PREVALENCE OF BOVINE SALMONELLOSIS IN ORGANIZED DAIRY FARMS

Ankur kumar Upadhyay, Madhu Swamy, Amita Dubey and Dharam Prkash Shrivastava

Department of Veterinary Pathology

College of Veterinary Science and Animal Husbandry (NDVSU), Jabalpur-482001, M.P.

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Corresponding Author : ankurupadhyay28@gmail.com, dr.dpsrivastava56@gmail.com

ABSTRACT

Serum samples were collected from 101 animals from organized dairy farms of Jabalpur district. Slide micro agglutination test was employed to assess the sero-prevalence of Salmonella agglutinins in calves as well as adult bovine. Samples were collected from both diarrhoeic and non diarrhoeic apparently healthy animals. The sero-agglutination was observed in 14.5 per cent diarrhoeic cases. Maximal seroprevalence was detected in diarrhoeic adult buffalo (50%). Agglutination was observed in 22.6 per cent non diarrhoeic apparently healthy animals comprising 06, 02, 03 and 01 cases from cattle calf, buffalo calf, adult cattle and adult buffalo, respectively.

KEY WORDS: Bovines, Calves, Epidemiology, Salmonella, Seroprevalence

INTRODUCTION

Bovine salmonellosis is of worldwide public health concern and is an economically important disease. Although cattle of all ages can be infected with salmonella bacteria, serious infections and deaths are most often seen in calves of 10 weeks of age (Lanzas *et al.*, 2008). The globalization of trade in food, feed and live animal and changes in production, processing, handling of foods has increased risk of *salmonella* infection . Isolation of *Salmonella* is tedious and time consuming, use of simple, rapid serological tests like slide microagglutination test is convenient method for detecting the prevalence of *Salmonella* in animals (Sachan *et al*., 2013).

MATERIALS AND METHODS

Slide micro agglutination test was employed to assess the sero-prevalence of Salmonella agglutinins in different animals. Lyophilized culture *of Salmonella* Typhimurium (ATCC, 25241) was procured for performing the test. Suspension of the organism was prepared in sterile saline taking care to prepare a smooth milky suspension. The test was performed as per the method described by Muktaruzzaman *et al.* (2010).

Slide micro agglutination test was done to assess the seroprevalence of *Salmonella* agglutinins in different animals. The slide agglutination test was performed in 101 samples. Amongst these 48 were from diarrhoeic cases (22 cattle calf, 16 buffalo calf , 08 adult cattle and 02 adult buffalo) and 53 were from non-diarrhoeic apparently healthy animals (23 cattle calf, 16 buffalo calf , 07 adult cattle and 07 adult buffalo).

RESULTS AND DISCUSSION

Seroprevalence of *Salmonella* agglutinins in diarrhoeic bovine

The sero-agglutination was observed in 14.5 per cent diarrhoeic cases comprising 02, 03, 01 and 01 cases from cattle calf, buffalo calf, adult cattle and adult buffalo, respectively. Maximal seroprevalence was detected in diarrhoeic adult buffalo (50%) (Table 1).

Association between clinical finding of diarrhoea and presence of Salmonella antibody in serum of animal was determined by using the Chi Square test which was found to be . 2 = 0.00805 ; Insignificant at P < 0.05 in calf serum and 2 = 0.05186 ; Non significant at 5 % level (P < 0.05) in bovine serum. The findings indicated that the occurrence of diarrhoea and Salmonella antibody in serum are not associated with each other.

Table 1: Seroprevalence of *Salmonella* agglutinins in diarrhoeic bovine

Animals	Total	Positive	Negative	Positive per cent
Diarrhoeic cow calves	22	02	20	9.00
Diarrhoeic adult cattle	08	03	05	37.50
Diarrhoeic buffalo calves	16	01	15	6.25
Diarrhoeic adult buffalo	02	01	01	50.00
Total	48	07	41	14.50

Seroprevalence of Salmonella agglutinins in non diarrhoeic bovine

Agglutination was observed in 22.6 per cent non diarrhoeic apparently healthy animals comprising 06, 02, 03 and 01 cases from cattle calf, buffalo calf, adult cattle and adult buffalo, respectively. Maximal seroprevalence was detected in non diarrhoeic adult cattle (28.5%) (Table 2).

Table 2: Seroprevalence of *Salmonella* agglutinins in non diarrhoeic bovine

Animals	Total	Positive	Negative	Positive per cent
Non diarrhoeic cow calves	23	06	17	26.00
Non diarrhoeic adult cattle	07	02	05	28.50
Non diarrhoeic buffalo calves	16	03	13	18.70
Non diarrhoeic adult buffalo	07	01	06	14.20
Total	53	12	41	22.60

Diarrhoea in young calves has a multifactorial etiology and may be caused by *rota virus, corona virus, Escherichia coli, or Salmonella spp.* Screening of available literature did not reveal any study conducted on sero prevalence of Salmonella agglutinin in bovine diarrhoeic animals of Madhya Pradesh. However, the finding of increased seroprevalence of salmonella agglutinin in diarrhoeic cases in the present study clearly indicates its importance as a cause of diarrhoea and associated production losses in cattle population of central India.

In our study an appreciably high seroprevalence was observed in adult animals as compared to calves.In agreement to our findings, Verma et al. (2008) have also reported high seroprevalence

of Salmonella agglutinins in dogs with the increasing age, which might be either due to increase in susceptibility of dogs with age as in humans or repeated subclinical infection increased the antibodies detected by the test. Adult cows and buffaloes are more susceptible as compared to young ones.

It is concluded that prevalence of salmonella infection in dairy herds of Jabalpur district is high and may be an important contributing factor in the low production by these animals.

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