Weight Loss and Cachexia

**BASICS**

**DEFINITION**
- Weight loss is clinically significant when it exceeds 10% of the normal body weight and is not associated with fluid loss.
- Cachexia indicates an animal in poor condition; it is weight loss that has led to weakness and an altered physiological state due to a chronic disease condition.

**PATHOPHYSIOLOGY**
- Weight loss and cachexia stem from reduced caloric intake, hypermetabolism, and altered metabolism of glucose and protein synthesis.
- There are many mechanisms that can cause the patient to consume an insufficient caloric intake and thus create an altered metabolic state. The three main mechanisms are: (1) increased demand, (2) inadequate intake based on quantity or quality, and (3) excessive loss of nutrients.

**SYSTEMS AFFECTED**
- Depending on the underlying cause, any system can be affected. The consequences of cachexia can also impact many different systems:
  - Endocrine/Metabolic
  - Gastrointestinal
  - Musculoskeletal
  - Behavioral (altered mental state)

**GENETICS**
- N/A

**INCIDENCE/PREVALENCE**
- N/A

**GEOGRAPHIC DISTRIBUTION**
- N/A

**RISK FACTORS**
- N/A

**DIFFERENTIAL DIAGNOSIS**

**DIAGNOSIS**

**DIFFERENTIAL DIAGNOSIS**
Weight loss and cachexia are objective, not subjective. As such, the condition is more of a clinical manifestation of all of the above causes.

**CBC/BIOCHEMISTRY/URINARYYSIS**
- Three basic diagnostic tests are usually helpful in identifying the underlying cause.
- Hypermetabolism and hypoalbuminemia can result from protein loss caused by hemorhage, parasitism, or starvation.
- Blood collection may require anesthesia; if the patient is cachexic the risks should be discussed with the owner, and blood collection may have to wait until the patient is more stable.

**OTHER LABORATORY TESTS**
- Fecal direct and float
- If diarrhea is present, a fecal culture and sensitivity may help to direct therapy.
- Plasma protein electrophoresis

**IMAGING**
- Full-body radiographs of the small rodent patient can help to identify masses (chest or abdominal), dental disease, heart disease, and many other abnormalities that may aid in diagnosis.

**DIAGNOSTIC PROCEDURES**
- Vary depending on initial diagnostic findings and the suspected underlying cause.
- A good oral exam under general anesthesia, using cheek dilators and specula made for rodents, may be necessary (Jorgenson Laboratories Inc., Loveland, CO). A small rigid endoscope can be helpful in performing a complete oral exam. The oral exam will help to identify any oral abscess, tooth root elongation/malalignment, ulcers, pouch impactions, and more.

**APPROPRIATE HEALTH CARE**
- If the cause is found on physical exam and can be resolved (e.g., malocclusion), outpatient care may be acceptable.
- If the patient is weak and unstable, it may be best to hospitalize and proceed slowly with diagnostics.
- In some cases, home care with assist-feeding for a period of time can help the patient to gain weight. If the patient is stable, this can be attempted before performing diagnostic procedures that may put the patient at risk.

**NURSING CARE**
- It is imperative that the animal receive nutritional support if it is not eating. Supplementation with a liquid diet may be required, such as Oxbow Carnivore Care (Oxbow Enterprises, Inc., Murdock, NE) or Emerald Exotic Carnivore (Lafeber's, Cornell, IL). If these commercial formulas are not available, a gruel may be made with rodent block into Ensure, or human baby foods may be used.
- Ensure that the patient is kept warm (if hypothermic, an incubator may be required).
- Fluid therapy is used to correct hydration following standard protocols (5%-10% of body weight administered in SQ/IO bolus). Fluids should be kept warm to prevent hypothermia, and can be warmed by placing the prepared syringe in hot water for a few minutes prior to administering them. Using a 22–25 gauge butterfly needle to administer the fluids can reduce stress on the patient by minimizing restraint.
- The critical patient may require an intravenous catheter. If hypoproteinemic, administer hetastarch at 10 mL/kg per day in addition to maintenance fluids.

**ACTIVITY**
- Based on the cause of weight loss, activity may or may not need to be restricted. Most small rodents that do not feel well will be less active of their own accord. Due to the fact that most live in small cages, cage rest is not required. If activity must be restricted, a smaller cage or removal of an exercise wheel will usually suffice.

**DIET**
- A diet change should never be made abruptly in the anorectic patient. When the patient is
stable, changing to an appropriate diet such as rodents’ block, limited seed, or vegetables/greens should be recommended.

**CLIENT EDUCATION**

- The small rodent pet owner often needs to be educated regarding bedding choices and diet.
- No matter what the cause of the weight loss, any consultation should include a discussion of caging, diet, and need for regular examinations.
- The author recommends a wellness examination every 6 months.

**SURGICAL CONSIDERATIONS**

In the event that exploratory surgery or surgical biopsies are required to make a diagnosis, there are several measures that must be taken to increase the prognosis of survival in the small rodent patient.

- Maintenance of body temperature is essential and accomplished through use of a Bair Hugger (Arizant Health Care, Eden, Prairie, MN), water-circulating heating pad, or other warming device.
- Use alcohol sparingly, as this can increase loss of body heat.
- Due to the difficulty of intubating small rodents, an appropriate-sized, snug-fitting face mask should be used.
- A Doppler can be placed directly on the body wall overlying the heart for monitoring anesthesia.
- If general anesthesia is required for blood collection, oral exam, dental work, or other sample collection, the same precautions should be observed.

**MEDICATIONS**

**DRUG(S) OF CHOICE**

Choice is based upon the identification of an underlying cause.

- If bacterial infection is suspected:
  - Antibiotic based on culture and sensitivity
  - Begin empirical treatment with broad-spectrum antibiotics such as trimethoprim/sulfadiazine (15–30 mg/kg PO q12h) or ciprofloxacin (10 mg/kg PO q12h) for hamsters, gerbils, rats, and mice.
  - For rats (do not use in hamsters or gerbils), amoxicillin/clavulanic acid (12.5–15 mg/kg PO q12h)

**CONTRAINDICATIONS**

- Amoxicillin, ampicillin, penicillin, and amoxicillin/clavulanic acid should never be used in hamsters and gerbils.
- The cause of the weight loss should be identified before dispensing any medication.

**PRECAUTIONS**

- Almost all drugs dispensed to the small rodent are considered off-label, and doses have been extrapolated.
- Be especially careful of compounding drugs in-house; may achieve more favorable results using a compounding pharmacy or a liquid form of the drug.
- Do not use trimethoprim-sulfadiazine if liver or kidney failure is suspected.

**POSSIBLE INTERACTIONS**

N/A

**ALTERNATIVE DRUGS**

Booster Dietary Supplement (Harrison’s Products) is a natural, whole-food vitamin supplement with antimicrobial activity for all sick, weak, or immune-compromised animals.

**FOLLOW-UP**

**PATIENT MONITORING**

- The owner should purchase a gram scale to monitor the pet’s weight at home.
- Rechecks should be frequent (at least weekly) until the patient’s weight is normalized.

**PREVENTION/AVOIDANCE**

N/A

**POSSIBLE COMPLICATIONS**

- Severe dehydration
- Organ failure and death

**EXPECTED COURSE AND PROGNOSIS**

The prognosis is based largely on identifying the cause of the weight loss/cachexia; however, a guarded prognosis is generally warranted for cachexia in the older patient.

**ASSOCIATED CONDITIONS**

See Causes

**AGE-RELATED FACTORS**

N/A

**ZOONOTIC POTENTIAL**

N/A

**PREGNANCY/FERTILITY/BREEDING**

Pregnancy and lactation can be associated with weight loss due to increased caloric expenditure.

**SYNONYMS**

N/A

**SEE ALSO**

Anorexia and Pseudoanorexia
Acne
Congestive Heart Failure
Dental malocclusion
Intestinal Parasitism
Lymphoma
Pneumonia
Renal failure
Rhinitis and Sinusitus

**ABBREVIATIONS**

N/A

**INTERNET RESOURCES**

www.vin.com (membership required)

**Suggested Reading**


**Author**

Renata Schneider, DVM