

ANALYSIS OF OUTCOME OF TREATMENT OF MILKFEVER IN TWO MURRAH BUFFALOES

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Abstract: Milk fever (hypocalcemia) is a complex metabolic disorder that often occurs with hypomagnesemia, is seen in high producing dairy animals, immediately after parturition, with inappetence, tetany, reduced urination and defecation, sternal to lateral recumbency with tachycardia as clinical signs. Treatment includes immediate intravenous calcium borogluconate solution followed by oral calcium gels to prevent relapses in severe cases. The outcomes of treatment done to two buffaloes with 3rd stage of milk fever with and without oral calcium supplementation were analysed and presented here.

Keywords: Buffalo, Milk Fever, Hypocalcemia, Calcium, Aspiration Pneumonia.

1. Introduction

Deficit of Circulatory plasma calcium combined with excess loss of Calcium through milk in a high yielding animal results to this disorder (Radostitis *et al.*, 2007 and Adams *et al.*, 1996). Ramberg C F, 1984 explained that the mechanisms required to bring Calcium to plasma pool are relatively inactive during dry period. Only 10 to 12 g of Ca/d calcium drain is noticed in dry period. Hibbs, J. W. 1950 explained that nearly all bovines will experience some degree of hypocalcemia immediately after calving since almost 30 g Ca/d should be brought into the plasma pool, which in some animals leads to disruption of neuromuscular function resulting in clinical milk fever syndrome. The animals affected with Milk fever are highly susceptible to secondary problems like Hypomagnesemia, Ketosis and Mastitis even in the recovery stage (Curtis *et al.*, 1993). The affected animals should be identified and treated @2g Ca / 100 Kg BW immediately, as 60 to 70 % would die, if left untreated (Hibbs, J. W. 1950). As early as in 4 hrs, few animals experience 'Crush Syndrome' due to their heavy body weight, causing ischemic necrosis of muscles and nerves on the appendages, resulting in 'Downer Cow Syndrome' (J.P Goff, 2008). Also, the animals which got rapidly administered with calcium borogluconate solution may experience high plasma concentrations of Calcium (>25mg/dl) which results in acute cardiac arrest and the animal may die and few animals even after successful administration of Ca, may relapse and require

additional treatment (Horst *et al.*, 1997) since intravenous Ca administration only elevates blood calcium levels for 4 hours (J.P Goff, 2008). By dosing the animals with soluble Calcium orally aids in prevention of relapse of milk fever (J.P Goff, 2008). Care should be taken while drenching oral liquids in hypocalcemic animals since the animals are predisposed to iatrogenic aspiration pneumonia as they have impaired swallowing reflexes (Lopez, A and Martinson 2017) and animal being in lateral recumbency also increases chances of aspiration pneumonia (Dhillon *et al.*, 2020 and Constable *et al.*, 2016).

2. Case History:

Two buffaloes presented to Veterinary Dispensary, Gummileru village with the history of calving on the day or before, ataxia, reduced milk yield, recumbency and anorexia. Both animals were in 2nd lactation and had expelled placenta normally.

3. Clinical examination, Diagnosis and treatment:

Clinical Examination revealed that both the animals were in sternal recumbency and lateral kink of neck was noticed in one buffalo and with little restrain the animals had gone into lateral recumbency. Ataxia was clearly evident. Rectal temperature was 98.5 to 99.0 °F with cold extremities and pupil dilatation is clearly evident. Absence of urination and defeacation was noticed. Both the cases were diagnosed with Milk fever (3rd stage) based on recent calving history and clinical symptoms.

Treatment was initiated with 450 ml of 25% calcium borogluconate slow IV followed by 1 litre of 25% Dextrose solution and 10ml of Inj. AD₃E (IM). Both the buffaloes has shown favorable responses to treatment by urinating during fluid therapy and stood up immediately after treatment (as shown in picture 1 & 2). Pupil dilatation has reduced remarkably. Since the intravenous therapy elevates plasma Ca only upto 4hrs, both the animal rearers were advised to administer oral calcium gels as supportive therapy for every 4 hours for 2 to 3 times. One animal has received oral Calcium gel administration as advised and the buffalo has recovered uneventfully and no relapse has observed whereas the owner of the 2nd animal has not administered oral calcium as the buffalo was already standing up. He further proceeded to withdraw all the milk available in the udder the very next day and the animal fell to sternal recumbency with ataxia, muscle tremors and abrasion wounds noticed on right lateral gluteal region of hind limb and tip of right fore teat. The animal was again treated with 2nd dose of 450 ml of 25% calcium borogluconate slow IV followed by 1 litre of 25% Dextrose solution and the animal showed immediate response to the treatment.

The owner, then administered oral calcium gel as advised but a little amount of the liquid got aspirated. Slight cough was noticed immediately after aspiration. The animal was reluctant to feed on grass that was placed on the ground but has taken feed when raised to mouth level, indicating severe pain in thoracic region. Also the right fore quarter of udder was affected with mastitis (as shown in picture 3) due to poor housing and abrasion wound to the teat tip. The buffalo was kept under treatment with Inj. Enrofloxacin (5mg/Kg BW), Inj. Flunixin Meglumine (2mg/Kg BW) and Inj. Frusemide (2mg/Kg BW) for 7 days and intramammary infusion and cleaning with Inj. NS and Inj. Metronidazole for 5 days. The animal showed remarkable improvement and the appetite has improved greatly with reduced cough, reduced udder inflammation and change in consistency of milk by 5th day.

4. Discussion:

Animal with oral calcium gel administration after IV calcium has shown uneventful recovery with no relapse whereas the animal which does not receive oral calcium after IV calcium has gone into relapse and also a sequence of unwanted secondary problems like additional abrasion wounds causing mastitis as explained by Curtis *et al* (1993) and in the same case, aspiration pneumonia was observed due to improper administration of oral calcium gels, which is in coherence with Lopez, A and Martinson (2017). As J.P Goff (2008) said, by dosing the animals with soluble Calcium orally has aided in preventing relapse of milk fever in an animal.

5. Conclusion

Treatment of Hypocalcemic animal should always include both intravenous and oral calcium supplementations to prevent relapses of the condition and at the same time care should be taken to avoid faulty drenching of oral calcium liquids, which will lead to other secondary complications like aspiration pneumonia. As animals affected with Milk fever are highly susceptible to secondary problems like Hypomagnesemia, Ketosis and Mastitis, one should consider multifocal treatment approach, rather than depending on intravenous calcium administration solely.

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1. Animal 1 - before and after treatment



2. Animal 2 - before and after treatment



3. Animal 2 showing Mastitis after relapse and treatment with NS and Metronidazole