

Serological testing for antibodies against canine parvovirus in a population of adult dogs in eastern Poland

Key Words: BIONOTE, Vcheck, CPV Ab, canine parvovirus, vaccination, antibody titre

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Introduction

Canine parvovirus is a systemic disease caused by CPV-2 (canine parvovirus type 2). The typical symptoms of parvovirus include lack of appetite, vomiting and bloody diarrhea. The most effective way of preventing parvovirus is prophylactic vaccination.

The aim of the study was to determine the titre of antibodies against CPV in groups of adult dogs from eastern Poland with varied history of vaccination against parvovirus.

Materials and Methods

Based on the history of vaccination against CPV, the animals were divided into three groups

- Group I (n = 59): animals regularly vaccinated against the disease according to WSAVA guidelines
- Group II (n = 77): animals that completed the full course of CPV immunization as puppies but had not received a booster dose in the past three years
- Group III (n = 64): animals that had not received even a single vaccination against parvovirus

Blood was collected from all dogs to determine the titres of antibodies against CPV using a Bionote V200 analyzer. The protective titre of antibodies against CPV in the hemagglutination inhibition test was considered to be $\geq 1:80$.

Results

In group I, antibody titres equal to or higher than HI = 80, thought of as ensuring resistance to infection were observed in 86% of dogs, while 14% of the tested animals had HI < 80. In groups II and III, high anti-CPV antibody titres of HI ≥ 80 were found in 73% and 72% dogs, respectively. Statistical analysis showed a significantly greater number of dogs with high titres of antibodies against CPV of HI ≥ 80 in group I compared to the other two groups ($p = 0.0006$, $p = 0.0001$, respectively).

Also, gender and race were not found to influence the value of titres of antibodies against CPV.

Conclusion

Regular vaccinations in accordance with WSAVA recommendations increase protection against CPV, as evidenced by the lowest percentage of dogs with HI < 80 in group I dogs vaccinated at least every 3 years. Also, the presence of dogs with high titres of antibodies against CPV in group III indicates widespread contamination of the environment with this pathogen.

The use of serological tests for parvovirus seems to be of crucial importance for medical and veterinary practice, indicating the possible need to modify its vaccination plan, as well as the need for special treatment and isolation of animals unable to develop resistance to this virus.

Table 1. Values of antibody titre in HI test for CPV in dogs from particular groups in the study; number (%)

Titer HI	Number (%) of dogs in		
	Group I n = 59	Group II n = 77	Group III n = 64
HI < 80	8 (14)	21 (27)	18 (28)
HI ≥ 80	51 (86)	56 (73)	46 (72)

Table 2. Values of antibody titre for CPV in the group of purebreed, mixed-breed, male and female dogs used in the study; number (%)

Titer HI	Number (%) of dogs in			
	Mixed-breed	Pure-breed	Males	Females
HI < 80	28 (25)	19 (22)	22 (23)	25 (24)
HI ≥ 80	86 (75)	67 (78)	73 (77)	80 (76)