ANTIBODIES AGAINST FELINE PANLEUKOPENIA VIRUS, HERPESVIRUS AND CALICIVIRUS IN RETROVIRUS-SEROPOSITIVE CATS COMPARED TO SERONEGATIVE CATS

Eva Spada, Roberta Perego, Luciana Baggiani, Daniela Proverbio
Department of Veterinary Medicine (DIMEVET), University of Milan, Italy
E-mail: eva.spada@unimi.it

Purpose: To analyze antibody profiles in retrovirus-seronegative and seropositive cats after vaccination or field infection with feline panleukopenia virus (FPV), feline herpesvirus type 1 (FHV-1), and feline calicivirus (FCV).
Summary of background/objectives, methods, results and conclusions:
Many factors reduce response to vaccines or pathogens, including congenital or acquired immunodeficiencies. Retroviral infections with feline immunodeficiency virus (FIV) and feline leukemia virus (FeLV) are the most commonly acquired feline immunodeficiencies. Efficacy of vaccination in retrovirus-infected cats is a subject of debate. Study objectives were to identify any differences in antibody profile against field or vaccine FPV, FHV-1, and FCV in retrovirus-seropositive cats as compared to retrovirus-seronegative cats.
Frozen archived surplus serum samples from 64 randomly selected retrovirus-seropositive cats (34 FIV+, 23 FeLV+ and 7 FIV+FeLV co-infected cats) and 64 retrovirus-seronegative cats were used in this study. Samples were originally tested for clinical reasons for antibody to FIV target antigens p24 and gp40 and for FeLV p27 antigen using a commercial rapid enzyme-linked immunosorbent assay (ELISA) kit (SNAP® Combo Plus FeLV Ag/FIv Ab). A feline-specific point-of-care ELISA (ImmunoComb, Feline VacciCheck) previously validated for the determination of protective antibody titers (PAT) against FPV, FHV-1 and FCV (1:80, 1:16 and 1:32 respectively) was used to measure antibody titers. Data on signalment (age, breed, gender), origin (owned, shelter, stray), health (healthy/unhealthy) and vaccination status (last trivalent vaccination < 3 years, between 3 and 7 years, never vaccinated, unknown) were statistically compared between retrovirus-seropositive and seronegative cats.
No statistically significant differences were observed in number of FIV, FeLV and FIV+FeLV co-infected cats with PAT for FPV, FHV-1 and FCV compared to retrovirus-seronegative cats (Table and Figure 1). There were significantly fewer young cats (≤1 year old) (P=0.0019) in FIV+ group (0/34) with respect to retrovirus-seronegative cats (16/64). Unhealthy cats had a higher incidence of FeLV+ (14/23, P=0.0193) and FIV+FeLV co-infected cats (6/7, P=0.0066) than seronegative cats (21/64). Finally, FIV+FeLV co-infected cats had received fewer (3/7 never vaccinated, P=0.0215) and less frequent vaccinations (0/7 vaccinated in the last three years, P=0.0057) than retrovirus-seronegative cats (29/64 and 5/64, respectively).
Antibody levels against field or vaccine FPV, FHV-1 and FCV in retrovirus-seropositive cats were similar to those in seronegative cats. Based on these results and a recent study by Bergmann et al, 2018 on vaccination response in asymptomatic FIV and FeLV-infected cats, retrovirus-seropositive cats seem to mount a normal antibody response to common field or vaccine viruses.

Table 1. Number of retrovirus-seropositive cats with protective antibody titers against field or vaccine feline panleukopenia virus (FPV), feline herpesvirus type 1 (FHV-1) and feline calicivirus (FCV) compared to retrovirus-seronegative cats.

		Retrovirus-seronegative (n=64)	FIV+ (n=34)	*P value*	FeLV+ (n=23)	*P value*	FIV+FeLV co-infected (n=7)	*P value*
Protective antibody titers	**FPV**	44	24	0.8517	12	0.1569	5	0.8855
	FHV-1	36	23	0.2750	9	0.1612	5	0.4434
	FCV	52	32	0.0847	20	0.5367	5	0.5381

Figure 1. Percentage of retrovirus-seronegative, FIV, FeLV and FIV+FeLV-seropositive cats with protective antibody titers against feline panleukopenia virus (FPV), feline herpesvirus type 1 (FHV-1) and feline calicivirus (FCV).