

SUMMARY

STUDIES ON THE INFLUENCE OF IMMUNOSTIMULATOR ZYLEXIS ON IMMUNOGENICITY OF NOBIVAC TRICAT TRIO VACCINE IN CATS

Cat flu in the vast majority of cases results from infection with two viruses: feline calicivirus (FCV) and feline herpesvirus type 1 (FHV-1). Clinical signs of disease include sneezing, nasal discharge, conjunctivitis and ocular discharge, loss of appetite, fever and depression. Mouth ulcers, coughing, excessive drooling of saliva and eye ulcers may also be seen. Very young, very old and immunosuppressed cats are more likely to develop severe disease and possibly die as a result of secondary infections caused by reoviruses, synchytial virus, parainfluenza virus, *Chlamydia psittaci*, *Mycoplasma* spp., *Pasteurella* spp., and *Bordetella bronchiseptica*, lack of nutrition and dehydration.

Vaccination is one of the most effective prophylactic methods commonly used in infectious diseases of animals. Cats additionally infected with feline immunodeficiency virus (FIV) or feline leukemia virus (FeLV) are immunosuppressed, and therefore after infection with FCV and FHV-1 develop severe disease. Prophylactic vaccination against cat flu in suppressed cats is less effective. Therefore, most guidelines recommend boosters to protect against disease after a basic vaccination due to the relatively low immunogenic properties of both FCV and FHV-1.

Nobivac Tricat Trio (Intervet) is a live attenuated, freeze-dried vaccine containing the 3 core viruses – FCV, FHV-1 and FPLV. Vaccination is an integral part of a preventative health care programme. Active immunisation of cats reduces clinical signs caused by an infection with FCV and FHV-1 and

prevent clinical signs, virus excretion and leucopenia caused by FPLV. Zylexis (Pfizer Trading, Poland) is an inactivated Parapox Ovis Virus immunomodulator for the prevention and treatment of infectious and / or stress -induced diseases, by stimulating the immune response in dogs, cats, horses, cattle and pigs.

Strategies to enhance the immune response are of importance for a stronger and long lasting immune response and developing safe and effective prophylaxies. In modern immunotherapy and immunoprophylaxis immunostimulants are used to improve the immune response in. They work by upregulating innate immunity and directing cellular immune response. The effect of a combined use a trivalent

The aim of our work was: (1) Evaluation of a single injection of a feline multivalent modified live vaccine Nobivac Tricat Trio against FHV, FCV, and FPLV together with Zylexis on immune response of vaccinated cats. (2) The influence of a combined administration of the vaccine and the immune system stimulant on intensity and duration of induced immunity against FCV and FHV-1. (3) Reduction the number of boosters after a single primary vaccination of cats with Nobivac Tricat Trio and Zylexis.

One year old cats, randomly assigned to 4 groups, 7 animals each, were subcutaneously injected at time 0. Group A – Zylexis 1.0 ml , group B - Nobivac Tricat Trio 1.0 ml , group C (control unvaccinated and unstimulated by Zylexis), group D - Nobivac Tricat Trio 1.0 ml + Zylexis 1.0 ml. Cats were housed in individual owners for period of 1 year.

The following parameters were determined at 0, 14 and 30 days, 2, 6 and 12 months : total number of white blood cells and leucocytes (IDEXX Lasercyte Veterinary Hematology System), concentration of anti - FCV and

anti-FHV-1 antibodies (FCV - ELISA KIT, Demeditec Diagnostics GmbH i FHV-ELISA KIT Acris), number and percent of lymphocytes CD4 and CD8, CD4/CD8 and CD4%/CD8% (BD FACSCan BD Biosciences, z program BD WinMDI 2.9, feline CD4 i CD8 marker antibodies Cytofix Cytoperm Co), haptoglobin (ELISA Kit, reactivity Cat (Feline) ABIN 956173) and blood lysozyme (microbiological method). The results were analyzed by Statistica 10.0 programme.

The stimulation of non-specific immune mechanisms by Zylexis is of a short duration. Vaccination with Nobivac Tricat Trio together with Zylexis appeared to induce a higher level of immunity comparing the vaccination with Nobivac Tricat Trio alone. It was noted a statistically significant increase both the level of humoral and cell immune response persisting up to 1 year period of observation.

Analysis of the ELISA absorbance values in the sera from cats in the vaccinated group, and Zylexis and vaccinated cats, show significant differences between the groups (Zylexis and Nobivac Tricat Trio + Zylexis. Our study clearly indicated that vaccination of 1-2 year cats with an inactivated vaccine Nobivac Tricat Trio together with an immunostimulant Zylexis induced humoral and cellular immune responses against FCV and FHV-1 persisting up to 12 months. Therefore, it would appear reasonable to modify the recommendations for routine vaccination of cats. After vaccination with Nobivac Tricat Trio + Zylexis cats should be revaccinated after 6 months