

Small mammals

- Gastrointestinal disorders are common in chinchillas. The most frequent are diarrhoea (soft faeces) and constipation. Aim to identify the primary cause and treat the secondary complications, including pain
- Hospitalisation of chinchillas often requires nutritional support and fluid therapy. Monitoring of hospitalised chinchillas should always involve daily feed intake, faecal output and urine output

MCQS

1. Which statement is NOT true about acquired dental disease in chinchillas?
 - a. Chinchillas are often able to eat with dental disease
 - b. Chinchillas often maintain good body condition until severe complications of dental disease have occurred
 - c. Genetic causes are the primary predisposing factors for the development of dental disease
 - d. Molar teeth problems are more common than incisor problems
2. What may constipation in chinchillas lead to?
 - a. Bloat and gastric ulcers
 - b. Rectal prolapse and intestinal torsion
 - c. Caecal impaction and rectal prolapse
 - d. Fatty liver and gastric ulcers
3. How is the presence of large numbers of the yeast *Cyniclomyces guttulatus* (previously *Saccharomycopsis guttulata*) in a faecal smear or faecal flotation from a chinchilla considered?
 - a. Normal
 - b. Secondary to an underlying gastroenteric disease
 - c. Abnormal
 - d. a and b

Nutritional disorders in small mammals

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An understanding of the nutritional requirements of small mammals allows veterinarians to understand how problems may have developed. Veterinary nurses play an invaluable role in educating owners about appropriate diets, the unique nutritional needs of their pet during different life phases and how to aid recovery with special diets. Nutritional disorders of small mammals can be divided into the following categories:

- Deficiencies. These are true deficiencies, where absence or too little of a nutrient leads to overt disease. The most important example is vitamin C deficiency (scurvy) in guinea pigs. Clinical scurvy can result in death in as little as 2 weeks and subclinical scurvy is a major predisposing factor for other diseases. The stability of vitamin C in diets varies with composition of the diet, storage temperature and humidity. The feed content of vitamin C is reduced by dampness, heat and light. Water in an open container may lose up to 50% of its vitamin C in 24 hours. Aqueous solutions of vitamin C will more rapidly deteriorate in metal, hard water or heat, and are more stable in neutral to alkaline solutions
- Excesses. These are not true toxicities, where too much of a nutrient leads to poisoning. Rather they are situations where inappropriately high amounts of a nutrient predispose the animal to disease. An important example is excess calcium in the diet, usually in calcium-rich hay (the ideal Ca:P ratio in hay is between 2:1 and 1:1) leading to the development of urolithiasis, which we often see in rabbits and guinea pigs. Another example is giving too many simple carbohydrate feeds such as fruits or sugar-laden treats, leading to diarrhoea or dysbacteriosis
- Inappropriate diet. The most important example is 'soft'

diets where lack of abrasiveness leads to dental problems. Generally dental disease in herbivorous rodents, such as guinea pigs and chinchillas, are manifest as molar problems and are associated with inadequate hay in the diet. In omnivorous rodents, such as rats, mice, hamsters and gerbils, dental disease manifests as incisor problems. The abrasion of upper incisors primarily depends on attrition from the opposing incisors in the lower jaw. The 'hardness' of feedstuffs is not as important in incisor wear and tear as faulty incisor conformation is. Another example of an inappropriate diet is inadequate crude fibre, which predisposes small mammals to gastrointestinal disorders

- Obesity. Concentrate diets (e.g. rodent pellets) are energy rich and were created to feed laboratory rodents during their growing phase. Most of these animals do not live long after reaching puberty. However, providing concentrate diets to pet rodents, which have the potential to reach maximal lifespan, leads to obesity. Well documented consequences of obesity in rodents are metabolic derangements, increased inflammation, increased tumour incidence and decreased lifespan

Well balanced diets not only avoid nutritional disorders and secondary health problems but when offered in foraging devices and access-challenging hoppers, they can also provide added environmental enrichment.

KEY LEARNING POINTS

- Many nutritional diseases in small mammals are due to inappropriate feeding by well intentioned owners
- Chinchillas and guinea pigs have a high requirement for dietary fibre which is typically provided as hay. Lack of hay often results in dental disease
- Guinea pigs of all ages are dependent on a dietary source of vitamin C
- Diets high in calcium appear to predispose guinea pigs and rabbits to urolithiasis
- Obesity is a common problem in pet small mammals and leads to decreased lifespan

MCQS

1. A natural ingredient pelleted vitamin C-enriched guinea pig feed stored at standard room temperature (20–26°C) and humidity (40–60%) should be used within how many months of its milling date? (N.B. stabilised forms of vitamin C can extend the shelf life, but in this question the vitamin C is not stabilised)
 - a. 1 month
 - b. 3 months
 - c. 6 months
 - d. 9 months
 2. Hay falls into two broad categories: legumes (alfalfa or lucerne, clovers) and grasses (orchard, timothy). What statement INCORRECTLY describes the Ca:P ratio of the hay?
 - a. Lucerne (alfalfa) hay has a typical Ca:P ratio of ~6:1
 - b. Clover hay has typical a Ca:P ratio of ~5:1
 - c. Rye grass hay has a typical Ca:P ratio of ~4:1
 - d. Timothy grass hay has a typical Ca:P ratio of ~2:1
 3. What type of diet is most likely to lead to obesity in a pet rodent?
 - a. Hay and leafy greens
 - b. Limited high-fibre concentrate pellets
 - c. Vegetables and fruits
 - d. Ad-libitum muesli-type cereal
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