Bowel Disease (especially in cats) Cholangitis	Enteric bacteria Parvovirus Feline infectious peritonitis Toxoplasma gondii Babesia canis <i>Eurytrema procyonis</i> (in pancreas) <i>Amphimerus pseudofelineus</i> (in liver)	Duct obstruction (tumor, cyst or inflammation) Trauma

Bacterial infections, such as those caused by enteric bacteria, or viral infections, such as parvovirus and feline infectious peritonitis (FIP), are recognized as triggers of pancreatic inflammation. In addition, various parasitoses, including infections with *Toxoplasma gondii*, *Babesia canis*, and the rare parasites *Eurytrema progonis* (in the pancreas) and *Amphimerus*

pseudofelineus (in the liver), can cause inflammation of the pancreas [12].

Current research highlights a dilemma in the management of pancreatitis because traditional human and veterinary medicine offers as a method of treatment of pancreatic inflammation "food fasting", a prolonged fast of 72-96 hours for animals with clinical signs of pancreatitis [13]. And this food fasting is explained by the



implementation of a pancreatic secretory rest [14].

A recent retrospective study analyzed a population of dogs and identified that a significantly higher percentage of dogs in

the fasting group (48-hour break for the pancreas) experienced gastrointestinal problems such as regurgitation or vomiting (60%) compared to dogs fed immediately after hospitalization (26%) [19].

Table 2 Nutritional recommendations in the management of pancreatitis in dogs and cats

Nutritional recommendations in the management of pancreatitis in <i>dogs</i>			Nutritional recommendations in the management of pancreatitis in <i>cats</i>		
Protein	Fat	Fibre	Protein	Fat	Fibre
15 – 30 % _[15]	max. 15 % ¹ _[15]	≥ 5 % _[15]	30 – 40 % _[15]	max. 25 % ¹ _[15]	≥ 5 % _[15]
15 – 30 % _[15]	max. 10 % ² _[15]	≥ 5 % _[15]	30 – 40 % _[15]	max. 15 % ² _[15]	≥ 5 % _[15]
Moderate _[16]	Ultra-low to low _[16]	Low _[16]	Moderate to high _[17,18]	Moderate _[17,18]	Low to moderate _[17,18]

Nutrients are expressed on a dry matter basis.

¹ non-obese and non-hyperlipidemic dogs/cats

² obese and/or hyperlipidemic dogs/cats

Pancreatitis presents differently in dogs and cats, with distinct clinical signs and predispositions between the two species. In dogs, the condition often manifests as acute pancreatitis, with 90% of cases showing episodes of vomiting. Other commonly observed clinical signs include anorexia and depression, which are prevalent in many cases [12, 20]. In addition, abdominal pain is observed in approximately 58% of affected dogs. It is typically characterized by signs of restlessness, trembling, seeking cooler places, and on palpation examination of the abdomen dogs express sensitivity/pain especially in the area of the pancreas [12].

In contrast, cats are more prone to chronic pancreatitis [20]. Episodes of vomiting are less common in felines, occurring in only 35% of cases [21]. A higher proportion of cats, more than 50%, show lethargy and a noticeable loss of appetite, with more than 62% showing a partial or complete lack of appetite [21]. Abdominal pain appears to be less common in cats, with only 10% of cats showing apparent discomfort during physical examinations [21].

Overall, although vomiting and lack of appetite are common clinical signs between the two species, the prevalence and

presentation of pancreatitis differ significantly. Dogs are more susceptible to acute episodes of the disease with more pronounced gastrointestinal signs, while cats tend to present with chronic, more subtle forms of the disease, often characterized by lethargy and reduced appetite.

Consumption of high-fat and therefore energy-dense food plus overconsumption over a long period of time predispose animals not only to obesity but also to an inflammatory reaction of the pancreas. In an experimental report, it was shown that dogs with higher body scores (>5) develop more severe pancreatic inflammatory episodes than those with an ideal weight [22].

Recent studies also suggest a link between heat shock [23], characterised by an accelerated increase in ambient temperature and/or sudden warming, which also affects companion animals. For example, prolonged hyperthermia (as a result of exposure to elevated outdoor temperatures) leads to the initiation of inflammatory processes and severe tissue damage, resulting in a systemic inflammatory response (SIRS), which may manifest as episodes of acute pancreatitis [23].

Hence in addition to treating pancreatic symptoms, the only effective long-term management is through a nutritional plan and physical activity. Therefore, the feeding of foods with the lowest fat content, a feeding program with smaller and frequent portions (minimum 3 portions of food for dogs) [15] and an increase in physical activity for weight management if necessary for animals with a body score above the ideal one will be applied.

In contrast to the clear nutritional requirements for the dietary management of pancreatitis in dogs presented in table 2, research into the management of inflammatory pancreatitis in cats is developing.

At present, it is claimed that cats do not have an increased sensitivity to the higher fat content of the food they consume, and it is recommended that they be fed more calorically dense foods, as they tend to stop eating completely when they show clinical signs of the disease, thus developing an increased risk of acquiring hepatic lipidosis as a result of prolonged fasting. Therefore, in the clinical management of cats with pancreatitis, it is recommended to use foods with more digestible nutrients, with increased palatability, moderate to increased protein content and moderate fat content [17,18].

CONCLUSIONS

Recent studies offer new perspectives in the therapeutic approach to pancreatitis in dogs and cats, but we still note the need to develop a more precise nutritional management of pancreatitis in cats. We also point out the need for further studies on the influence of environmental factors on the exacerbation of pancreatic pathologies in dogs and cats.

The relationship between obesity and pancreatitis is well documented, yet new clinical data show that obesity should no longer be viewed as a risk factor but as a

condition that amplifies the severity and complications of pancreatitis, which again creates a more evident need for improved weight management protocols in dogs and cats.

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