



# COMPARATIVE DIAGNOSIS OF CANINE PARVOVIRUS WITH METHODS OF RAPID TEST AND ELISA



Irmak DIK and Atilla SIMSEK

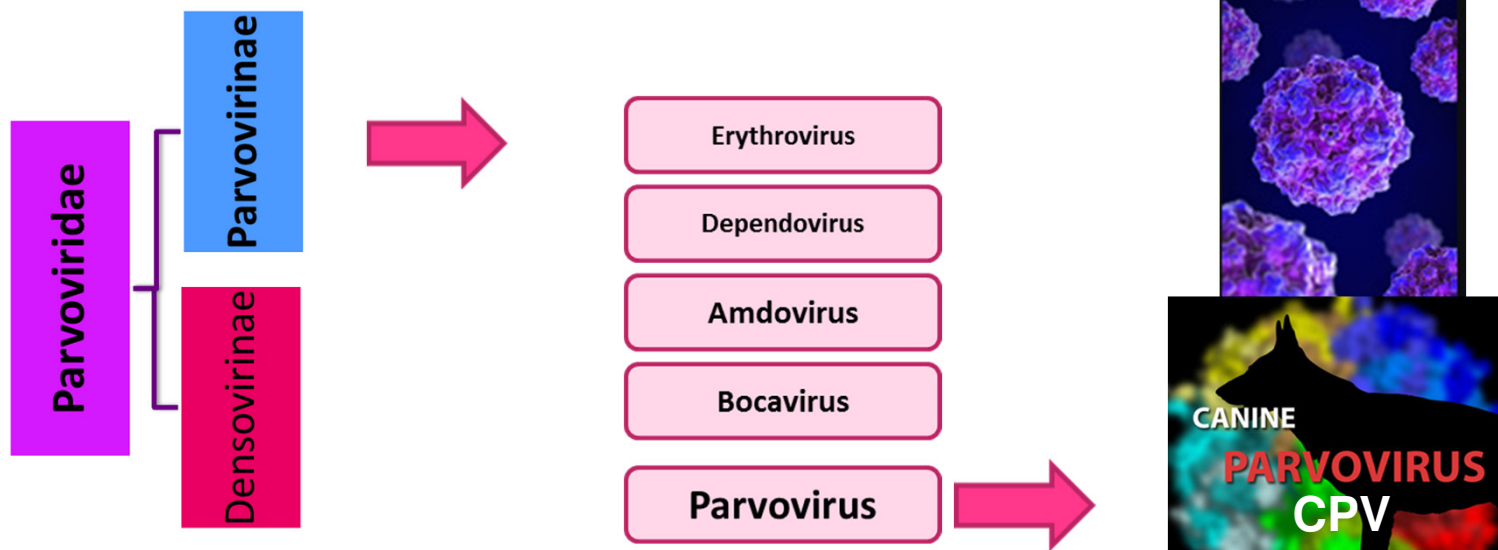
Department of Virology, Faculty of Veterinary Medicine, University of Selcuk,  
Konya, Turkey

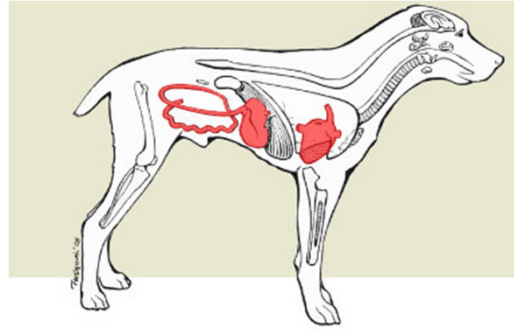
“5th Animal Health and Veterinary Medicine Congress” September 26-27, 2016 Valencia, Spain.

# INTRODUCTION

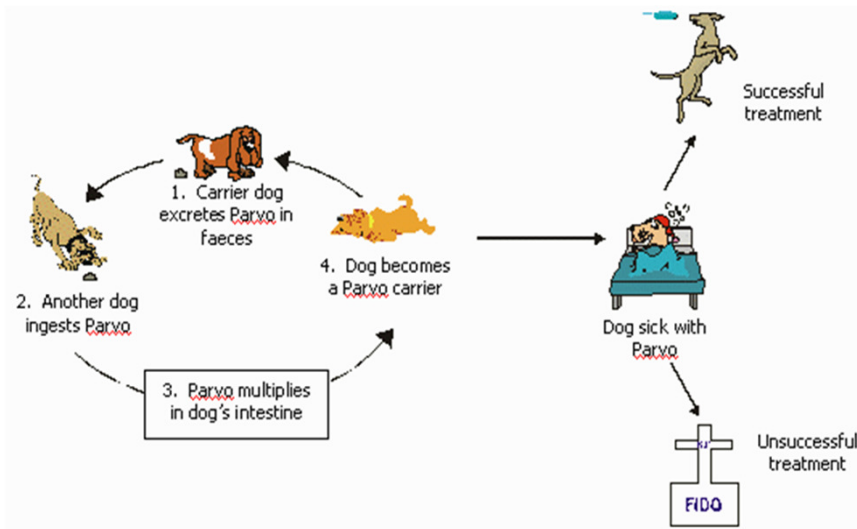


- Canine parvoviral enteritis is an acute highly contagious life-threatening infection and therefore, laboratorial diagnosis is essential for screening diarrheic puppies in order to prevent infection of susceptible contact animals.





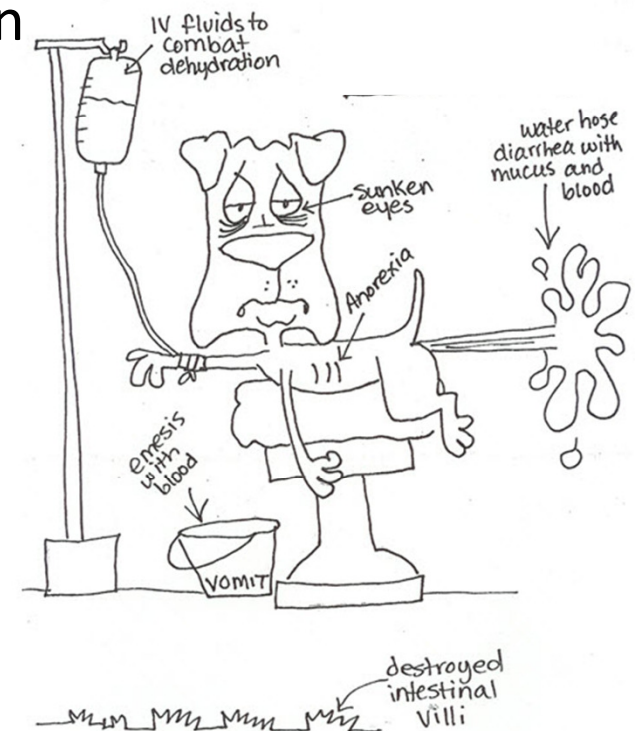
- Canine parvovirus 2 (CPV-2) is the causative agent of acute hemorrhagic enteritis and myocarditis in dogs and it is one of the most important pathogenic viruses.
- It is very contagious and has a high morbidity and mortality rate in domestic and wild canines.



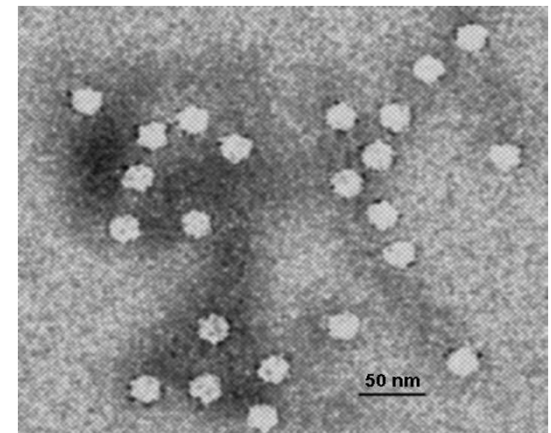
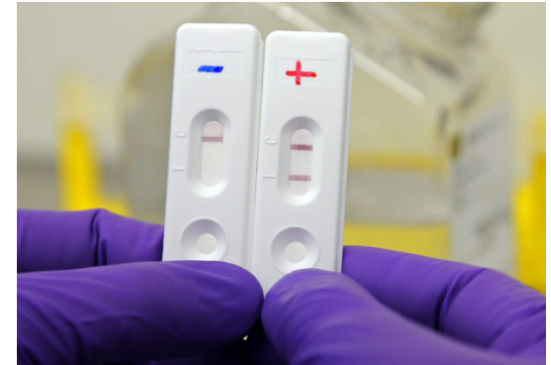
- It especially affects young dogs that are not protected by maternal antibodies or vaccination.



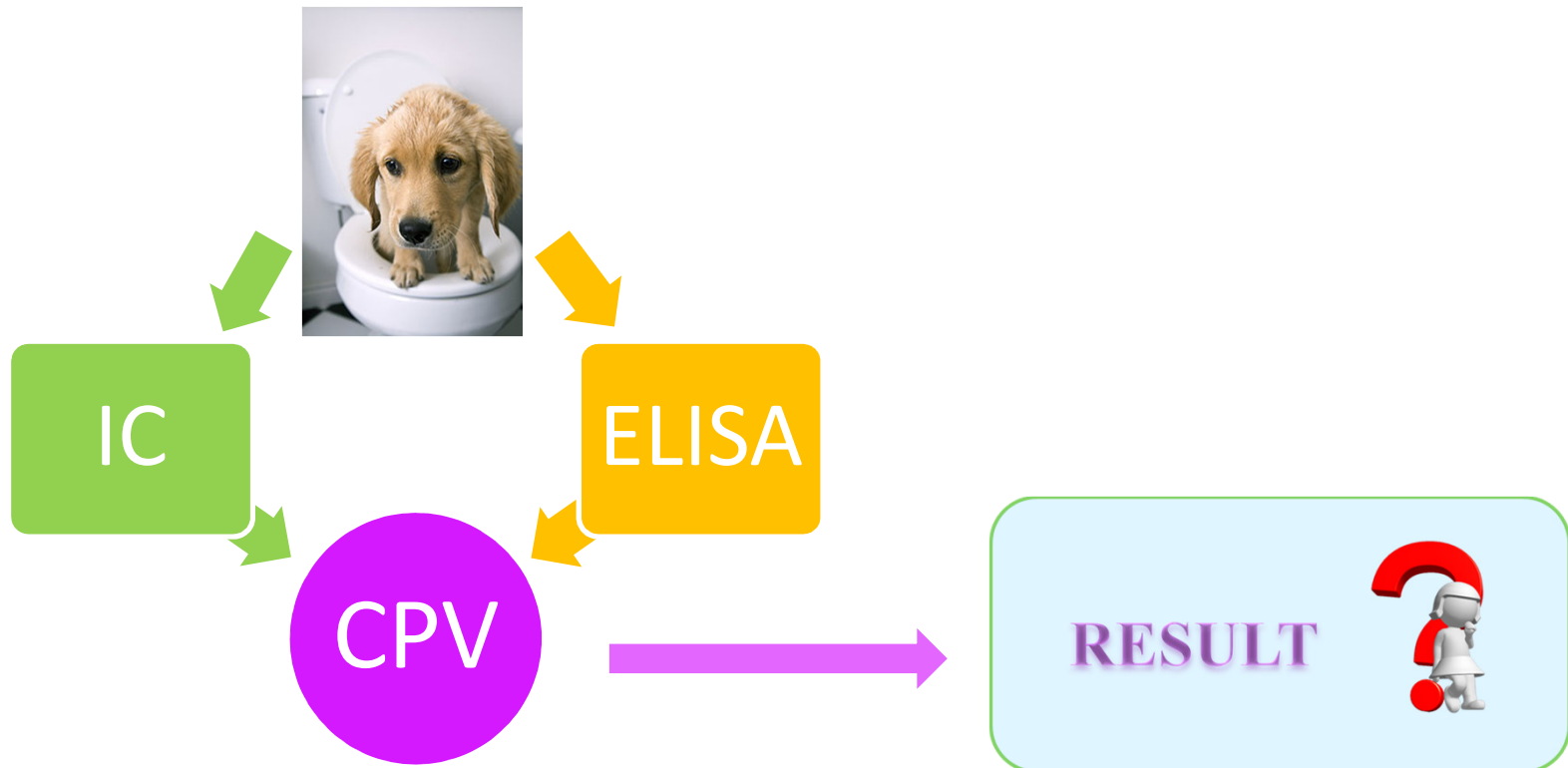
- The disease is characterized by two prominent clinical forms ;
  - ✓ enteritis with vomiting and diarrhea in dogs of all ages
  - ✓ myocarditis and subsequent heart failure in pups of less than 3 months of age



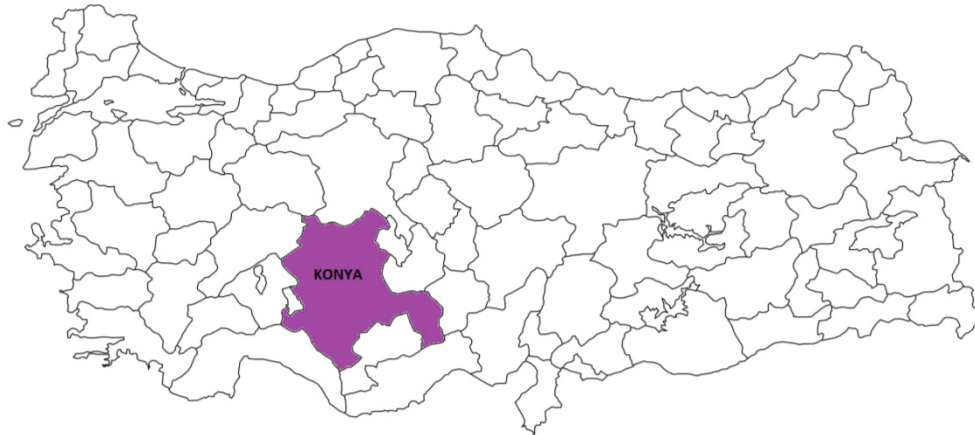
- Routinely, faeces from diarrhoeic dogs are screened using ELISA and Immunochromatographic test (IC) (Rapid Test)
- Virus isolation (VI) and Electron microscopy (EM) are more sensitive, but they are too labor-intensive and time-consuming for routine diagnostic testing.



- It has been hypothesized that was to compare the IC or ELISA currently used for CPV diagnosis.

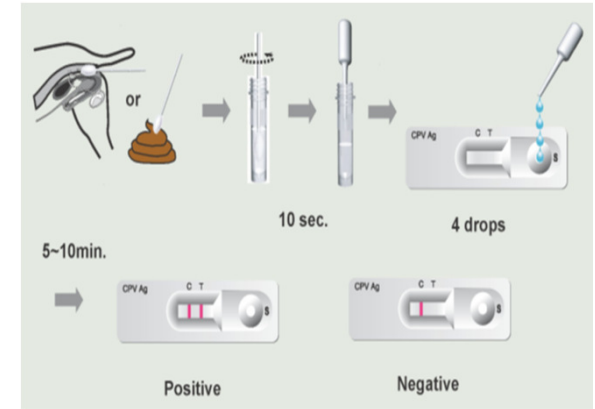


# MATERIAL AND METHODS



- In the present study, a total of 100 fecal samples from unvaccinated diarrheic puppies of less than 1 years, collected by;
  - ✓ Veterinary Medicine Hospital of Selcuk University,
  - ✓ Konya Municipality Dog Shelter
- They were analyzed for CPV antigens by IC test and ELISA.

- IC test was carried out with a commercial kit (Agrolabo, Italy) following the manufacturer's instructions.
- The IC test were performed immediately after fecal sample collection.



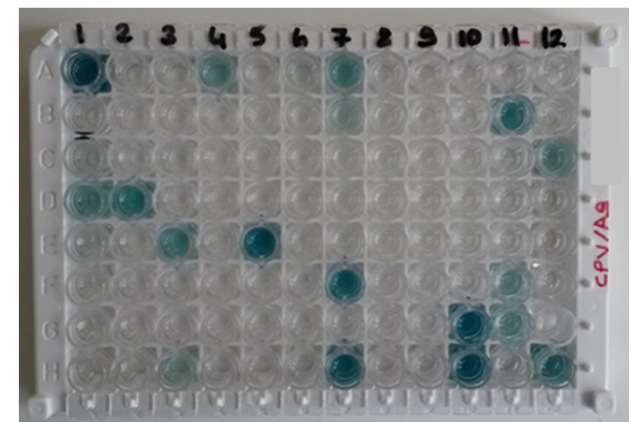
(+)



(-)



- The feces samples were tested for presence of CPV antigens using ELISA (Agrolabo, Italy)
- The tests were performed as per the manufacturer's instructions.
- The plates were then read on an automatic micro plate reader (Rayto RT 2100C, China).



# RESULT

- ❖ In total, 24 feces samples were determined to be CPV antigen positive.
- ❖ 16 feces samples were identified as positive for CPV antigens by both ELISA and IC test and 8 feces samples were positive only in the IC test.

Test Method		ELISA		
		Positive	Negative	Total
IC Test	Positive	16	8	24
	Negative	0	76	76
	Total	16	84	100



- ELISA 16%
- IC Test 24%

- The all data were are not statistically significance. The results were analyzed using analysis by SPSS 19.0.
- In all cases,  $P < 0.05$  was the criterion for statistical significance.



# DISCUSSION

- Parvoviral infections in dogs have become an important problem globally.
- The clinical signs resemble other enteric diseases and hence rapid and early diagnosis of the condition has become ever more urgent.



- In-clinic tests are rapid assays suitable for the diagnosis of CPV in the veterinary practice, thus representing the only tests available for a rapid diagnosis under field conditions.




- But some laboratory diagnostic methods are time-consuming and expensive.
- A rapid diagnosis of CPV infection is especially important in kennels and shelters in order to isolate infected dogs and prevent secondary infections of susceptible contact animals.
- Clinical diagnosis is indecisive and several other viral pathogens may cause diarrhea in dogs, such as coronaviruses, adenoviruses, morbilliviruses, rotaviruses and reoviruses (Decaro and Buonavoglia 2011).



- The IC test is most common rapid field diagnostic method used in clinical practice.
- ELISA for detection of CPV in dog faecal samples has showed that the test is highly sensitive and specific and is amenable to field use (Esfandiari and Klingeborn 2000).



- 
- The use of the IC parvovirus test has several advantages against ELISA, which can be exploited.

1. this test is a IC test and the test procedure is very rapid and simple. Sample preparation and test performance require no extra equipment. The test procedure for ELISA requires at least 2–3 h.

2. the IC test can be undertaken in a large laboratory, at the veterinary practice or by the side of the animals. Thus, the test can easily be performed in the small veterinary clinic as well as by the owner himself. The ELISA will only be undertaken in the laboratory by a laboratory technician.

3. the IC test can be stored at 4°C–25°C for 15 months. This storage condition makes it an appropriate test method for ambulatory practice. The ELISA has to be stored at 2°C–8°C for 12 months (Esfandiari





- Therefore, the results of the two different test methods are not statistically different by chi-square test in the current research.
- We concluded that the rapid test might be used instead of ELISA, as the rapid test is more determinative and effective compared to ELISA for CPV infections.



Thank You