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Clinical management hypokalaemia in a cross bred jersey cow: A case report

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Abstract

A 4-year-old cross breed jersey cow was attended at doorstep with a history of recumbency and partial appetite for past two days. Clinical examination revealed a normal vital parameters, S-shaped curvature of the neck was observed, no abnormalities of urination and defecation. Serum sample was analysed for electrolyte abnormalities and it was revealed reduced serum potassium concentration of 2.6 mmol/L. The animal was treated successfully with intravenous Ringer's lactate and oral potassium chloride supplementation (120 mEq twice daily). Supportive management with a sling was implemented to facilitate standing and prevent secondary muscle damage. After two days, the animal showed complete clinical recovery.

Keywords: Recumbent cow, hypokalaemia and potassium therapy

Introduction

Hypokalaemia is a clinically significant electrolyte disturbance in adult cattle, characterized by a marked reduction in serum or plasma potassium concentrations-typically below 2.5 mmol/L. Hypokalemia, a mineral disorder manifested as too-low serum potassium levels, is life-threatening, in dairy cows. In lactating cattle, 75% of Potassium elimination is via the urine, 13% in faeces (mostly unabsorbed dietary potassium) and 12% in the milk. Hypokalemic animals show weakness, fasciculation, and muscle wasting. Animals who are severely afflicted are unable to stand or lift their heads off the ground. The normal physiological potassium concentration in the blood plasma of cows ranges between 3.9 and 5.8 mmol/L. which can rapidly lead to muscle weakness, depression, and paralysis. In healthy cows, potassium is obtained in substantial amounts through forage-rich diets and is normally excreted via the kidneys (Venkata *et al.* 2023) [4]. Additional factors such as gastrointestinal loss, metabolic alkalosis, or administration of corticosteroids can further exacerbate potassium loss. The clinical manifestations of hypokalaemia in cattle range from mild muscle fasciculations and difficulty standing to severe generalized weakness, CNS depression, and recumbency, which may sometimes be accompanied an S-shaped curvature of the neck. Notably, these signs overlap with other metabolic disorders such as hypocalcaemia and hypomagnesemia, making laboratory confirmation essential for diagnosis (Constable, 2024, Merck, 2024, Schneider *et al.* 2016) [1, 2, 3].

History and Observation

A 4-year-old cross breed jersey cow was attended at doorstep with a history of recumbency and partial appetite for past two days. Clinical examination revealed normal vital parameters, Recumbancy (Fig.1), S-shaped curvature of the neck was observed as hypokalaemia causes muscle weakness (Fig. 2), no abnormalities of urination and defecation. Serum sample was analysed for electrolyte abnormalities and it was revealed reduced serum potassium concentration of 2.6 mmol/L. History of local veterinarian treated the animal with calcium and isoflupredone which is potentially reducing the serum potassium level by excreting via urine.



Fig 1: Animal in Sternal Recumbency



Fig 2: “S” Shaped Curvature of neck

Treatment and Discussion

The animal was treated successfully with intravenous Ringer's lactate (10ml/Kg IV route), Tribivet 15 ml (IV route - Total Dose) and oral potassium chloride supplementation (120 mEq twice daily). Supportive management with a sling was implemented to facilitate standing and prevent secondary muscle damage. After two days, the animal showed complete clinical recovery (Fig.3). Cattle with acute hypokalaemia typically present with generalized muscle weakness, marked depression, recumbency, and a characteristic S-shaped curvature of the neck. Muscle fasciculations, reduced rumen motility, and an inability to lift the head are frequently observed (Constable *et al.*, 2024)^[1].



Fig 3: Animal after recovery

Conclusion

The present case highlights the importance of electrolyte profiling in recumbent cattle with normal body temperature and vital signs. Prompt detection and correction of hypokalaemia with appropriate potassium therapy and supportive management ensure complete recovery and prevent muscle damage or mortality.

Conflict of Interest

Not available.

Financial Support

Not available.

References

1. Constable PD, Hincheliff KW, Done SH, Grünberg W. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs, and Goats. 11th ed. Philadelphia: W.B. Saunders Elsevier; 2024. p. 2017-2357.
2. Merck Veterinary Manual. Hypokalaemia in adult cattle. Merck & Co.; 2024.
3. Schneider S, Müller A, Wittek T. Concentration of potassium in plasma, erythrocytes, and muscle tissue in cows with decreased feed intake and gastrointestinal ileus. J Vet Intern Med. 2016;30(2):679-685.
4. Venkata SRS, Srinivasulu RR, Bala KRD. Oral treatment of hypokalemia with potassium chloride and propylene glycol in cows. Int J Pharm Chem Anal. 2023;10(3):202-204.
5. Felix SU, Pauline CN, Ogunkunle N, Lushaikyaa A. Acute Hypokalemia. Periparturient Diseases of Cattle. 2024 Aug 6:213-226.

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