Seroprevalence of Bovine Brucellosis in and around Patna, Bihar

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ABSTRACT
A total of 180 bovine serum samples, collected randomly from different localities of Patna, were screened by Rose Bengal plate test (RBPT), standard tube agglutination test (STAT) and 2-mercapto ethanol test (MET). A seroprevalence of 9.3% and 7.7% was recorded by RBPT and STAT, whereas MET revealed only 4.5% of serum samples to be positive for brucellosis. The lower per cent positive cases in MET may be due to dissociation of pentameric IgM by 2-mercaptoethanol. The study revealed the endemicity of brucellosis in and around Patna district of Bihar.

Keywords: Bovine, brucellosis, seroprevalence.

Brucellosis is a transmissible disease of socioeconomic and public health importance that may act as a barrier to trade of animals and animal products (Renukaradhya et al., 2002). It causes abortions and reduced fertility in cattle (Enright, 1990) as well as undulant fever, endocarditis, arthritis and osteomyelitis in humans (Young, 1995). Bovine brucellosis is widespread in India and appears to be on increase in recent times, perhaps due to increased trade and rapid movement of livestock (Renukaradhya et al., 2002). Brucellosis alone claims an annual loss of Rs. 350 million in terms of loss of food animals and man days of labour (Vinod et al., 2006).

Although the seroprevalence of bovine brucellosis in Bihar has been reported (Renukaradhya et al., 2002), no systemic work has been reported for seroprevalence of bovine brucellosis in and around Patna. Thus the present study was undertaken to detect the prevalence of brucellosis in and around Patna, Bihar.

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A total of 180 bovine serum samples were collected randomly from different localities in and around Patna. All the samples collected were from lactating animals with unknown history of vaccination. The serum samples were subjected to Rose Bengal plate test (RBPT), standard tube agglutination test (STAT) and 2-mercapto ethanol test (MET) as per the methods described by Morgan et al. (1969) and Alton et al. (1975a,b), respectively. In RBPT, the samples showing any degree of visible agglutination within 2-4 min were considered positive for Brucella agglutinins, while in STAT and MET, serum showing a titre of 80 IU or above were considered positive.

Out of 180 sera samples collected, 17 samples (9.3%) were found positive by RBPT, whereas by STAT, 14 (7.8%) samples gave positive results. All the samples which were positive by STAT were also positive by RBPT, which suggest RBPT as a rapid and sensitive screening test for brucellosis (Ghani et al., 1998). However, only 8 samples (4.5%) were found positive to Brucella antibody by 2-MET. The lower per cent of cases detected positive by MET compared to RBPT and STAT in the present study, may be due to the presence of...
pentameric immunoglobulin, IgM, which is dissociated by 2-mercaptoethanol in MET (Nicoletti, 1969). This is in agreement with the findings of Kalimuddin et al. (1990) and Ghani et al. (1998). The incidence of bovine brucellosis reported in the present study is in close agreement with that of Kenar and Guler (1994), Vinod et al. (2006) and Kalimuddin et al. (1990), where they reported prevalence of bovine brucellosis as 7.5%, 7.27%, and 12.87%, respectively.

The seroprevalence of bovine brucellosis recorded in the present study supports the enzootic nature of the disease in and around Patna, however, confirmation can be made by isolation of *Brucella*. The high prevalence of bovine brucellosis in the region may pose occupational risk to human beings (Barbudhe et al., 2000).

The higher seropositivity could be due to the presence of favorable conditions *viz.*, high humidity and temperature for the propagation of casual agent, and also the lack of calfhood vaccination.

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References


