Milk Fever: Causes And Prevention Strategies

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Introduction

Milk fever is a metabolic disorder that occurs at the onset of lactation especially in high producing dairy cows. It is usually observed within 40 hours post-calving. The disease is characterized by a rapid decline in plasma calcium concentration resulting from the relatively expeditious loss of calcium to the formation of colostrum. Milk fever is a misnomer, wherein, milch animals do not develop fever; on the contrary, body temperature may be depressed. Mature cows of 5-10 years age group are usually susceptible to milk fever. Blood calcium is low in milk fever, but a low dietary intake is not the cause. It seems probable that parathyroid gland fail to mobilize blood calcium rapidly enough to meet the drain at parturition which results from the onset of active milk secretion. Thus the cow develops hypocalcaemia and tetany. Milk fever is also known as post-parturient hypocalcaemia or parturient paresis.

Predisposing Factors

Breed: Several investigations reported that certain breeds of cattle are more susceptible to milk fever, particularly Channel Island, Swedish Red and White and Jersey cattle. The exact reasons for this increased susceptibility are unclear.

Age: As dairy cows become older, the incidence of milk fever increases. Noticeably, milk fever is very rare in first lactation cows; incidence increases dramatically in third and greater lactations.

Diet: Manipulation of dietary calcium and phosphorus is known to have dramatic effects on the incidence of milk fever. Studies have shown that feeding low calcium diets or imbalance the ratio of dietary Ca to P (2:1) lowered the incidence of milk fever.

Clinical symptoms

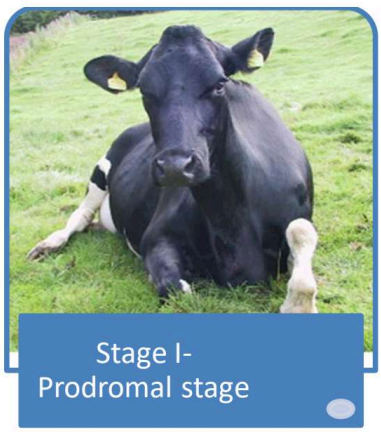
Clinical symptoms of this disease include inappetence, tetany, inhibition of urination and defecation, lateral recumbency and eventual coma and death if left untreated. Further, due to decrease in cardiac output, Milk Fever might also go along with reduce blood circulation to the extremities and result in colder ears. The clinical signs of milk fever can be divided in to three distinct stages-

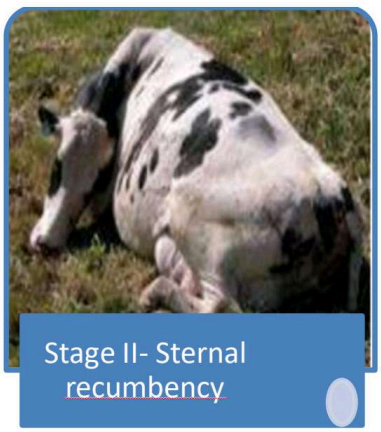
Stage I: Standing, Ca: 8-6.5 mg/dl

Stage II: Down, Ca: 6.4-4 mg/dl

Stage III: Dying, Ca< 4.0 mg

Pictures depicting different stages of milk fever





Prevention

Proper dietary management will prevent most cases of milk fever. This generally involves close attention to mineral and fiber levels in the diet prior to calving, as well as improving cow comfort to eliminate other problems that may interfere with appetite (and so trigger hypocalcemia). General advice is to restrict calcium intake before calving, as this leads to the parathyroid gland stimulating the release of calcium from bones. Following strategies are important to prevent milk fever:

- Do not breed from cows or sires with a history of recurrent milk fever
- Prevent animals from becoming over fat (cows should calve at BCS = 2.5-3) and ensure they get plenty of exercise
- Make sure that the diet is sufficient in magnesium for cows in late pregnancy
- Avoid stress in cows
- Feed adequate fibre diet to transition cows
- Ensure that the calcium intake during the dry period is below 50 g/day
- Ensure that adequate dietary calcium is available over the risk period (just prior to and after calving)
- Try to avoid diets high in strong cations, such as sodium and potassium

Treatment

- Treat cases of milk fever as soon as possible with a slow intravenous infusion of 8-12 g of calcium
- Ensure that the solution is warmed to the body temperature in cold weather
- Cow should be in sternal recumbency and turn her so that she is lying on the side opposite to the one on which she was found and turn every 2 hours

- Massage the legs
- Protect cases from exposed weather conditions
- Remove the calf if it is a severe case
- Treat relapse cases as above

Conclusion

The milk fever is not only economically important, but also it causes loss of animals as it occurs at the most productive period of a lactating cow. Economic loss due to milk fever is due to reduction in quantity of milk and expenditure on treatment of affected animal. Appropriate feeding strategy during the pregnancy period and immediately after calving can prevent the occurrence of milk fever.