SEROPREVALENCE OF CLASSICAL SWINE FEVER IN KARNATAKA

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Received 19-7-2013 Accepted 5-9-2013

ABSTRACT

A study was conducted to understand the current scenario of Classical swine fever (CSF) disease in Karnataka. Serum samples were collected from 517 pigs from 20 different districts of Karnataka and were tested for the presence of CSF antibodies. The prevalence of CSF antibodies from serum samples for the whole of Karnataka was 33% (173/517) in 20 districts. The southern Karnataka has the highest prevalence, which confirms the endemicity of the disease in that region and lowest prevalence in the northern Karnataka region. This is the first report that describes the seroepidemiology of CSF from Karnataka.

KEY WORDS : Classical swine fever, Seroprevalance, ELISA, Antibody, Karnataka

INTRODUCTION

Due to increasing trend of pork production and consumption in the country, it is necessary to control economically important disease in the swine population like classical swine fever (CSF). It is one of the top five viral diseases of livestock in the country and is a major constraint to the pig farming in India (Patil *et al*., 2012). Classical swine fever virus (CSFV), the causative agent of CSF, is a member of the genus *Pestivirus*, which belongs to the *Flaviviridae* family. The disease is enzootic in most of the pig producing states and particularly in the North Eastern states of India (Sarma and Bostami, 2008). Outbreaks of the disease in domestic pigs cause severe losses to the pig farming. Occurrence of 1.1 and 2.2 genotypes of CSF viruses in Karnataka was documented by Patil *et al. (*2010), however there are no data available on the seroprevalence of CSFV infection in Karnataka. Therefore, the present study was undertaken to gather baseline epidemiological information on the prevalence of CSF by serological analysis in Karnataka.

MATERIALS AND METHODS

Blood samples were collected from 517 pigs in vacutainer tubes from 20 different districts of Karnataka during September 2012 to June 2013. Clotted blood samples were spun, serum was separated and stored at –20°C until tested. Screening of serum samples for CSF antibodies was undertaken using the CSFV antibody ELISA kit (IDEXX Laboratories) following the manufacturer's instructions. Samples were considered negative when the blocking percentage was $\leq$30% and positive when $\geq$40%. The samples were considered suspicious if values were between 30% and 40%, and retested at later date.

RESULTS AND DISCUSSION

The study was conducted to know the seroprevalence of CSF disease in Karnataka. The mean prevalence of CSFV antibodies in serum samples for the 20 districts was 33% (173/517). Seroprevalence of 43, 33, 12 and 6 % was found in Bangalore, Mysore, Gulbarga and Belgaum division respectively. The study revealed an alarming high prevalence of CSFV antibodies (33%) in animals from these divisions, where the piggery is still in primitive stage. The regional distribution

of the seroprevalence reveals that southern Karnataka (43% in Bangalore and 33% in Mysore divisions) has the highest prevalence which confirms the endemicity of the disease in that region compared to northern Karnataka (12% in Gulbarga and 6% in Belgaum divisions). The high level of antibody prevalence in southern region was attributed to a large number of pig farms with crossbred pigs than that of northern region of the Karnataka. The history collected from the pig farmers in these regions revealed that the piglets were procured regularly from the pig breeding farms located in the adjoining border areas of Tamil Nadu and Kerala. Later on the piglets were also supplied to other pig farmers located in nearby districts. Further in these areas vaccination was not practiced. The study conducted at PD_ADMAS (2013), Bangalore during 2012-13 showed the seroprevalence of CSF in Kerala to be at 77.5% (31/40) and 100 % (10/10) in Tamil Nadu. This probably provides the reason, why there is a high prevalence of disease in the southern region of Karnataka state. Nandi *et al*. (2011) reported 63.3 % prevalence of CSF antibodies from 12 different states of India during 2004-2010 and 53% prevalence in southern India, but there was no information on the seroprevalence of Karnataka region separately.

Viroprevalence is generally used to estimate the incidence of disease. If pig herd is not vaccinated and is positive for CSFV-specific antibodies by ELISA, it is considered as an indicative of a CSF outbreak. Seroprevalance is highly useful in disease eradication programs as it helps for mass screening and effective in early diagnosis in surrounding regions of an outbreak. It is also a perfect tool for surveillance of negative herds. The present study support the reliability of serological monitoring since it allowed screening of large number of samples and provided more information on prevalence of CSF in different regions of Karnataka. This is the first report that describes the seroepidemiology of CSF from Karnataka.

ACKNOWLEDGEMENTS

Authors are grateful to PD_ADMAS (Project Directorate on Animal Disease Monitoring and Surveillance), ICAR and Department of Veterinary Microbiology, Veterinary College, Hebbal, Bangalore- 560024, India for providing funds and necessary facilities.

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