Clinical approach to managing anorectic cats

Anorexia is a common non-specific clinical sign seen with many different causes of illness in cats. Known consequences of anorexia include:

- Reduced immune function, with reduced recovery from infections and increased risk of sepsis
- Decreased tissue repair and wound healing
- Increased risk of altered drug metabolism potentially leading to toxicity
- Increased risk of hepatic lipidosis (especially in obese cats)
- Increased morbidity and mortality
- Ultimately, poor nutrition worsens the prognosis for any individual cat. Conversely, nutritional support can greatly increase the chances of a rapid recovery from illness.

Keywords: anorexia, feline, cat, mirtazapine, cyproheptadine, tube feeding

When should I consider nutritional support?

Nutrition is an integral component of patient care, whatever the diagnosis. The first step is to calculate a patient’s nutritional requirements (Table 1) and determine if the patient has specific nutritional requirements (e.g. is this a patient with renal disease that would benefit from a phosphate restricted diet?). Nutritional support should be considered in patients with any of the following criteria:

- Weight loss of 10% or more of their body weight during the preceding two weeks
- Cachectic patients
- Patients suffering from conditions associated with protein loss e.g. septic peritonitis, pyothorax

Initial support

Initial support needs to consider the patient’s fluid and electrolyte status. Cats are very vulnerable to hypokalaemia following periods of anorexia as they are dependent on oral potassium to maintain normokalaemia. The typically mild hypokalaemia associated with anorexia may contribute to lethargy, weakness and loss of appetite. Hypokalaemia is readily corrected using oral or intravenous routes and treatment should aim to return potassium levels to the normal range (4.5 mmol/l). For oral supplementation, potassium gluconate is preferable to potassium chloride which is unpalatable and may cause gastrointestinal irritation. Initial doses of 1–4 mmol potassium twice daily may be given according to the severity of the hypokalaemia, with doses of 1–2 mmol potassium twice daily usually maintaining normokalaemia. In cats requiring intravenous fluid therapy, as a minimum, ‘maintenance’ levels of potassium (Table 2) should be added to the fluids.

Analgesia

Analgesia is another important consideration in these patients. Where the cause of the anorexia is unknown, an analgesic trial is justified to see if this helps. In those cases where pain relief is already a consideration this should also be employed. Options include opioids such as buprenorphine (10–20 mg/kg every 6–8 hours (sub-lingually or by intramuscular injection) and non-steroidal anti-inflammatory agents such as meloxicam (eg 0.1 mg/kg on day 1, thereafter 0.05 mg/kg per day orally), as long as no contraindications for their use exist. In patients with reduced renal function or where renal function is not known it is safer to use doses of between 0.01–0.03 mg/kg/day orally, aiming to use the lowest effective dose.

Nausea

Nausea can be a cause of significant anorexia. Anti-emetics such as maropitant (0.5–1.0 mg/kg/day), metoclopramide (most effective when given by continuous...
intravenous infusion at 1-2 mg/kg/day, mirtazapine (1.9 mg/cat orally every 1-2 days) or chlorpromazine (0.2 - 0.5 mg/kg by intramuscular or subcutaneous injection tid-qid) can be used where indicated. Pain and nausea must be addressed before considering assisted feeding.

**Methods of nutritional support**

In general, if the gut works it is desirable to use this and parenteral nutrition is reserved for cases where this is not possible for various reasons (e.g. recumbent animals that could not safely be fed via a tube).

Two main tactics exist for increasing a patient’s voluntary food intake – nursing techniques and use of appetite stimulants. Although both tactics can be used separately or in combination, it is important to calculate the patient’s ideal and actual food intake in kilocalories, such that further intervention can be considered if these tactics prove inadequate.

**Nursing techniques**

A variety of nursing tactics can be employed with the aim of increasing voluntary food intake. These include:

- Providing a ‘cat friendly’ environment for hospitalised cats e.g. calm, quiet, away from dogs
- Offering foods which are familiar to the cat as well as different (highly palatable) ones – ask the owner which foods are popular with the cat at home
- Always offer dry cat food to anorexic cats (even those for whom one might assume that eating biscuits might be difficult e.g. oral disease cases) as many cats dislike their whiskers being touched when eating
- Always offer fresh food and don’t leave this with the cat for too long. Dried up food is more likely to be off-putting to the cat as well as different (highly palatable) ones
- Avoid dosing the cat with medication at the same time as food is offered – try to remove any link between noxious events (e.g. pill administration) and feeding
- Optimise the cat’s sense of smell for example by clearing away any nasal discharge present
- Increase food palatability:
  - Warm the food to body temperature.
  - Add water to create a gravy
  - Choose foods high in animal protein, fat and free amino acids

**Food aversions**

Food aversions occur when a cat associates the taste of certain foods with signs of illness and can develop if eating is associated with a stressful event. For example, offering food to cats suffering from nausea, force or syringe feeding, or food offered immediately after medications causing nausea (e.g. erythromycin) can trigger a food aversion. Cats that associate a particular food with nausea will often refuse this food for a prolonged period – aversions lasting up to 40 days have been described.

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### Table 1: Calculating nutritional requirements of feline patients

Start by calculating the resting energy requirements (RER) which are the calorie requirements of a resting animal in a thermoneutral environment. For critical care cases, RER x 1 is used as standard to calculate caloric requirements.

**Resting energy requirements (kcal):**

- Cats < 2 kg bodyweight (BW in kg): 70 x BW\^0.75
- Cats ≥ 2 kg bodyweight (BW in kg): [30 x BW] + 70

For example a patient that weighs 4 kg would have RER of 190 kcalories per day.

Royal Canin Convalescence Support (125 ml water added to 50g powder) produces a mixture with a calorie content of 1.37 kcal/ml. To provide 190 kcalories per day, this patient needs 140 ml.

**Tube feeding guidelines**

<table>
<thead>
<tr>
<th>Day</th>
<th>Food (ml)</th>
<th>Water (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>1/3 food, 2/3 water</td>
<td>47</td>
</tr>
<tr>
<td>Day 2</td>
<td>2/3 food, 1/3 water</td>
<td>93</td>
</tr>
<tr>
<td>Day 3</td>
<td>full food requirements</td>
<td>140</td>
</tr>
</tbody>
</table>

* denotes use sufficient water as required to flush the tube before and after feeding. Blockages can sometimes be dispersed by flushing a small amount of cola or cranberry juice down the tube.

The above calculations assume that our patient is normally hydrated and not suffering from excess fluid losses due to diarrhoea, exuding wounds etc.

In general patients are fed 4 – 6 meals per day. In some cases, this is not tolerated (e.g. vomiting seen) and slow infusion, where possible, is a useful alternative. Food should be fed at body temperature or just below this.

Alternative feeding options would include Hill’s a/d (if 25 ml water is added to one can of a/d this creates a mixture with a calorie content of 1.1 kcal/ml).

### Table 2: Supplementation of potassium to intravenous fluids according to serum potassium levels

<table>
<thead>
<tr>
<th>Serum potassium levels</th>
<th>Amount of potassium to be added to 500ml fluids</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2 mmol/l</td>
<td>40 mmol</td>
</tr>
<tr>
<td>2.0 – 2.5 mmol/l</td>
<td>30 mmol</td>
</tr>
<tr>
<td>2.5 – 3.0 mmol/l</td>
<td>20 mmol</td>
</tr>
<tr>
<td>3.0 – 3.5 mmol/l</td>
<td>14 mmol</td>
</tr>
<tr>
<td>&gt; 3.5 mmol/l</td>
<td>10 mmol (‘maintenance’ levels)</td>
</tr>
</tbody>
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