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Prevalence of diarrhoea in buffalo calves in and around Jabalpur, Madhya Pradesh

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Abstract

The present investigation was planned with a view to systematically record the prevalence of diarrhoea in total 200 pre-weaned (up to 12 weeks post-partum) buffalo calves, age-wise and sex-wise in some representative dairy units in and around Jabalpur city, which has emerged as an important milk pocket in central India in recent years. The highest prevalence of diarrhoea, i.e. 40 out of 68 calves (40.40%) was recorded in the calves of 0-15 days post-partum, followed by 29.29% between 16-30 (29 out of 50). Diarrhoea was recorded in male calves (58.3%) and in female calves (45.7%), statistically not significant.

Keywords: Diarrhea, calves, etiological, predisposing, pre-weaning

1. Introduction

Diarrhoea is a complex pathoclinical state, characterized by increased frequency, fluidity or volume of faecal excretion with the associated fluid, electrolyte and acid-base imbalance (Radostits *et al.*, 2010) [1]. Diarrhoea in pre-weaned calves is one of the most important causes of calf morbidity and mortality in all geo-climatic regions of the world. Prevalence of diarrhoea in the neonatal calves up to four weeks post-partum varies between 10% and 20%. Calf diarrhoea with adverse effects on the immediate health status, longevity in the herd and productive performance inflicts huge cumulative economic losses to the dairy industry in India.

Bacteria, viruses and/or gastro-intestinal parasites, usually acting in concert, induce diarrhoea in calves. It is, therefore, imperative to identify the etiological and predisposing factors to devise effective preventive measures and reduce loss of precious calves during the critical pre-weaned period (Lorino *et al.*, 2005) [2]. Over feeding of colostrums, stress, anxiety, food allergy and drug side-effects are the main non-infectious causes, hence do not necessitate the use of antimicrobials.

2. Materials and Methods

The proposed work was conducted as per schedule in the Department of Veterinary Medicine, Diagnostics Laboratory, Teaching Veterinary Clinical Complex (T.V.C.C.), Instructional Livestock Farm Complex (ILFC), Adhartal, College of Veterinary Science and Animal Husbandry, and selected private dairy farms, near Jabalpur, (M.P.).

2.1 Epidemiological data

The age, breed, sex, history of de-worming and feeding habits of the calves were recorded. Total 200 pre-weaned buffalo calves (up to 12 weeks post-partum) were selected from the different dairy units, exhibiting characteristic signs of poor body condition, debility, rough hair coat, dry muzzle were screened to systematically evaluate their clinical status, on-field.

Table 1: Different sources of sample collection

S. No.	Place	No. of calves
1	Instructional Livestock Farm Complex (ILFC) Adhartal, Jabalpur	29
2	Malgujar Dairy Farm, Jabalpur	90
3	Ojha Dairy Farm, Jabalpur	79
4	Teaching Veterinary Clinical Complex, Jabalpur	02
	Total	200

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3. Results and Discussion

3.1 Prevalence

The present study was undertaken on total 200 buffalo calves of either sex, up to 3 months of age in the university Instructional Live- stock Farm Complex (ILFC), Adhartal and privately owned organized dairy units in an around Jabalpur. On the basis of the clinical symptoms, the overall prevalence of diarrhea in buffalo calves was found to be 99 (49.5%), as shown in Table 02; Figure 01.

The overall prevalence of diarrhoea in the pre-weaned buffalo calves in the specified dairy units, 49.5% (Table 04; Figure 01) is close to 49.2% in the Surti pre-weaned buffalo calves in Bikaner, Rajasthan, reported by Sharma (2013) [4], but much lower than 61.5% reported by Malik *et al.* (2012) [3] in North West U.P., and 60% reported by Ghanem *et al* (2012) [5] in Egypt. The most important factor influencing the prevalence of bubaline calf diarrhoea, apart from wide variation in the geo-climatic environmental conditions, appears to be differences in the calf management practices, especially colostrums feeding.

Table 2: Prevalence of diarrhoea in buffalo calves

No. of calves screened	No. of calves positive	Prevalence (%)
200	99	49.5

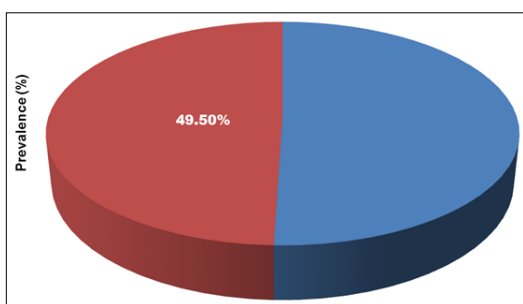


Fig 1: Prevalence of diarrhoea in buffalo calves

3.2 Age-wise prevalence

The highest prevalence of diarrhoea, i.e. 40 out of 68 calves (40.40%) was recorded in the calves of 0-15 days post-partum, followed by 29.29% between 16-30 (29 out of 50), 20.20% between 31-60 days (20 out of 42), and between 61-90 days as 10.10% (10 out of 40). The chi square statistics is 5.1145 and p-value, 0.163601. The result were not significant, (Table 03; Figure 02).

In the present study, the most vulnerable age group was 0-15 days post-partum (40.40%), followed by 16-30 days (29.29%), 31-60 days (20.21%) and 61-90 days (10.10%) age groups. This is mainly attributable to the weak innate immune status in the early neonatal phase (Radostits *et al.*, 2010) [1]. Survey of the pertinent literature revealed a similar pattern of calf diarrhoea; the maximum prevalence (28.75%) from 4 to 6 days, and 9.9% from 13-15 days post-partum (Pal and Pachauri, 2011) [6].

Table 3: Age-wise prevalence of diarrhoea in buffalo calves

S. No.	Age groups (Days)	No. of calves examined	No. of calves positive	Prevalence (%)
1	0-15	68	40	40.40
2	16-30	50	29	29.29
3	31-60	42	20	20.21
4	61-90	40	10	10.10
	Total	200	99	100

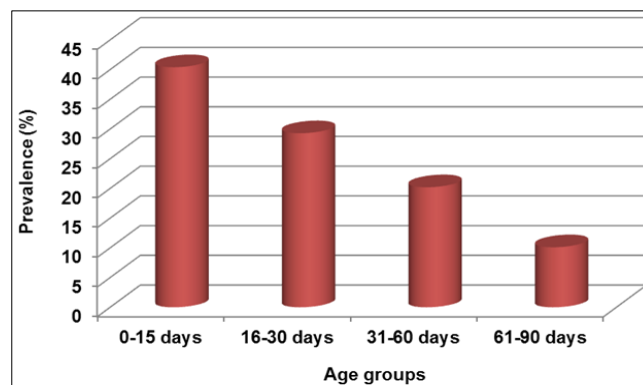


Fig 2: Age-wise prevalence of diarrhoea in buffalo calves

3.3 Sex-wise prevalence

Diarrhoea was recorded in male calves (58.3%) and in female calves (45.7%), statistically not significant. The chi square value, 0.8755 and p value, 0.3494, (Table 04; Figure 03).

Higher prevalence of diarrhoea in the buffalo male calves 58.3% vs. 45.7% in the females was observed in the present study (Table 06; Figure 03). Similar sex difference (33% in the male vs. 22% in the female calves) in the Surti breed was reported by Sharma (2013) [4]. This is primarily attributable to preferential feeding of the vitally needed life saving elixir (colostrums) to the females as the herd replacement stock, on economic considerations; the male calves are often deprived. It is highly encouraging that the progressive dairymen are now realizing the potential economic advantage of rearing the male calves under proper feed management as highly prized stud bulls in future. This positive development needs to be promoted through proper technical inputs.

Table 4: Sex-wise prevalence of diarrhoea in buffalo calves

S. No.	Sex	No. of calves examined	No. of calves positive	Prevalence (%)
1	Male	60	35	58.3
2	Female	140	64	45.7

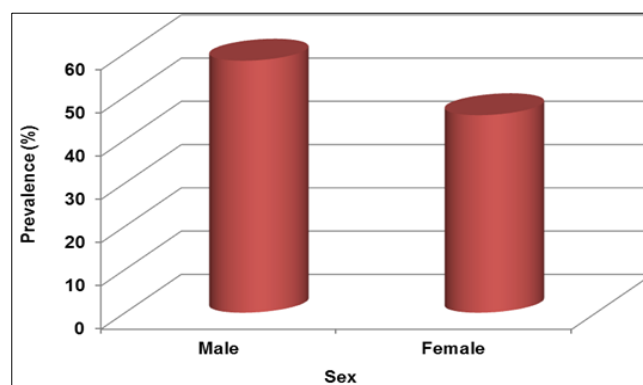


Fig 3: Sex-wise prevalence of diarrhoea in buffalo calves

4. Conclusion

The overall prevalence of diarrhoea in pre-weaned (up to 12 weeks post-partum) buffalo calves in and around Jabalpur was 49.5%. The neonates up to 15 days post-partum represented the most vulnerable age group (40.4%). The male calves showed higher prevalence (58.3%) than the female calves (45.7%).

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