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Milk Fever and Its Management in Dairy Animals

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Abstract

Transition period being the most vulnerable period affects the production profile of dairy animals. Mismanagement interms of feeding drives the animal to milk fever, where there occurs hypocalcemia. Adequate feeding management and prompt veterinary care warrants its prevention and secures the animals from further complications.

Key words: Transition, hypocalcemia, prevention

Transition period

In the transition period - three weeks prepartum up to three weeks after postpartum. The transition period is very sensitive stages and major adaptive changes (physiological, metabolic and nutritional) occur in dairy animals during this period. The rapid increase in fetal demands and the development of the mammary gland and synthesis of milk components accompanied with reducing dry matter intake induces the mobilization of body stores of adipocytes. Such lipid mobilization increases the plasma concentration of non-esterified fatty acids circulating in the blood leading to metabolic diseases such as hepatic lipidosis, and ketosis. The occurrence of negative energy balance, high concentrations of fatty acids, b-hydroxybutyrate and triacylglycerol in the liver, coincide with the resumption of ovarian activity, development of follicles that supply oocytes for fertilization and uterine involution and remodeling. Thus, together, these processes and metabolic states can affect pre and post-ovulatory reproductive function (Braganca and Zangirolamo, 2018).

General feeding management during transition period

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a. Feeding dairy animals on leguminous or a mixture of leguminous and non leguminous and supplementation with concentrate deriving 30 to 40% of the feed units from grains and 60-70% from forages.

b. The cows should be fed minimum of four times a day at 6 hours intervals.

c. From 7th month of gestation cows should be fed 1 to 2 kg concentrate feed in addition to their nutrient requirement.

d. The cows may be made to gain 20-25 kg body weight during this period. A 10 kg milk producer, must gain 500 g / day in last two months of dry period.

e. For challenge feeding: 2 weeks before expected date of calving, start feeding ½ kg of concentrate mixture increases this amount by 300-400 g daily until the cow is consuming ½ to 1 kg concentrate for every 100 kg body weight.

f. Feeding of ammonium chloride @ 23-25 g over 3 weeks prior to parturition and increasing it to 100g/day at parturition orally twice a day prevents milk fever.

g. For maximizing income, the dairy animals must be fed individually, according to their individual milk production and nutritional requirements.

h. Liberal feeding and abundant supply of clean drinking water is necessary for continued high production and its persistency throughout the lactation (Manzoor et al., 2017).

Milk Fever (hypocalcemia)

The freshly calved cows exports milk that contains approximately 10 times its circulating blood calcium pool every day. For every case of clinical milk fever, there may be eight or more cases of sub-clinical disease (mastitis, ketosis, retained placenta, displaced abomasum and uterine prolapse). Milk fever is a clinical manifestation of hypocalcaemia (<7.5mg/dl) affecting cows mostly after calving (Fig. 1)

Clinical signs in milk fever range from tremors during the early stages to flaccid paralysis and eventually coma. Hypocalcemic cows have increased plasma cortisol concentration (10 to 15 fold vs. 5-7 fold in subclinical condition). The susceptibility of hypocalcaemia in Jersey is roughly twice than Holstein. Older cows also are at greater risk of hypocalcaemia.

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This increased risk is linked with decreased ability to mobilize calcium from bone and milk fever incidence increases by 9% per lactation (Lean and De Garis, 2010).

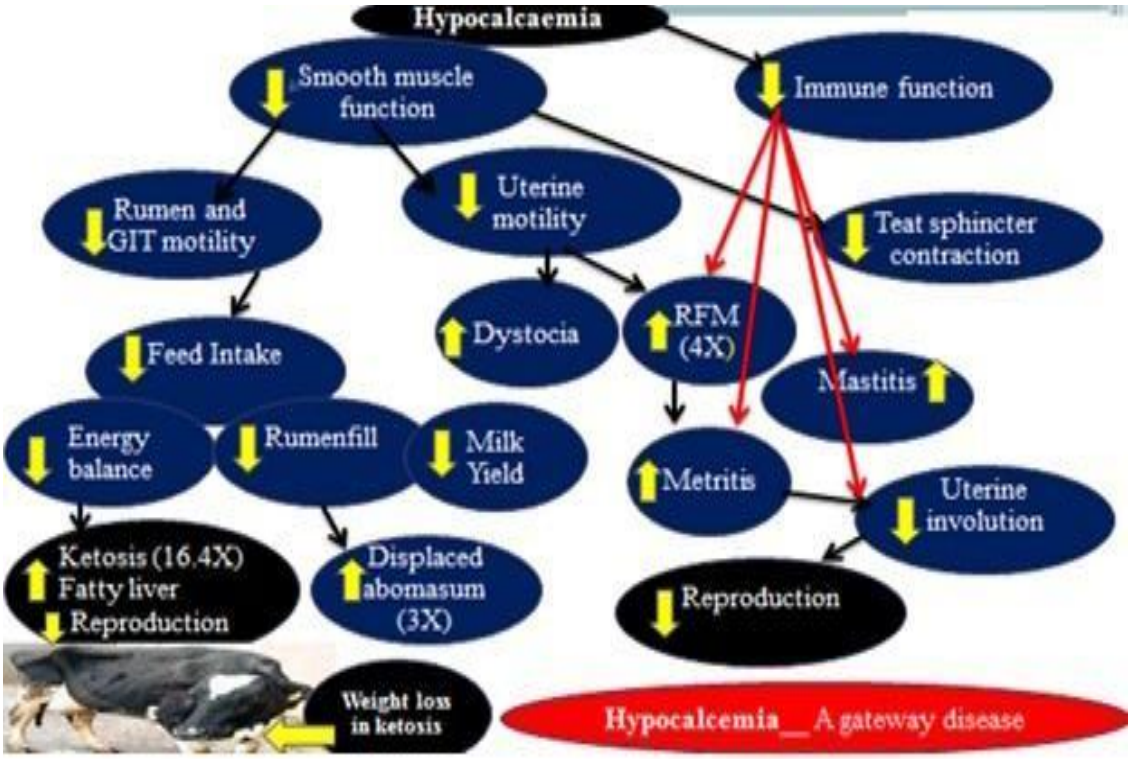

Fig.1: Milk Fever (Hypocalcaemia)

Management of milk fever (Hypocalcemia)

Calcium therapy is effective in clinical or subclinical cases of hypocalcemia. Most commercial intravenous solutions contain calcium gluconate (9.3% Ca, less caustic form compared with $CaCl_2$) and calcium borogluconate (8.3% Ca), (Van Saun 2007). The oral calcium supplements commonly used are asfollows-

a. Calcium propionate (21% Ca): Supplying 250 – 400 g of calcium propionate provides 54 – 75 g of calcium and does not induce metabolic acidosis, and provides propionate as a glucose precursor.

b. Calcium chloride (36% Ca): This is effective but is corrosive and can induce metabolic acidosis and therefore should be used with caution in cows fed an anionic diet.

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Conclusion:

Milk fever is the production disease and occurs due to mismanagement during transition period. Adequate feeding management warrants its prevention and secures the animals from further complications.

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