Relationship between general and pathogen-specific passive immune transfer in puppies on example of canine parvovirus antibodies

Colostrum is practically the only source of passive immunity in dogs. Puppies with low acquired immunoglobulin G concentration (IgG) can be expected to have a ~~present~~ lower protection level against some pathogens, i.e. canine parvovirus (CPV2). This study aimed to evaluate the relationship between global immunity (IgG) and specific immunity (CPV2) at birth and at 28 days of age (immunological gap).

Puppies (n=151) were included within a multi-breed kennel with circulating CPV2. At 2 and 28 days of age blood was collected and the following tests were assayed: ELISA test to evaluate the serum IgG (Dog IgG Quantitation Kit, Bethyl Lab, Montgomery, USA); Haemagglutination inhibition test to evaluate the serum CPV2 specific maternally derived antibody titer (CPV2 MDA). Linear regression was used to evaluate relationship between IgG and CPV2 MDA at D2 and D28 respectively.

At D2 median IgG was 6.0 g/L [interquartile range: 3.6; 9.9 g/L] and CPV2 MDA was 1:320 [1:80; 1:640], with moderate correlation level between both parameters ($r=0.63$; $p<0.001$). Among all puppies with MDA at D2 of 1:320 (n=44), IgG D2 varied from 2.3g/L to 14.5g/L, with coefficient of variation of 40.4%. At D28 IgG was 1.7 g/L [1.4; 2.0 g/L] and CPV2 MDA was 1:40 [1:20; 1:80], with no correlation observed ($r=0.01$; $p=0.91$).

Moderate or no correlation between the global and the specific immunity in newborn puppies was observed, suggesting, that easy-to-use test should be developed in order to estimate the pathogen specific MDA. To date, it remains unknown which factors influence the variability of ~~the~~ MDA absorption and its kinetic in newborn animals.

Relationship b
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INTRODUCTI

Colostrum is the major source of passive immunity in dogs, as only 5-10
two days of age originate from the transplacental transfer (Fig. 1). T
immunoglobulin G concentration (IgG) and not by the evaluation of
parvovirus type 2 (CPV2).

**This study aimed to evaluate the relationship between global immunit
CPV2 antibody titer) in puppies at 2 days of age and at the immunologi**

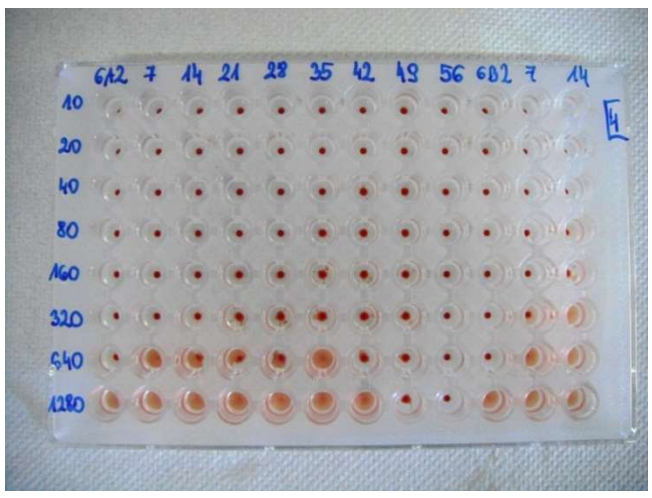

Fig. 2. Haemagglutination inhibition test was used to evaluate serum CPV2 antibody titer.

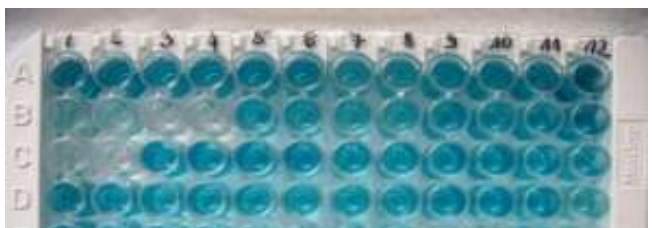

Fig. 3. ELISA test was used to evaluate

MATERIALS A

- A total of 169 puppies from 3
- The presence of the canine pa
- At 2 and 28 days of age, blood
- Haemagglutination inhibition
  (CPV2 MDA; Fig. 2) at Day 2 a
- ELISA test was used to evalua