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PREVALENCE OF FELINE RETROVIRUS INFECTIONS IN VAN CATS

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Abstract

It was aimed to determine the prevalence of feline leukaemia virus (FeLV) and feline immunodeficiency virus (FIV) in Van cats, eradicate virus positive animals and protect virus negative animals from the infections. The study was performed on 132 Van cats (52 males and 80 females), between 1and 14 years of age. It was found that 4.5% of the cats were positive for FeLV and 3% of them were positive for FIV. In conclusion, it is suggested that the detection of FeLV and FIV positive cats and their eradication is very important for the protection of future generations of Van cats from these diseases.

Key words: Van cats, FeLV, FIV, infection.

The Turkish Van cat is originating from eastern Turkey and should not be confused with the Turkish Angora cat. 'Van kedisi' is the Turkish phrase for Van cat. One of the characteristics of Van cats is the colour of their eyes. They are classified under three groups according to the eye colour: both eyes blue, both eyes amber (yellow and its tones) and one eye blue and other amber (dischromatopsy). Van cats are described as having long, white, silky fur, long body, tiger walking and fox-like tail. They are intelligent, agile, friendly, loving playing and faithful to their owners. Therefore these characteristics make them rare species of cats (1).

Feline leukaemia and immunodeficiency syndrome in cats are common and important diseases which are caused by retroviruses and which are characterized by immune deficiency in affected animals (3-5, 7). Feline leukaemia is a chronic disease which is characterized by tumoural development in haematopoietic organs as a result of oncogenic, immunosuppressive and immune proliferative effects of viral infection. The agent of the disease is a replication non-defective retrovirus (feline leukaemia virus, FeLV). Immunodeficiency syndrome is immunosuppressive disease caused by lentivirus (feline immunodeficiency virus, FIV) (2, 8).

FeLV and FIV infections are reported to occur in higher rates in street cats, cats with ectoparasite infestation and cats of older age groups (3, 4, 9). The source of the spread of the diseases are asymptomatic viraemic cats. The viruses are excreted with the saliva, nasal discharge, urine, vaginal discharge, faeces and blood of carrier or sick animals. The infection spreads via contaminated water, food, dishes with the excreted agents and/or direct contact. The diseases spread from animal to animal through vertical transmission, blood transfusions, direct contact, mating or biting during fights (2, 7). Both diseases are common worldwide. The prevalence of feline leukaemia is reported to be from 2 to 18% and the prevalence of immunodeficiency syndrome is reported to be from 1.2% to 43.9% (4).

The viruses locate in the oral and pharyngeal lymph nodes and replicate there a few days later than the exposure of the cat and are afterwards found in circulating lymphocytes. In the initial phases of viral infection, macrophages, B and T lymphocytes and then immature myeloid and erythroid blood cells are infected and persistent viraemia develops in a few weeks (8).

Clinical findings in sick animals include weight loss, anorexia, conjunctivitis, gingivitis and disintegration of teeth. However, the differential diagnosis based on these symptoms is difficult. When both infections go together, a synergic immuno-suppressive and severe clinical symptoms are observed (5, 8).

Serological tests are of great importance in the diagnosis and differential diagnosis is these diseases. By serological tests, antibodies specific for FeLV and FIV can be detected. Because differential diagnosis cannot be made on the basis of clinical findings for both diseases, the detection of seropositive cats in places where the animals are grown together, avoidance of contact of these animals with others and getting these cats under control are very important for the eradication of these diseases. In our country, there is no study about the prevalence of FeLV and FIV in Van cats. Because of this, the present study aims to determine the prevalence of infection with FeLV and FIV in Van cats, which are

important values of our country, eradicate infected animals and to protect non-infected cats from the diseases.

Material and Methods

The study was performed on 132 Van cats (70 of them from Yüzüncü Yıl University Van Cat Research Center and 62 of them being home-grown animals; 52 males and 80 females). The age of the cats varied between 1 and 14 years. After clinical examination, blood was sampled from the cephalic antebrachial vein. The serum was obtained by centrifugation for 10 min at 3000 g. Serum samples were kept at -20°C until the analysis. The seropositivity was determined by the commercial kits of FeLV p27 antigen (Virachek®/FeLV Synbiotics) and the presence of FIV by FIV p24 antibodies (Virachek®/FIV Synbiotics).

Results

The presence of FIV was demonstrated in 4 cats (4/132; 3%) and FeLV antibodies in 6 cats (6/132; 4.5%). Two of the FIV positive cats (2/52; 3.8%) were males and 2 (2/80; 2.5%) were females and their age varied between 4 and 8 years. Among these cats, only one old female cat had symptoms including anorexia, conjunctivitis, gingivitis and disintegration of teeth.

Four of the 6 FeLV seropositive cats (4/52; 7.7%) were males and 2 of them (2/80; 2.5%) were females. Two of the cats were 5 to 6-year-old and 4 of them were 1 to 2 years of age. No clinical symptoms were observed in these cats.

Discussion

Feline leukaemia and immunodeficiency syndrome are two of the important diseases of the cats and are common worldwide. The studies on the prevalence of these diseases report that cats are infected with FeLV and FIV in 3.3% and 5.2% in North America (3, 4), 3.5% and 10.4% in England (6), 2.9% and 9.8% in Japan (5); and 5.8% and 22.3% in Turkey (9), respectively. In this study the serum samples from Van cats revealed FeLV antibodies in 6 cats (6/132; 4.5%) and the presence of FIV in 4 cats (4/132; 3%). Although the percentage of the FeLV seropositive cats was similar to the results of other studies (4, 5), the percentage of FIV positive cats was found to be less. The reason for less number of FIV positive cats in this study is suggested to result from the quality of the material, i.e., the cats used in the study were rather grown up in hygienic circumstances, they mated under control, male, female and young animals were isolated, the home-grown animals were alone in the house and the nature of Van cats was peaceable and not aggressive. In the studies of Maruyama *et al.* (5) and Yılmaz *et al.* (9), it was suggested that the high proportion of FIV positive cats could be because they were street cats.

Lots of researchers (2, 4, 5, 9) have reported that most of the FIV positive cats are male. However, there was no difference in the presence FIV between male and female cats in our study. Yılmaz *et al.* (9) observed that the possible cause of higher number of FIV positive male cats is that street cats have continuous fights, especially during the mating season, and they are bitten in these fights. When this report is also concerned, it may be possible to explain why there is no difference in FIV prevelance in the present study: the cats were isolated and they mated under control.

In this study the FeLV antibodies are detected to be higher in male cats than in female ones. Four of the 6 FeLV seropositive cats (4/52; 7.7%) were males and 2 of them (2/80; 2.5%) were females. These results correspond to the studies of some researchers (2, 9), but are at variance with the reports of Maruyama *et al.* (5) who demonstrated that occurrence of FeLV antibodies does not differ with sex or life conditions. The differences in FeLV seropositiveness between these studies might have been arisen from different geographical conditions and different numbers of animals.

In this study, all of the FIV positive cats were old (4 to 8 years old). This finding is consistent with the reports of other researchers (5, 6, 9).

Two of the FeLV seropositive cats were 5 to 6-year-old and 4 of them were 1 to 2 years of age. Although there are no certain reports about higher proportion of FeLV infection in older cats, Yılmaz *et al.* (9) reported that FeLV infection is observed in higher rates in old cats. This finding does not correlate with the present study. This situation causes suggestions that young animals inherit the disease from asymptomatic viraemic mothers through placental route.

Among the FIV positive cats, only one old female cat had symptoms including anorexia, conjunctivitis, gingivitis and disintegration of teeth. Except this cat, all the cats examined in the study were free of clinical findings and this shows that these cats were asymptomatic viraemic cats.

In conclusion, it was demonstrated that the detection and eradication of FeLV and FIV infected cats carries great importance in the protection of the future generations of Van cats from these diseases and if there is going to be a crowded growing, it is important to isolate male and female cats and control of their mating.

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