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Short Communication

SEROPREVALENCE STUDY FOR DETECTION OF PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS ANTIBODIES IN PIG POPULATION OF PUNJAB

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SUMMARY

The aim of the present study was to know the seroprevalence of Porcine Reproductive and Respiratory SyndromeVirus (PRRSV) among swine population of Punjab. A seroprevalence of PRRSV was found to be 22.2 per cent. Risk factor studies revealed that the seroprevalence of the disease was non-significantly higher in males (35.3 %) than females (19.2%). There was non- significantly higher percent prevalence of PRRS in gilts (23.3%) than the adult females (16.3%). High seroprevalence of PRRS in swine population is alarming and suitable strategies should be made to prevent the spread of infection.

Key words: ELISA, PRRSV, Seroprevalence, Swine

Porcine Reproductive and Respiratory Syndrome (PRRS) is an economically significant viral disease that affects all stages of production of swine (Neumann *et al.*, 2005) and is characterized by reproductive failure in gilts and sows, and respiratory problems in young pigs (Keffaber, 1989; Hill, 1990; Dea *et al.*, 1992). The virus can be shed in nasal secretions, faeces and urine, whereas infected pigs can be the long-term carriers (Dee, 1995; Jones-Lang *et al.*,1997) and spread both through horizontal and vertical route. The transplacental transmission of the virus induces late-term abortions most commonly in the last trimester. Further, it reduces farrowing rate, production of heterogeneous litters and decrease in the number of weaned piglets (Christianson and Joo, 1994). In India, first outbreak of PRRS was reported in 2013 in Mizoram (Rajkhowa *et al.*, 2015). Various serological tests have been developed to detect anti-PRRS antibody in swine sera including indirect-fluorescent antibody (IFA), enzyme-linked immunosorbent assay (ELISA), and serum neutralization (SN) tests. The present study has been designed to study seroprevalence of PRRS in pig population of Punjab using ELISA.

In the present study, 90 adult pigs (73 females and 17 males) were randomly selected from 15 swine farms (total population=800) located in Punjab by using random number table. About 5 ml of blood was collected from each of the pig aseptically from the ear vein in a test tube. The serum was separated and stored at -20º C until tested for antibodies to porcine reproductive and respiratory syndrome virus (PRRSV) using indirect ELISA (Ingezim ELISA kit) as per the manufacturer's guidelines. The optical density (OD) of the controls and the test samples was measured at 405 nm in an ELISA reader. Samples having OD higher than cut off value (0.15 X OD) of positive control was considered positive while samples with OD lower than cut off value was considered negative. The data was analyzed using SPSS (Statistical Package for Social Sciences) for Window version 11.0.1 (SPSS Inc., Chicago, Illinois, USA).

Serum samples of selected animals revealed an overall prevalence of 22.2 per cent (20/90) in the present study. The noted seroprevalence of PRRS observed in this present study was similar to that reported by Bautista *et al.* (1993) with a seropositivity of 29% in swine. Higher seropositivity of 73.5 per cent was obtained in ELISA by Tummaruk and Tantilertcharoen (2012).However, Mukherjee *et al.* (2018) found seroprevalence of 2.8% 2.7% and 3.62% in the year 2014, 2015 and 2016, respectively. High seroprevalence in the present study may be due to subclinical infection with PRRSV in the swine. The seroprevalence of the disease was non-significantly higher (Chi-Square=2.072, P=0.150) in males (35.3%, 6/17) than females (19.2%, 14/73). These results were contrary to that described by Tummaruk and Tantilertcharoen, (2012) with a seropositivity of 82.0% and 79.4% in females and males, respectively. High seropositivity among male swine population indicates that infected boar transmits virus to susceptible female through semen even in the absence of viremia (Christopher-Hennings *et al.*, 2001). There was non-significantly (Chi-Square=0.567, P=0.451) higher percent prevalence of PRRS in gilts (23.3%, 7/30) than the adult females (16.3%,7/43). These results are not in agreement with Bautista *et al.* (1993) who observed no significant difference between the parity of sow and seropositivity. Moreover, diagnosis of PRRS is typically based on clinical signs and serology because of the rapid inactivation of virus in fetuses that have died prior to abortion or farrowing (Lager and Halbur,1996).

From the study, it may be concluded that PRRS is an

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important emerging disease of swine and its higher prevalence among swine population is alarming and further studies should be carried out to know the prevalence in different agroclimatic zones.

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