The manner in which HL develops is not completely understood, but there is a combination of factors involved: excessive peripheral fat being taken to the liver, decrease in the nutrients which usually aid fat metabolism and transport out of the liver, and appetite disturbances. Anorexia in the overweight cat causes peripheral fats to be broken down and transported to the liver. Certain nutrients play a vital role in fat metabolism such as taurine, arginine and carnitine. Deficiencies in these are thought to contribute to the development of the disease. Deficiencies in arginine (found in dairy protein) may cause a decrease in the urea cycle, therefore increasing ammonia levels leading to hepatic encephalopathy.

SECONDARY HL

Secondary HL is similar the primary disease but can often be seen in cats with normal or low body condition scores. This is often caused by a period of anorexia due to a primary concurrent disease. Any anorexic cat should therefore be considered at risk of developing HL and the appropriate nutrition should be rapidly supported. Any disease which causes anorexia can put cats at risk of this, however, it seems to be most common with pancreatitis, inflammatory bowel disease, diabetes mellitus, hepatic disorders or neoplasia.

KEY LEARNING OBJECTIVES

- Learn about hepatic lipidosis (HL) in cats
- Understand the pathophysiology of the disease
- Learn key nursing considerations and how to treat these patients effectively

MULTIPLE CHOICE QUESTIONS

1. What is the most important treatment plan of hepatic lipidosis?
 - (A) Fluid therapy
 - (B) Intense feeding plan
 - (C) Gastroprotectants
 - (D) Surgery
2. What is hepatic lipidosis usually caused by?
 - (A) Prolonged periods of starvation/anorexia
 - (B) Vomiting
 - (C) Diarrhoea
 - (D) Low body condition score
3. Hepatic lipidosis is caused by a build-up of which of the following in the liver?
 - (A) Protein
 - (B) Carbohydrates
 - (C) Amino acids
 - (D) Fat

The insulin-resistant cat: acromegaly

Sophie McMurrough

Acromegaly is a disease caused by a functional tumour of the pituitary gland which causes an excessive production of growth hormone (GH) and/or insulin-like growth factor-1 (IGF-1). Excessive levels can lead to insulin-resistant diabetes mellitus in cats. Although this disorder is thought to be uncommon, a recent study by the RVC identified acromegaly in around 25% of diabetic patients.

COMMON CLINICAL SIGNS

- Polyuria/polydipsia
- Profound polyphagia
- Weight gain
- Enlarged paw size
- Multiple limb lameness
- Broadening of facial features, including spaces between teeth
- Organomegaly
- Central nervous system signs
- Gallop rhythm

- Plantigrade stance of hindlimbs
- Periods of tachypnoea and open-mouth breathing.

Physical changes

GH may cause the body to increase in size, mainly enlargement of the face and abdomen along with varying degrees of obesity. Polyphagia is a recognized symptom of diabetes mellitus and seems to remain persistently profound in well controlled cats with acromegaly.

DIAGNOSIS

Acromegaly should be considered in any cat who has insulin-resistant diabetes mellitus despite daily insulin levels >2 IU/kg. Acromegaly can also occur in dogs. Diagnosing acromegaly requires identification of elevated circulating levels of GH and/or IGF-1 concentrations alongside consistent clinical signs. Canine and feline GH assays are not commercially available in the UK and, therefore, IGF-1 levels should be used as a diagnostic aid. An elevated serum IGF-1 concentration is consistent with acromegaly in both dogs and cats.

TREATMENT

Large doses of insulin are usually required for treatment and sometimes effective control may be impossible. One

Feline

study showed that acromegalic cats required over double the dosage of insulin (average 7 IU q12h) than that of the standard diabetic cat (average 3 IU q12h).

Three treatment options are available in cats, these consist of:

- Radiation therapy — most effective
- Surgical hypophysectomy
- Medical therapy.

PROGNOSIS

Survival times vary massively in these patients, some ranging from a few months to a few years. The range is affected by treatment choice and whether the cat has undergone aggressive or conservative management, with prognostic outlook still remaining unknown.

KEY LEARNING OBJECTIVES

- Learn about acromegaly and insulin resistance in cats
- Understand the pathophysiology of acromegaly
- Learn how to diagnose and nurse acromegalic cats

MULTIPLE CHOICE QUESTIONS

1. Acromegaly occurs commonly with which endocrinopathy?
(A) Cushing's disease
(B) Diabetes mellitus
(C) Diabetes insipidus
(D) Hyperaldosteronism
2. Recent studies by the RVC identified acromegaly in what percentage of diabetic patients?
(A) 5%
(B) 80%
(C) 25%
(D) 50%
3. Acromegaly is caused by an excess of which hormone?
(A) Growth hormone
(B) Insulin
(C) Glucose
(D) Thyroxine

Feline blood transfusions

Suzanne Rudd

Before transfusing a cat with whole blood it is important to check that it is absolutely indicated. Cats with chronic anaemia will often compensate remarkably well, show no clinical signs and therefore may not need a transfusion. Transfusions may not benefit cats with hypoproteinaemia and thrombocytopenia, as plasma proteins and thrombocytes do not stay in the intravascular compartment for very long. A transfusion may, however, be necessary in cats with severe anaemia that are showing associated clinical signs, especially if anaemia has developed acutely with little time for compensatory mechanisms to develop. A whole blood transfusion may also be given when clotting factors are required, for example, following rodenticide toxicity. Whole blood is often given as, although the cat may only require the plasma component of the blood, it can be difficult to separate the blood and the important clotting factors will degrade within hours. Great care must be taken to prevent volume overload.

There is not a cat blood bank available in the UK, however there is now a feline blood bank in Portugal. While this service is invaluable to larger/referral practices, it may not be a possibility for practices where blood transfusions are not frequent due to the cost, storage and time it takes for the blood to arrive. Therefore it is still

common practice to collect blood from named donors on a need-to-have basis. Blood donors need to be of correct weight, health, temperament and be of the same blood type as the recipient. It is essential that cats are blood typed before donation and transfusion, even if it is their first transfusion, as they have naturally occurring antibodies against the other blood type. In extreme cases where blood of the cat's type hasn't been available, dog blood has been given (xenotransfusion). While potentially useful and lifesaving, the chances of a transfusion reaction or red cell destruction are high and so this is only to be considered in an emergency where no other options are available. How much blood to give and how to collect blood to be transfused will be discussed in detail in the lecture.

The transfusion should be started at a rate of 0.25 ml/kg/h for the first 30 minutes whilst continuously monitoring for signs of transfusion reaction. Temperature, pulse, mucous membranes and respiration should be recorded every 5 minutes for the first 30 minutes, reducing to every 10 minutes for the following 30 minutes and then every 15 minutes for the remainder of the transfusion. If no problems are encountered then the rate can be increased to 0.5 ml/kg/h for a further 30 minutes, and then continuing at whatever rate is required, completing the transfusion in less than 4 hours.

KEY LEARNING OBJECTIVES

- To know when a cat needs a blood transfusion
- To understand why cats need to be blood typed
- To give a feline blood transfusion safely

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