

New tools for the nutritional assessment and management of critical care patients

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Managing the critical care patient can be challenging and successful outcomes require careful attention to medical and nutritional aspects of patient care. A number of new tools are available to veterinary care providers to help with the nutritional assessment and management of these patients.

Why Feed the Hospitalized Patient?

First, it is important to understand why it is so critical to provide adequate intake of calories and other nutrients for ill or injured patients. A healthy animal that does not get enough calories will lose primarily fat.¹ In contrast, a sick or injured animal will lose lean body mass when it is not given adequate nutrients. This loss of lean body mass impairs the animal's strength, immune function, wound healing, and likely negatively impacts overall survival.¹ When oral intake is inadequate, nutritional support techniques^{1–3} are then required to provide some or all of the nutrient requirements.

Assessing the Patient

Nutritional assessment should be performed in every patient. This assessment is important to determine if the usual diet will be appropriate for the patient after discharge, but it also helps to identify issues that could be contributing to the underlying disease (eg, a nutritionally unbalanced home-prepared diet, a contaminated raw meat diet, dietary supplement side effects, or diet-induced toxicities [eg, as in acute kidney injury caused by chicken jerky treats]). It also can identify an individual patient's food preferences, which can be helpful for feeding them during hospitalization.

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The World Small Animal Veterinary Association's (WSAVA) Global Nutrition Committee has developed nutritional assessment guidelines⁴ and a nutritional toolkit,⁵ that includes a nutritional assessment checklist to facilitate this assessment. An assessment is comprised of a short screening and if any concerns are identified, a more thorough nutritional assessment is indicated. The basic components of the screening are (1) body weight, (2) body condition score, (3) muscle condition score, and (4) diet history (which includes the pet food, treats, table food, rawhides, dietary supplements, and foods used to administer medications).

Developing the Plan

Who to feed

Patients should be hemodynamically stable before nutritional intervention is initiated.¹ Every patient in whom feeding is not contraindicated needs precise written feeding orders, which should include route, diet, amount, and frequency (eg, Feed Diet X orally – ½ can q 8 h).

When to feed

Assisted feeding techniques should be instituted in patients that have had inadequate food intake for longer than 3–5 days, but early nutrition is recommended as soon as the patient is stable.^{2,3} Remember that this timeline includes the duration of inadequate food intake at home before admission to the hospital. Also, if an animal is going to be anesthetized for diagnostic or therapeutic procedures, take the opportunity to place a feeding tube if there is any indication that one may be needed.

Where to feed

The optimal feeding route depends upon a number of patient-dependent issues including the function of the GI tract, the patient's ability to tolerate tube placement, and risk of aspiration, as well as nonpatient issues such as cost and technical expertise (see WSAVA Feeding Guide for Hospitalized Dogs and Cats).⁵ Whenever possible, the enteral route should be used because it is the safest, most convenient, most physiologically sound, and least expensive method of nutritional support.

Nasogastric/nasoesophageal tubes (for short-term use) or esophagostomy or gastrostomy tubes (for long-term use) are excellent options for animals unable or unwilling to eat adequate amounts voluntarily.^{2,3} When patients cannot tolerate enteral feeding, parenteral nutrition should be considered.¹

What to feed

Diet choice depends on patient factors, such as concurrent medical conditions, which impact the desired nutrient profile and nonpatient factors such as the type of tube in place, diet availability, and cost. Nasogastric and jejunostomy tubes require liquid diets, and nutritionally complete veterinary liquid diets should be used. Esophagostomy and gastrostomy tubes, because of their larger size, allow use of a wider variety of diets although veterinary “critical care” diets are typically used as the first choice for most animals with these large tubes (eg, Iams Maximum-Calorie Plus, Hill’s Prescription Diet a/d, Royal Canin Veterinary Diet Recovery RS). Animals with specialized needs (eg, a low fat or reduced protein diet) can be fed with blenderized veterinary therapeutic pet foods.

How much to feed

Resting energy requirement (RER) should be the initial caloric goal for hospitalized patients. RER can be calculated with the following formulas:

$$70 \times (\text{weight in kg})^{0.75} \text{ or}$$

$$\text{For patients between 3–25 kg: } (30 \times \text{weight in kg}) + 70$$

The WSAVA RER chart⁵ can be a useful tool for quick and easy reference for hospitalized patients.

Patient Monitoring

Daily patient assessment is a critical component of the overall nutrition plan. The prior day’s feeding orders should be reviewed to determine if the caloric goal was met. The route of nutrient delivery should be reviewed to determine if this needs adjustment. For example, if a patient has not consumed adequate food via coax feeding, is it time to place a feeding tube? Look for trends in body weight and monitor appropriate laboratory tests based on disease condition. Note any adverse events associated with eating including gastrointestinal issues, metabolic changes such as electrolyte shifts, or mechanical issues associated with a feeding tube. Based on the patient’s tolerance of the past feeding orders and the changing status of the disease condition, new feeding orders can be written for the coming day. A WSAVA monitoring chart⁵ is available to assist with monitoring of important nutritional aspects of hospitalized patients.

References

1. Chan DL, Freeman LM. Parenteral nutrition. In: Dibartola SP. ed. Fluid, Electrolyte, and Acid-Base Disorders in Small Animal Practice, 4th edn. St. Louis, MO: Elsevier; 2012, pp. 605–622.
2. Larsen JA. Enteral nutrition and tube feeding. In: Fascetti AJ, Delaney SJ. eds. Applied Veterinary Clinical Nutrition. West Sussex, UK: Wiley-Blackwell; 2012, pp. 329–352.
3. Marks SL. Nasoesophageal, esophagostomy, gastrostomy, and jejunal tube placement techniques. In: Ettinger SJ, Feldman EC. eds. Textbook of Veterinary Internal Medicine, 7th edn. St. Louis, MO: Saunders; 2010, pp. 333–340.
4. WSAVA Nutritional Assessment Guidelines Taskforce: Freeman L, Becvarova J, Cave N, et al. 2011 Nutritional assessment guidelines. J Small Anim Pract 2011; 52: 385–396. Available at <http://www.wsava.org/educational/global-nutrition-committee>. Accessed November 8, 2014.
5. WSAVA Nutrition Toolkit. WSAVA Global Nutrition Committee. Available at <http://www.wsava.org/nutrition-toolkit>. Accessed November 8, 2014.

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