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# Administration of adult dog serum at birth for prevention of canine parvovirus type 2 infection in puppies – a fact or a myth?

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At early age, puppies are protected from canine parvovirus type 2 (CPV2) infection thanks to maternal derived antibodies absorbed with colostrum during the first hours of life. Low quantity of absorbed antibodies may put non-vaccinated puppies at risk of CPV2 infection. Results of experiments aimed to improve general or specific immunity status in newborn dogs by adult serum administration are controversial. The aim of this study was to evaluate the effect of oral administration of adult dog serum at birth on CPV2 specific antibody titers and CPV2 excretion until weaning.

Within one multiracial breeding kennel with circulating CPV2, 162 puppies were followed from birth until 56 days of age. All puppies had free access to colostrum and they remained non-vaccinated until 8 weeks of age. Puppies assigned as supplemented (n=77), received 2 doses of adult dog serum (2 x 1,5ml/100g BW) before intestinal barrier closure. The control group consisted of 85 non-supplemented puppies. Level of CPV2 specific antibodies was measured weekly on puppy sera (haemagglutination inhibition test-HI). Puppies with HI titer ≥1:80 were considered as protected from CPV2 infection. Detection of CPV2 was performed weekly on rectal swabs (qRT-PCR) and the animal was considered infected if more than $10^2$ DNA copies/1mg feces were excreted. Data were analyzed with Aspin Welch, Mann-Whitney and Chi square tests (Tanagra software).

The total mortality rate was 14.8% (24/162).Three puppies died due to CPV2 infection, 2 of them were non-supplemented. At Day2 median titer of CPV2-specific antibodies was 1:320 (interquartile range-IQR: 80; 640), without significant difference between supplemented puppies and control group (p=0.57). Proportion of puppies with protective HI titer was not significantly different in supplemented puppies comparing with control group at any point of the experiment, except Day7 (92.0% (57/62) vs. 78.4% (58/74); p=0.03). The median age of seroconversion was 49 days (IQR: 42; 56) without significant difference between supplemented puppies and control group (p=0.24). Only 6.5% (5/77) of supplemented and 5.9% (5/85) of control puppies did not excrete CPV2 until Day52 (p=0.87).

The oral administration of adult serum at birth did not improve CPV2 antibody titers neither decreased number of CPV2 infected puppies. Adapted vaccination protocol, i.e. in this kennel beginning at 6 weeks of age, could be a better prevention of CPV2 infection than oral administration of adult dog serum.