

A COMPARATIVE RETROSPECTIVE STUDY ON FIV AND FeLV FROM JANUARY 1st 2013 TO DECEMBER 31st 2017

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ABSTRACT

A comparative retrospective study of retrovirus infections among domestic cats was made in Small Animal Clinic of Faculty of Veterinary Medicine, Trakia University, Stara Zagora.

Period from 1st January 2013 to December 31st 2017 is researched. As a diagnostic method was used SNAP® FIV/FeLV Combo Plus Test Kit, produced by IDEXX Laboratories Inc. Westbrook, Maine, USA.

Exactly 130 blood sample tests were examined, 44 of which were positive and 96 were negative results. None of the tests were positive for together FIV ab and FeLV ag (p27).

Key words: cats, ELISA, SNAP Combo, FIV, FeLV.

Introduction

Feline immunodeficiency virus (FIV) is a lentivirus in the family *Retroviridae* that causes immune dysfunctions in cats similar to those observed in people infected with human immunodeficiency virus (HIV) (Gabor et al., 2001; Ishida et al., 1989; Pedersen et al., 1989; Pedersen, 1994; Zenger, 1990). FIV was first described in 1987 in a large multiple cat household experiencing immunodeficiency related diseases (Pedersen et al., 1987). Feline immunodeficiency virus (FIV) is an important pathogen of domestic cats that is distributed worldwide. Prevalence estimates vary from 1% to 44%, depending on the geographical location as well as the entry criteria of each study (Hartmann, 1998; Ishida et al., 1989). The virus is believed to be excreted with the saliva and the most important route of transmission is probably through bites, therefore male cats with outdoor access, which are most likely to fight, are most frequently infected with FIV (Hirsh and Zee, 1999). The syndrome has three stages - acute, asymptomatic carrier and presumptive generalized lymphadenopathy.

Feline leukemia virus (FeLV) is a naturally occurring, horizontally transmitted gammaretrovirus associated with malignant, proliferative and degenerative diseases in the domestic cat. FeLV occurs in nature not as a single genomic species but as a genetically complex family of closely related viruses. Genetic variation in FeLV is generated during virus replication through error-prone reverse transcription and by recombination with endogenous FeLV-related sequences in the domestic cat genome. Such variation has led to four naturally occurring FeLV subgroups, designated A, B, C, and T, that are distinguished genetically by sequence differences in the surface glycoprotein gene and functionally by interaction with distinct host cell receptors for entry. While FeLV-A is associated with prolonged asymptomatic infection in the cat that may lead to malignant disease, typically a T-cell lymphoma of the thymus (Neil et al., 1991; Rezanka et al., 1992), the FeLV-B, -C and -T subgroups facilitate and/or redirect disease outcome to lymphoma, anemia or immunodeficiency disease, respectively (Levy, 2008; Overbaugh and Bangham, 2001). It has 3 stages – an acute, asymptomatic carry and persisting generalized lymphadenopathy. The most common clinical signs observed at the arrival of the clinic are stomatitis, gingivitis, respiratory

infections, glaucoma, uveitis, diarrhea, skin lesions, nerve signs, lymphadenopathy, anemia and neoplasias.

Materials and methods

For the study, SNAP® FIV/FeLV Combo Plus Test Kit (IDEXX Laboratories, Inc. Westbrook, Maine, USA) (Fig. 1) was used. It detects specific antibodies against feline immunodeficiency virus with 93.5% sensitivity and 100% specificity and feline leukemia virus' p27 antigen with sensitivity of 98.6% and 98.2% specificity in cat serum, plasma or whole blood samples with anticoagulant. Positive test result means that antibodies to FIV and or FeLV p27 antigens are circulating in the blood of the animals.

Results

In the period of 01.01.2013 to 31.12.2017 at the Small Animal Clinic at the Veterinary Faculty, Stara Zagora, a study was made. 140 blood samples from cats, males and females, at different ages and with different clinical signs were observed.

At the total of 140 blood samples tested, 44 (31.4%) were positive and the remaining 96 (68.6%) negative (Fig. 2). No sample showed positive results for FIV antibody and FeLV antigens (p27) at the same time. From all the positive samples, 39 (88.6%) were positive for FIV, respectively only 5 (11.4%) were positive for FeLV (Fig. 3). And calculated seroprevalence for FIV is 27.86% and for FeLV is 3.57%.

Both diseases were obtained in male seropositive animals over 3 years. (Fig. 4).



Figure 1: SNAP® Combo Plus Test.

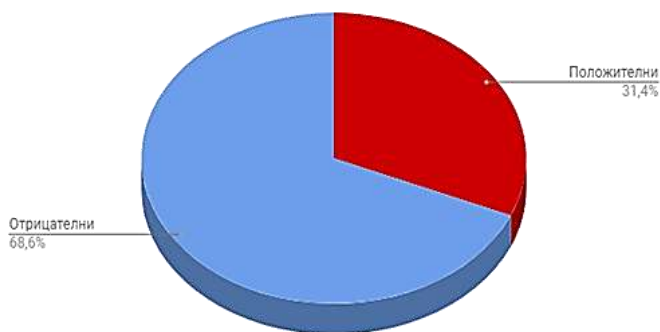


Figure 2: 140 tests, 44 (31.4%) are (+) and 96 (68.6%) (-).

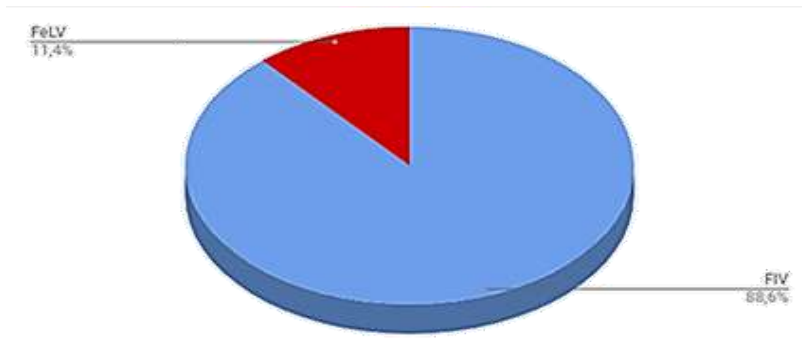


Figure 3: Positive results for FIV – 88.6% and for FeLV – 11.4%

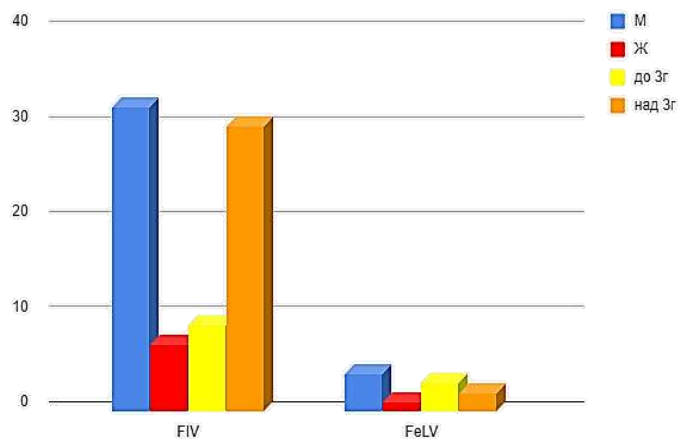


Figure 4: Both FIV and FeLV obtained more often in male cats.

Discussion

No other serological study has been published on the prevalence of FIV and FeLV among clinical patients in Bulgaria, so far. The prevalence of the FIV infection was found to be higher than that of the FeLV infection among cats in Small Animal Clinic to Trakia University. Which is in contrast to studies conducted in the Czech Republic, Guatemala, Turkey, North America and Madrid.

The probable cause for this is both the efficacy of vaccination and the activity conducted by the kennels to reduce FeLV morbidity. Also the availability of cheap, fast and reliable methods for testing the breeding animals are available.

Conclusion

All animals with an unknown origin and with unspecific clinical signs or difficult to undergo therapy should be tested for antibodies to FIV and FeLV p27 antigen. It is appropriate to separate seropositive animals from seronegative animals in order to prevent the spread of the disease. In order to reduce the aggression among male cats, it is recommended a castration.

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