Aluminum Phosphide Toxicosis in 66 Horses

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Fumigation with aluminum phosphide is a common practice to eliminate weevils and other insects from stored grains. Risk to livestock is considered minimal when performed appropriately. Toxic exposure is possible, however, and treatment options are limited. Potential exposure to veterinarians and volunteers responding to the situation is possible, and care should be taken to protect responders and owners. Authors’ address: Large Animal Medicine and Surgery, College of Veterinary Medicine, Texas A&M University, College Station, TX 77843; e-mail: leasterwood@cvm.tamu.edu (Easterwood). © 2008 AAEP.

1. Case Description
Sixty-six horses were potentially intoxicated when fed grain that had been treated with aluminum phosphide 14 h previously.

2. Clinical Findings
Twenty-nine horses showed clinical signs of profuse sweating, tachycardia, tachypnea, fever, ataxia, seizures, and widespread muscle tremors. Significant laboratory findings were hypoglycemia and elevations of lactate, ammonia, gamma glutamyl transpeptidase, aspartate aminotransferase, and alkaline phosphatase concentrations. At least four horses showed signs consistent with hepatic encephalopathy. Necropsy findings were similar to those previously reported with zinc phosphate toxicosis in the horse and phosphine toxicosis in humans and included petechial and ecchymotic hemorrhages in multiple organs, widespread congestion, hepatic lipodosis, and neuronal necrosis in the brain. Phos- phine gas was detected in the stomach of three horses tested.

3. Treatment and Outcome
Horses were treated with gastric lavage followed by ditrioctahedral smectite, intravenous fluids, and sedatives. In addition, two hospitalized survivors were treated with intravenous lactated Ringer’s solution with 10% dextrose, oral corn syrup, ditrioctahedral smectite, and flunixin meglumine. Twenty-seven horses died within 2 days after exposure. Two survivors made a complete recovery.