Equine Protozoal Myeloencephalitis: Causative Agent(s), Diagnosis, Clinical Signs, and Current Therapeutic Approaches

Levent Dirikolu, DVM, MS, PhD*; Jonathan H. Foreman, DVM, MS, Diplomate ACVIM; and Thomas Tobin, DVM, PhD, Diplomate ABT

Authors’ addresses: 2001 South Lincoln Avenue, Urbana, IL 61802 (Dirikolu); Department of Veterinary Clinical Medicine, University of Illinois at Urbana-Champaign, 1008 West Hazelwood Drive, Urbana, IL 61802 (Foreman); Maxwell H. Gluck Equine Research Center and the Department of Veterinary Science, University of Kentucky, Lexington, KY 40506 (Tobin). e-mail: dirikolu@illinois.edu. *Corresponding author. © 2011 AAEP.

1. Introduction

Equine protozoal myeloencephalitis (EPM) is the most important infectious neurological disease of horses in the Western hemisphere. EPM interferes with a horse’s ability to race, work, and perform; untreated, EPM can be lethal. Antemortem diagnosis of EPM is challenging and requires careful evaluation of the animal’s history, clinical signs, and laboratory data, with rigorous exclusion of other causes.

Preventative approaches to EPM are not well defined, and therapeutic approaches to EPM are evolving. The first approaches were based on the classic anti-malarial pyrimethamine sulfonamide combinations. Research in the 1990s identified the therapeutic efficacy of diclazuril and related agents; in 2001, toltrazuril sulfone, ponazuril,* became the first Food and Drug Administration (FDA)-approved treatment for EPM. A pyrimethamine/sulfonamide combination formulation† received FDA approval in 2004 for the treatment of EPM. Additionally, protazil, a topical feed dressing formulation of diclazuril for use in the prevention and treatment of EPM, is on the point of market release.

An important pharmacokinetic characteristic of the clazuril medications is their relatively long plasma half-lives; therefore, the use of loading doses for these agents should be considered, particularly in acute clinical situations. The ideal therapeutic agent for use against EPM would be an orally effective agent with high efficacy against Sarcocystis neurona and minimal toxicity for horses, an agent that would allow considerable latitude in dosing regimen without running undue risk of adverse effect. This article reviews the current information available for EPM including causative agent(s), diagnosis, and clinical pharmacology/efficacy of FDA-approved and nonapproved investigational medications for the treatment and/or prophylaxis of EPM.

Footnotes

*Marquis, Bayer Corporation, Agriculture Division, Shawnee Mission, KS 66201-0390.
‡Protazil, Intervet/Schering-Plough Animal Health, Summit, NJ 07901.