Environment & Ecology 35 (2A) : 850—851, April—June 2017
Website: environmentandecology.com ISSN 0970-0420

Epidemiological Survey of Subclinical Ketosis in Lactating Cattle

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Received 28 July 2016 ; Accepted 13 August 2016 ; Published online 20 August 2016

Abstract Sub-clinical ketosis is defined as elevated concentrations of circulating ketone bodies in absence of clinical signs. It causes economic losses through decreased milk production, impaired reproductive performance, increased risk of displaced abomasum and higher risk of clinical ketosis. Thus in the present work, the occurrence of subclinical ketosis was studied on 200 post parturient cattle belonging to livestock farm Adhartal and private dairy farms at Jabalpur. The results revealed an overall occurrence of subclinical ketosis to be 20%, whereas, on the basis of days post partum it was found to be maximum (62.5%) on day 20th. The parity wise results indicated that maximum (37.5%) cattle suffered with sub clinical ketosis were in 5th parity.

Keywords Subclinical ketosis, Cattle, Ketone bodies.

Introduction

Cattle contribute around 37.28% of the total livestock population. The total number of cattle in the country as per 2012 Census is 190.90 millions and out of this, MP holds the largest share i.e. 10.27% of the total cattle population. Though infectious diseases are the most common contributory factors for decline in productivity of dairy cows, the role of ailments related to metabolism also poses great challenges. Among metabolic diseases, subclinical ketosis holds a significant role in reducing the production potential of milch animals.

Sub clinical ketosis is defined as elevated concentrations of circulating ketone bodies in absence of clinical signs. A threshold value of 1400 µmol/L Beta Hydroxyl Butyric Acid (BHBA) in blood has been described to distinguish between cows with and without sub clinical ketosis [1]. Sub clinical ketosis causes economic losses through decreased milk production, impaired reproductive performance, increased risk of displaced abomasums and higher risk of clinical ketosis [2]. The present study was planned with the view to know the occurrence of subclinical ketosis on the basis of blood ketone bodies in cattle in and around Jabalpur, MP.

Materials and Methods

A total of 200 lactating cattle was taken for the study from Livestock Farm, College of Veterinary Science and A. H. and different organized dairy sectors of the areas in and around Jabalpur. Detailed informations about the animals were collected viz. Anamnesis, age, stage of lactation, managemental practices, feeding standard, physical condition, normal eating or

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Table 1. Distribution of sub clinical ketosis in lactating cattle (on the basis of days post-partum).

Particular	Days postpartum 10	20	30	Total
Number of animals found positive	10	25	5	40
Occurrence	25%	62.5%	12.5%	

inappetance and milk yield. The blood ketones bodies were estimated as per the standard method [3].

Results and Discussion

Out of 200 cattles, 40 were found positive for subclinical ketosis and therefore the occurrence reported was 20%.

Occurrence of sub clinical ketosis in cattle (on the basis of days postpartum)

The occurrence of sub clinical ketosis in cattle was found highest on 20th day postpartum (62.5%) followed by 10th and 30th day recording 25% and 12.5% respectively (Table 1).

Occurrence of sub clinical ketosis in cattle (on the basis of number of parity)

Among the sub clinical ketotic cattle occurrence was also recorded on the basis of parity. The occurrence was recorded higher in the cattle having 5th parity (37.5%) followed by 4th parity (25%), 3rd parity (20%), 6th parity (12.5%) and least in 7th parity (Table 2).

The result indicated that overall occurrence of subclinical ketosis on the basis quantitative estimation of circulating ketone bodies in blood was 20% while, the highest occurrence 62.5% was reported under the study on 20th day postpartum. On the other hand, the parity wise occurrence was found to be 37.50%. A study revealed an overall incidence of subclinical ketosis as 36% mentioning that subclinical ketosis occurred within a few weeks of calving [4]. However, another study reported the incidence of subclinical ketosis in cows was 7.20% on the basis of use of Nitroprusside test on milk and urine in early lactation [5].

Table 2. Distribution of sub clinical ketosis in lactating cattle (on the basis of parity).

Parity	Number of cases found positive	Occurrence
3rd	8	20%
4th	10	25%
5th	15	37.5%
6th	5	12.5%
7th	2	5%
Total	40	

The reason for this variation in incidence is due to geoclimatic factor in metabolic disease. Hence, occurrence varies from season to season, year to year and the type of test performed. Another study have also reported high occurrence of the disease in the month of September [6], which could be attributed to the maximum calving, which occurred in winter periods [7].

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