HE’s the One

Hepatic encephalopathy (HE) is a spectrum of neuropsychiatric signs or symptoms attributable to hepatic dysfunction after ruling out other brain diseases. In human patients, identifying known precipitating factors (e.g., GI bleeding, constipation, diarrhea, infection, hypokalemia, hyponatremia, excessive dietary protein) is important for management and prognosis to understand the relationship between plasma ammonia concentrations and HE severity, and to assess the association between common human HE precipitating factors and clinical signs at admission. The purpose was to uncover any relationship between common precipitating factors for human HE and the presence of HE clinical signs at hospital admission in dogs previously treated for HE. The most common clinical signs in dogs were lethargy, altered behavior, obtundation, ataxia, seizures, head pressing, ptalism, vomiting, blindness, circling, shaking or twitching, and anorexia or hyporexia. Dogs treated for HE before hospitalization were significantly less likely to have clinical signs at time of hospitalization than untreated dogs; this indicates successful application of common treatment strategies. Putative precipitating factors for HE at admission included systemic inflammatory response syndrome, hyponatremia, alkalosis, hypokalemia, dietary changes or indiscretion, furosemide treatment, azotemia, GI hemorrhage, and constipation. None of these were significantly associated with clinical signs on hospitalization. Hyperammonemia (≥ 50 µg/mL) was present in 78/83 (94%) dogs with HE measured within 24 hours of hospitalization. Severity of HE at time of hospitalization was not significantly correlated with plasma ammonia concentration.

Commentary

As clinicians, we commonly expect that blood ammonia concentrations will be markedly elevated when a patient presents with severe signs of HE. A surprising finding of this study was that severity of hyperammonemia was not significantly correlated with the severity of clinical signs of HE. Treatment for HE (typically involving antimicrobial therapy, diet change, and lactulose) before referral appeared to be associated with fewer clinical signs on admission to the referral hospital. Although the study was not able to assess efficacy of different therapies, it appears that this general treatment approach helps alleviate clinical signs associated with HE. Despite having an incomplete understanding of precipitating factors and all of the chemical mediators contributing to HE, it appears that general treatment concepts taught during veterinary training are effective. Further research may elucidate the most effective treatments.—Julie Walker, DVM, DACVECC

Source


Severity of hyperammonemia was not significantly correlated with the severity of clinical signs of HE.

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**Osurnia**

*(fluraniclofen, terbinafine, betamethasone acetate)*

**Otic gel**

Antibacterial, antifungal, anti-inflammatory

**For Otic Use in Dogs Only**

Before using this product, please consult the product insert, a summary of which follows:

Caution:

Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

Indication:

OSURNIA is indicated for the treatment of otitis externa in dogs associated with susceptible strains of bacteria (Staphylococcus pseudintermedius) and yeast (Malassezia pachydermatis).

Contraindications:

Do not use in dogs with known tympanic perforations (see Precautions).

Do not use in dogs with a hypersensitivity to fluraniclofen, terbinafine or corticosteroids.

Warnings:

Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental ingestion by humans.

In case of accidental skin contact, wash area thoroughly with water. Avoid contact to the eyes.

Precautions:

Do not administer orally. The use of OSURNIA in dogs with perforated tympanic membranes has not been evaluated. The integrity of the tympanic membrane should be confirmed before administering this product. Reevaluate the dog if hearing loss or signs of vestibular dysfunction are observed during treatment. Use of topical otic corticosteroids has been associated with adrenocortical suppression and iatrogenic hyperadrenocorticism in dogs. Use with caution in dogs with impaired hepatic function. The safe use of OSURNIA in dogs used for breeding purposes, during pregnancy, or in lactating bitches, has not been evaluated.

Adverse Reactions:

The most common adverse reactions reported during the course of a US field study for treatment of otitis externa in dogs treated with OSURNIA with 1 tube per affected ear(s) and repeated after 7 days were Elevated Alkaline Phosphatase, Vomiting, and Elevated AST, ALT, ALP.* Aparate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP). Two dogs with pre-existing elevations in ALP were reported to have an increase in liver enzymes (ALP, ALT and/or AST) at study exit. Subsequent clinical chemistries returned to pre-treatment levels in one dog, while no follow up was performed for the second dog.

To report suspected adverse drug events, contact Elianco Animal Health at 1-800-332-7916. For additional information about adverse drug experience reporting for animal drugs, contact the FDA at 1-888-FDA-VETS or http://www.fda.gov/AnimalVeterinary/SafetyHealth. For technical assistance, contact Elianco Animal Health at 1-800-332-7916.

Effectiveness:

Effectiveness was evaluated in 235 dogs with otitis externa. The study was a double-masked field study with a placebo control (vehicle without the active ingredients). 159 dogs were treated with OSURNIA and 76 dogs were treated with the placebo control. All dogs were evaluated for safety. Treatment (1 mL) was administered to the affected ear(s) and repeated 7 days later. Prior to the first administration, the ear(s) were cleaned with saline but not prior to the Day 7 administration. Six clinical signs associated with otitis externa were evaluated: pain, erythema, exudate, swelling, odor and ulceration. Total clinical scores were assigned for a dog based on the severity of each clinical sign on Days 0, 7, 14, 30 and 45. Success was determined by clinical improvement at Day 45. The success rates of the two groups were significantly different (p<0.0094); 64.78% of dogs administered OSURNIA were successfully treated, compared to 43.42% of the dogs in the placebo control group.

NADA # 141-437, Approved by FDA © 2013 Novartis Animal Health US, Inc. OSURNIA is a registered trademark of Novartis AG Manufactured for: Novartis Animal Health US, Inc., Greensboro, NC 27408 USA Eli Lilly and Company has purchased the Novartis Animal Health business to be combined with Elianco, Lilly’s animal health division.

Made in UK

NAH/OSU-GEL/BS/2