



GRASS TETANY FACT SHEET

Aetiology

Grass tetany (hypomagnesaemia) occurs after a decrease in the blood magnesium concentration. This eventuates when absorption of dietary magnesium is unable to meet the requirements for maintenance and/or lactation.

Epidemiology

Grass tetany occurs worldwide with sporadic and unpredictable patterns for any given area. In adult cattle, hypo-magnesaemia is most commonly observed in older lactating cows rather than cows during their first or second lactation. It occurs most frequently in cows that are nursing calves under 2 months of age, and is more likely to occur in beef herds than in dairy herds. Cattle do not necessarily have to be lactating to succumb to the disease. Stress is also a major factor, with cattle that are in poor body condition and cattle that are transported, worked or held off feed being more susceptible.

Pathophysiology

Magnesium is a regulator of cell membrane potential and a constituent of a number of enzymes that control neuro-logical function; a deficiency therefore causes neuromuscular excitability, muscular stiffness and incoordination.

Winter outbreaks of hypomagnesaemia occur due to lack of dietary magnesium and absorption of other ions that block magnesium uptake. Pasture that is low in dry matter availability contributes to the risk of hypomagnesaemia by reducing the intake of pastures that are already low in magnesium. Winter conditions also contribute to de-creased intake due to cold, wet weather reducing grazing time.

Fast-growing spring pastures are high in potassium and crude protein and low in sodium. An increased intake of oral potassium results in a decrease in magnesium absorption from the forestomachs. Pasture improvement practices that involve fertilisation with potassium will obviously further contribute to hypomagnesaemia because potassium and nitrogen compete with magnesium for uptake not only by the animal but also in the pasture. High risk pastures include rapidly growing, lush grasses such as perennial rye, phalaris, tall fescue and winter annuals. Wheat, oats and barley are also high risk.

Clinical Signs

- Increased heart sounds and rate
- Staggering/stiff gait
- Blindness
- Convulsions
- Nervousness/frenzied behaviour
- Bellowing
- Frequent urination
- Hypersensitivity to sound and touch

Animals displaying these signs may rapidly progress to the acute convulsive stage and finally sudden death. In less severe cases, mild neurological signs may persist for up to 2-3 days. Any stressors may hasten convulsions and death.



Diagnosis

- A positive response to treatment is highly suggestive of hypomagnesaemia.
- Definitive diagnosis: total blood magnesium is <1.2 mg/dL & undetectable magnesium on urinalysis
- Diagnosis on post mortem: vitreous humour magnesium concentrations of <1.8 mg/dL from the eye of an animal that has died within the last 24 hours

Treatment

- Magnesium sulphate can be given directly by the intravenous route to correct the low hypomagnesemia.
- Vetcal '4-in-1' should also be given. Generally down cows should receive 1 bag into the vein and 1-2 bags given subcutaneously to provide a slower prolonged supply of magnesium, calcium, glucose and phosphorus.
- Once the cow has been recumbent, or down, for more than 6-12 hours then she should also receive some anti-inflammatory medications to assist with the inflammation and muscle death of the dependant muscles.
- Hay and fresh water should be provided to any recovering animals in the days following.
- Following treatment: cows should be left to respond to treatment without stimulation. Provision of hay treated with 60 g of magnesium oxide daily should prevent recurrence.

Prognosis

Prognosis is better if treatment occurs within the first 6-12 hours following clinical signs. Treatment of animals that are comatose, or greater than 24 hours is generally unsuccessful.

Prevention

Prevention will begin with identifying and avoiding high risk pastures during calving and other risk periods, trying to maintain high legume content pastures, supplementary hay and the provision of Causemag as either a looselick, spread on hay or as lick blocks during these high risk periods.

The most cost effective preventative strategy is the preparation of looslicks containing magnesium used in conjunction with hay. Below is a standard recipe for producing a looselick that can be made on-farm and fed out to mobs providing a daily supply of magnesium. The quantities in the recipe below should produce a total mix calculated to provide 200g/hd/day.

Therefore the total mix for a mob with 100 cows would be 20 kg per day, or a batch of 140 kg per week. The levels of salt and molasses can be altered in order to increase or decrease intake levels.

Looselick Recipe:

Causemag - 30% / Salt - 30% / Lime - 20% / Molasses - 20% a Providing 200g of total mix per head per day.

For more information on Grass Tetany Management and Treatment feel free to contact one of the vets at HVC on (02) 60362374