

Fluid Therapy in Small Ruminants and Camelids

Meredyth Jones, DVM, MS^{a,*}, Christine Navarre, DVM, MS^b

KEYWORDS

- Fluid therapy • Sheep • Goat • Llama • Alpaca • Crystalloid • Colloid
- Parenteral nutrition

KEY POINTS

- Animals estimated to be more than 8% dehydrated should receive intravenous resuscitation at least initially, and then may be maintained on intravenous or oral fluid therapy.
- Hypoglycemia, hyperkalemia, and acidosis are the most life-threatening abnormalities, and require most immediate correction.
- Crystalloid solutions should be used cautiously in animals with hypoproteinemia because of the risk of pulmonary edema. Synthetic or natural colloid solutions are preferred in these patients.
- Hypertonic solutions are useful for short-term improvement of cardiac output, drawing water from the interstitium into the vasculature; they are contraindicated in hyperosmolar syndromes such as carbohydrate overload.
- Dextrose-containing solutions are indicated for use in hypoglycemic animals or those with hepatic lipidosis syndromes, but must be administered judiciously to achieve energy supplementation without inducing glucose diuresis. Insulin may be indicated to improve glucose utilization.
- Parenteral nutrition is indicated in patients with anorexia, those with severe systemic disease, and those with evidence of protein loss, and should be initiated early in the therapeutic period to achieve maximum efficacy.

INTRODUCTION

Body water, electrolytes, and acid-base balance are important considerations in the evaluation and treatment of animals with any disease process, with restoration of these a priority as adjunctive therapy. The goals of fluid therapy should be to maintain cardiac output and tissue perfusion, and to correct acid-base and electrolyte abnormalities.

The authors have no disclosures.

^a Food Animal Field Services, Department of Large Animal Clinical Sciences, College of Veterinary Medicine, Texas A&M University, 4475 TAMU, College Station, TX 77843, USA; ^b LSU AgCenter, 105 Francioni Hall–LSU, Baton Rouge, LA 70803-4210, USA

* Corresponding author.

E-mail address: mjones@cvm.tamu.edu

Vet Clin Food Anim ■ (2014) ■–■
<http://dx.doi.org/10.1016/j.cvfa.2014.04.006>

vetfood.theclinics.com

0749-0720/14/\$ – see front matter © 2014 Elsevier Inc. All rights reserved.

PATIENT EVALUATION

A thorough physical examination is an important component of the evaluation of any patient, aiding in the diagnosis of the primary disease condition and the extent to which fluid and electrolyte therapy is indicated.

Hydration Deficit

Hydration deficit is best determined by reduction in body weight from the normally hydrated state, but this baseline body weight is infrequently available when the dehydrated patient is evaluated. Mental state, skin turgor, color and texture of mucous membrane, temperature of the extremities, and recession of the globe are all used in combination to estimate hydration status, but these criteria have not been validated in ruminants or camelids (Table 1). Alterations in packed cell volume (PCV) and total plasma protein (TPP) may also be used as indicators of hydration status, but are limited in their utility. The reference interval for PCV is fairly wide, making it an insensitive indicator of hydration, and baseline values for an individual are rarely available. Moreover, owing to the prevalence of diseases in sheep, goats, and camelids that alter PCV and TPP (internal parasitism, failure of passive transfer, chronic inflammatory disease), these values must be interpreted in light of the history and physical examination findings.

Electrolyte and Acid-Base Alterations

Serum biochemistry and blood gas analysis are the most appropriate tools for assessment of electrolyte, glucose, and acid-base abnormalities. Results of this testing may help prioritize fluid components for replacement. In general, hypoglycemia, hyperkalemia, and acidosis represent abnormalities that are most life-threatening and require the most immediate correction.

Fluid Administration

Route

The first decision to be made when initiating fluid therapy is whether fluids should be administered parenterally or enterally. In ruminants and camelids, large volumes of fluids may be administered into the rumen or first compartment, allowing for effective treatment of mild to moderate dehydration. In camelids specifically, the benefit of repeated oral fluid therapy should be weighed against the risks. Oral intubation is stressful in camelids and may induce cortisol-mediated lipolysis, particularly if repeated.¹ Therefore, the authors rarely use oral fluid therapy in camelids. In general, the animals most likely to benefit from oral fluid therapy are those that are mentally alert, have good gastrointestinal motility, and are less than 8% dehydrated. Animals

Table 1
Physical examination parameters for estimation of hydration deficit in ruminants and camelids

	Mild, 4%–6%	Moderate, 7%–9%	Severe, >10%
Cervical skin tent	4–5 s	5–7 s	>7 s
Globe recession	2–3 mm	3–4 mm	6–8 mm
Oral mucosa	Moist, warm, pink	Tacky, warm, pale	Dry, cool, pale
Extremities	Warm	Cool	Cold
Demeanor	Standing, bright	Sternal, slow	Lateral, depressed

Adapted from Constable PD, Walker PG, Morin DE, et al. Clinical and laboratory assessment of hydration status of neonatal calves with diarrhea. *J Am Vet Med Assoc* 1998;212:991–6; and Roussel AJ. Fluid therapy in mature cattle. *Vet Clin N Am Food Anim Pract* 1990;6(1):111–23.

Download English Version:

<https://daneshyari.com/en/article/2459584>

Download Persian Version:

<https://daneshyari.com/article/2459584>

[Daneshyari.com](https://daneshyari.com)