

Diagnosis and Treatment of Undifferentiated and Infectious Acute Diarrhea in the Adult Horse

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KEYWORDS

• Equine • Colitis • Typhlocolitis • Infectious diarrhea • Intravenous fluid therapy

KEY POINTS

- Strict biosecurity measures should be enforced for all cases of acute diarrhea in adult horses.
- Diagnostic tests for salmonellosis, clostridiosis, coronavirus, and Potomac horse fever are evolving.
- Aims of treatment of acute diarrhea include fluid resuscitation, correction of electrolyte abnormalities, and limiting the systemic inflammatory response.
- Limited evidence exists to support many of the medications used to treat acute diarrhea and the judicious use of therapeutics is warranted.

INTRODUCTION

Acute diarrhea associated with colitis or typhlocolitis is a major cause of morbidity in horses and is life-threatening. Clinical signs of colic, hypovolemia, and endotoxemia result from altered motility, hypersecretion of fluid, and disruption of the mucosal barrier secondary to intestinal inflammation.

Undifferentiated and infectious acute diarrhea is a diagnostic and therapeutic challenge. Differential diagnoses for the acutely diarrheic horse share similar clinical and clinicopathologic features. Determination of causation is rarely possible. The fundamental diagnostic approach includes assessment of hydration, electrolyte and

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acid-base abnormalities, mucosal integrity, organ function, and the inflammatory response. Immediate therapeutic intervention, often in the absence of a definitive diagnosis, reduces comorbidities and mortality.

INITIAL DIAGNOSTICS

Bloodwork

Hematologic abnormalities seen early in the course of gastrointestinal disease reflect stress and endotoxemia. Leukopenia may be characterized by lymphopenia, neutropenia with or without a left shift, and toxic changes in neutrophils. A neutrophilic leukocytosis may be seen later. Degenerative left shifts and the presence of metamyelocytes and myelocytes are poor prognostic indicators.¹ Hemoconcentration and thrombocytopenia are common. Horses with a packed cell volume greater than 45% were 3.5 times less likely to survive.² Hyperfibrinogenemia and elevated serum amyloid A may be seen in acute, severe, colitis³

Diarrhea in horses is associated with hemodynamic and electrolyte changes caused by intraluminal sequestration of fluid. Serum biochemistry often reveals renal or prerenal azotemia and electrolyte abnormalities including hyponatremia, hypochloremia, hypokalemia, and hypocalcemia. In one retrospective, negative base excess was the best prognostic indicator.⁴ In a study of 101 horses, plasma lactate at admission was not associated with survival status. However, reduction in serial lactate concentration by greater than or equal to 30% 4 to 8 hours and by greater than or equal to 50% 24 hours after admission was significantly associated with survival.⁵ A creatinine concentration greater than 2.0 mg/dL (176.8 μ mol/L) was also associated with a lower likelihood of survival.² Hyperproteinemia may be present with severe dehydration, although mild to severe hypoproteinemia is also seen as a result of gastrointestinal protein loss.

Ultrasonography

Abdominal ultrasonography is an important diagnostic aid in cases of acute diarrhea and should be performed to assess large and small intestinal wall thickness and peritoneal fluid volume and character. See Nicola C. Cribb, Luis G. Arroyo's article, "[Techniques and Accuracy of Abdominal Ultrasound in Gastro-Intestinal Diseases of Horses and Foals](#)," in this issue for more details.

Pathogen-Specific Serologic and Fecal Diagnostics

Commercial laboratories frequently offer diarrhea panels, which are helpful for screening for numerous pathogens. However, like any screening test, specificity may be compromised and results should be interpreted with caution. Furthermore, some diagnostic laboratories include tests that are unnecessary or not clinically relevant in the adult horse. [Table 1](#) provides a summary of commercially available fecal and serologic diagnostics and their limitations.

DIFFERENTIAL DIAGNOSES

Salmonellosis

Salmonellosis is a well-recognized cause of acute diarrhea in the horse. It is reported as a result of infection with *Salmonella enterica* subsp. *enterica*, a G⁻, facultative anaerobic bacterium. Numerous serovars are associated with clinical disease but *Salmonella typhimurium* is commonly isolated from diarrheic horses and associated with high pathogenicity.⁶ *Salmonella* infection in adult horses ranges from the inapparent carrier state, to pyrexia, anorexia, leukopenia, and depression without diarrhea, to acute, severe, enterocolitis with diarrhea.

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