

Salt Toxicity: A Consequence Of Too Much Salt And Not Enough Water



DR. MICHELLE ARNOLD

PRINCETON, KY.

The cold temperatures and muddy conditions of winter often make routine chores difficult to nearly impossible. Feeding salt or trace mineral mix and ensuring an adequate supply of water are two chores that, if neglected, can result in a health disaster. Salt poisoning or “water deprivation sodium ion toxicosis” occurs when excessive quantities of salt are ingested and/or intake of water is limited. This condition has been reported in all species throughout the world but is most common in swine, cattle and poultry. Overconsumption of salt and mineral frequently occurs if the herd has been without these supplements for a week or more. Rapid disappearance is common as the cows “go wild” over new salt or mineral offered free-choice. Water intake may be greatly reduced by frozen water sources, overcrowded conditions, unpalatable (dirty/contaminated) water, getting trapped in an area such as a barn without water, or some mechanical failure of an automatic waterer such as a faulty well pump switch. Heaters in watering troughs may also cause stray voltage that discourages water consumption by cattle.

In a case description from a 1995 issue of the *Journal of Veterinary Diagnostic Investigation*, a herd of 200 beef cow-calf pairs was without water for 24-36 hours due to a well pump problem. They were on pasture with no supplemental feed and had also been without salt or mineral for one week. When the water was fixed, salt (150 lbs.) and mineral (450 lbs.) was also placed in two self-feeders nearby. Within 3 hours, all of the salt and mineral was gone and 10 cows were lying down with tremors and

seizures. By the following morning, all 10 of the affected cows were dead, despite supportive treatment. Clinical signs of salt poisoning may include salivation (drooling), increased thirst, abdominal pain, increased urination and defecation (some diarrhea), circling, blindness, seizures, staggering, and belligerent or aggressive behavior. Other conditions such as lead poisoning or polioencephalomalacia (“brainers”) may look similar and consultation with a veterinarian is a must in this type of emergency situation. Diagnosis can be confirmed through laboratory testing of serum, cerebrospinal fluid, aqueous humor (from the eye), and brain tissue.

Salt toxicity does not consistently produce brain lesions evident at necropsy. Treatment is limited to supportive care. Fresh water may be offered in small amounts by stomach tube because too much water too quickly causes swelling of the brain.

The importance of this case description is to recognize how quickly and tragically these events can unfold. It is critical to keep salt and/or trace mineral available to cattle because overconsumption of 1-3 kg (2.2-6.6 lbs) of salt in deprived animals can result in salt toxicosis, even when water is available. Cattle are also likely to ingest other potential toxins if they are looking for something to satisfy their salt cravings. Many cases of poisoning diagnosed at the UKVDL involve cattle investigating old barns or burn piles when salt or mineral was unavailable. In known instances of water deprivation, try to limit salt intake (offer small amounts in multiple feeders or offer in block form) and slowly re-introduce it back to free-choice. Work with your veterinarian to determine the best course of action for your herd if salt- or water-deprived to prevent a health disaster. Δ

DR. MICHELLE ARNOLD: Large Ruminant Extension Veterinarian, University of Kentucky