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SHORT COMMUNICATION

A serologic investigation for Peste des petits ruminants infection in sheep, cattle and camels *(Camelus dromedarius)* in Aydın province, West Anatolia

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Abbreviations

PPRV	Peste des petits ruminants virus
RPV	Rinderpest virus
C-ELISA	Competetive enzyme linked antibody assay

Introduction

Peste des petits ruminants (PPR) is economically important contagious viral disease of ruminants species in wide geographic area like Africa, Arabian Peninsula, Middle East and Southeastern Asia (Obi et al. 1984; Nanda et al. 1996; Dhar et al. 2002; Haroun et al. 2002; Albayrak and Alkan 2009; Al-Dubaib 2009). Sheep and goats are main hosts but all ruminants species are considering susceptible to the infection. Morbidity and mortality is variable in susceptible animals related to race and virulence of the virus (Taylor 1984; Dhar et al. 2002).

PPRV is a morbillivirus in the Paramyxoviridae family. There is close antigenic relationship with rinderpest (RPV), canine distemper virus, measles virus, dolphin distemper virus, phocine distemper virus, porpoise distemper virus (Gibbs et al. 1979; Murphy et al. 1995; Barrett 1999). On the basis of partial sequence analysis of the fusion (F) gene of PPRV, 4 distinct lineages were identified so far. Lineage 4 was detected in India, Bangladesh, Pakistan and Iran in1994. Özkul et al. were detected same lineage in Turkey in 2002 but serological reports showed that the infection was introduced previously (Tatar et al. 2002).

Morbidity was detected up to 100% in infected sheep and goat flocks, while between 8.39% and 47.17% in healthy flocks in Turkey (Özkul et al. 2002; Tatar et al. 2002). PPRV infection is well documented in small ruminants (Alçığır et al. 1996; Albayrak and Alkan 2009) but there is limited data on cattle and buffaloes in Turkey (Özkul et al. 2002; Tatar et al. 2002; Gür 2003). Camels (Camelus dromedarius) still having been breeding in a few provinces mainly in Aydın province but population decreased very much in last years because of loosing their economic importance.

The objective of this study, to investigate the PPRV infection as serologically in Camels, sheep and cattle in Aydın province, Aegean region, Turkey.

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Materials and methods

Camel samples were obtained from a slaughterhouse in İncirliova borough, Aydın province. PPR related disorders have been observed in some sheep nearly one month before the sampling, mortality was 12.3% (16/130). Cattle samples were collected from a dairy herd. All studies animals were clinically normal in the time of sampling. In total, serum samples were obtained from 122 cattle, 50 sheep and 18 camels.

To detect PPRV specific antibodies, a competitive ELISA (C-ELISA) kit (Biological Diagnostic, UK) was utilized. The test was performed according to the producer's instructions. Test plates were measured in 492 nm filter at the end of the test and determined OD values were calculated (Anderson et al. 1991).

Results

As a result of C-ELISA test, out of 50 sheep, 44 (88%) was found to be seropositive for PPRV. Proportion in cattle was detected as 18% (22/122) while all of the camels was negative.

Discussion

The controlled sheep flock in this study showed acute PPRV infection with 12.3% mortality. Sampling was performed in nearly 1 month later on the epidemic. Obtained proportion (88%) may be accepted as morbidity value. This value is higher than previous study (23.8%) conducted in the same province in the flocks that had been clinical disorders (Özkul et al. 2002). However, very high seropositivity values detected in same study like 80%, 87.5% and 100% in epidemic observed provinces. Sampling timing would be a factor for high values in this study, one month is enough interval for seroconversion of the animals. We know that susceptibility determines by two factors; virulence of the strain and effected population. Immunologically naive animals are highly sensitive, morbidity and mortality can be reach to 100% and 90%, respectively but prognosis is fairly well in endemic areas, as in this case.

Cattle not take place in primary host group. In few study, PPRV specific antibodies was determined in cattle and buffaloes as 0.9% (3/321) and 9.5% (40/401), respectively (Özkul et al. 2002; Gür 2003) in Turkey. Similar values were reported by Abraham et al. (2005) and Haroun et al. (2002) as 9% and 11.4% in Ethiopia and Sudan. There is cross-reaction among RPV and PPRV due to close antigenic relationship. No clinical rinderpest has been detected since January 1996 and vaccination was stopped in January 1999 in all over Turkey. Cattle samples were obtained from a dairy herd in this study, age of the all animals were among 1 to 6 years old and vaccine-free for both infections. By the way, viral challenge or cross-immunity between RPV and PPRV is not a possibility, so obtained serologic data reveals the natural PPRV infection, 18% of the animals were infected without showing clinical symptom as can be expected. This value is highest in cattle in Turkey.

There is no data on camel for PPRV infection in Turkey so far but some reports shows the presence of the infection in this race in some African countries. Rogers and colleagues (2000) were defined an epizootic PPRV infection in camels with 90% morbidity and 5-70% mortality in Ethiopia. Clinical symptoms were described as acute febrile infection characterised by respiratory syndrome. In the same country, clinical disorders determined herds were controlled as serologically and 3%, 9% and 13% proportions was found to be in camel, cattle and sheep, respectively (Abraham et al. 2005). In Egypt, out of 142 clinically normal camels, 4.2% of them were determined as positive (Ismail et al. 1992). Seroprevalance of PPR in Sudan was detected 14%, 51.9%, 56.2% and 11.4% in camel, sheep, goat and cattle, respectively (Haroun et al. 2002). The all camel samples was found to be seronegative in this study. Camel population is quite higher in counted African countries than Turkey. The population was 3.000 in 1987 in Turkey, today the nearly 800. The Aydın province is among mostly camel breeding having been places especially special purposes like traditional races. They are not using as a draft animals anymore. According to obtained information from local veterinarians, these animals have been mostly breeding in in-door with special care, not allowed to grazing with other ruminant species. Despite presence of the PPR in the province, probable explanation of the negativity of all camels is this management style.

Cattle, buffaloes and dromedaries also may infect with PPRV but they are though to be less vulnerable than sheep and goats. However, clinical disorders

were clearly observed during epidemic in camels with sheep and goats except cattle (Abraham et al. 2005). Despite sensibility of the camels to the infection, to be negative of all studied camels was a pleasant finding as a race in exiguous.

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