

## ABSTRACT

In the present context the large urban areas are in a rapid and strong expansion, the modern man is more acutely exposed to daily stress, it becomes increasingly isolated from nature and everything feels all the more urgent with the need for communion with it. Dog is approved not only because of his virtues and his devotion to good companion pet but also thanks to its great utility that help police to detect drug trafficking as a companion for rescuers and lifeguards and many other roles.

Has been written and will write about dogs, the first of the animals to join man 14,000 years ago, as an irreplaceable partner in all his habits. This animal accompanied prehistoric man in his forays that were intended purchase food needed to survive, and he served his first attempts of human knowledge and conquest of interplanetary space. The dog turns the whole of the compartment that is an intelligent being that he hides a special richness of feelings that comes with an ingenuity and a spirit of sacrifice extraordinary.

Human interest to this faithful friend gradually increased. The close link between man and dog taught us to love canine species to protect them representatives.

Canine pathology sector is increasingly important general veterinary pathology in the context of the dog becoming more "urbanized". Road from *Canis lupus*, a powerful animal, fierce survivor, *Canis familiaris* the first domesticated species, subject and friendly, it was incredibly long. Human companionship was not always an advantage. Its interests, to emphasize certain selection of useful features have led gradually weakening the dog.

The canine species is subject to various diseases, an important place is occupied by viral disease affecting mostly young. Of these, herpesvirus infections of particular importance in the development insidious determined by morbidity and mortality, but also abortions and infertility specimens of both sexes.

Methodology diagnosis of viral diseases in general and herpesvirosis in particular has improved while introducing addition to clinical examination and the pathologist, laboratory tests. The explosion of information in the field of immunology over the last decades has resulted in the detection of these diseases by the application of immunohistochemical techniques, enzyme immunoassay, sequence analysis of the viral genome, polymerase chain reaction (PCR) and in situ hybridization.

Considering, on the one hand, the presence and isolation of canine herpesvirus in some areas of the globe, and on the other hand, the lack of data on the existence of canine herpesvirus-1 infection, we intend to conduct a sero-epidemiological, clinical, lesional and haematological of herpesvirus infections in dogs in some counties in Moldova.

The paper includes 148 pages and is written in chapters VIII and is structured according to the recommended assessment for awarding PhD in Veterinary Medicine, in two parts. The first part (chapters I, II and III), comprising .23 pages, representing 16,66.%, summarizes the main bibliographic database of literature regarding herpesvirus infections in dogs and is the "current state of knowledge."

Part 2 extended 138 pages, representing 83,33%, comprising Chapters IV, V, VI, VII and VIII, refers to the results of investigations seroepidemiological, clinical, and hematologic lesions and constitute 'own research ". Each chapter in Part 2 has included material and methods, results and conclusions of their discussion part.

In Chapter IX, entitled "*Conclusions*" are summarized in the formulations 34 key issues drawn from research on the species canine herpesvirus infections.

The paper is illustrated with a number of 72 figures and 22 tables and based on the information We believe that, on the one hand, bibliographic information summarized in the first part of the paper, and on the other hand, the results obtained and the conclusions drawn from my own research will be a real help to know the presence and prevalence of herpesvirus infections in species canine, as well as clinical, and hematologic lesions.

**Chapter I**, entitled "*Bibliographic data on the history, distribution and abundance of canine herpesvirus infection*" plays summarizes the data currently available on knowledge of herpesvirus infections in dogs. It reviewed the history, distribution and abundance of the species canine herpesvirus infections.

**Chapter II**, entitled "*Bibliographic data on the etiology, epidemiology and pathogenesis in canine herpesvirus infection*" treats issues related to taxonomy, morphology, replication and action of pathogenic canine herpesvirus, and responsiveness, the sources of infection and mode of transmission of herpesvirus.

**Chapter III**, entitled "*Bibliographical data on symptoms, pathology, diagnosis, prognosis, prevention and control in canine herpesvirus infection*" treats issues related symptoms and lesions, and methodology of diagnosis, surveillance and control measures in canine herpesvirus infections-one.

**Chapter IV** is played "*The purpose and objectives of the research.*"

Canine herpesvirus-1 (CHV-1), is recognized as the leading cause of neonatal mortality, sudden the dogs in the first three weeks of life, especially when pups can adjust body temperature, and the production or unapparent infections nonspecific in adults with respiratory symptoms.

Lack of, on the one hand, data on herpesvirus infections in Romania and canine herpesvirus-1 isolate in some areas of the globe, as uncontrolled movements of dogs, we decided to conduct a study on the presence of canine herpesvirus infections -1, in some counties in Moldova, which justifies the approach in a thesis.

In this context researches pursued objectives:

1. Research regarding the seroprevalence of canine herpesvirus-1 infection in the canine population in some districts of Moldova.
2. Research on the clinical aspects of evolution in canine herpesvirus-1 infections.
3. Research on aspects lesions in canine herpesvirus-1 infections.
4. Haematological investigations canine herpesvirus-1 infection .
5. Investigations immunological in infections canine herpes virus.

In **Chapter V**, entitled "*Research on seroprevalence of canine herpesvirus-1 infection,*" illustrates the results carried out on blood samples from 180 dogs, coming from two kennels and in particular the five counties in Moldova. Of the 180 samples tested sera by enzyme immunoassay serological ELISA, 37 were found positive feedback, which is 20.55%, and the remainder of the 143 (79.55%) had a negative reaction. The percentage of positivity differ by county, being in descending order of 27.77% in Iasi, 26.86% in Vaslui, 15.38% in Bacau, 11.11% in Galați and 5.00% in Suceava. Seropositivity different shows that infection with canine herpesvirul-1 is present, the virus circulating in the dog population and threatens the neonatal mortality may occur in the long term, in flocks of canine and female fertility used in breeding.

The percentage of seropositivity differ depending on: - **the growth**, individual, freedom or kennels, being 18.87% in the individual, particular and 33.33% in kennels.

The prevalence of seropositivity differ depending on: - **gender** being female and 29.24% to 8.10%, which shows that females as a result of increased positivity would seem to be more sensitive and more frequent support action harmful to canine herpesvirus-1; -**age**, seropositivity values in descending order

of 5.00% for youth 5-60 days, 4.44% for the youth of 2-6 months, 2.77% for youth 2-3 years, 1.66 % in young 6-12 months in patients aged 1-3 years, 1,10% in adults 7-9 years and 0.5% of adults between the ages of 4-7 years. Increased percentage of seropositivity registered dogs aged 5-60 days can be explained by the fact that canine herpesvirus-1 has a special affinity for newborns, acting mainly in the first week of life when the puppies are very susceptible being deprived of immunity; - **age and origin**, being 75.00% in neonates and youth to 60 days, 23% in young until 6 months and 25% in adults over seven years, from individual owners and 33, 33% in neonates and youth within 60 days, 40.00% in young until 6 months and 50.00% in dogs aged between 2 and 3 years, coming from kennels. The high seropositivity in dogs younger than 2weeks old and youth under the age of eight weeks from now, it may be either because the system is not sufficiently developed immunocompetent or lack of maternal immunity, which favors disease development drastically; - **health status**, being 33.33% in samples taken from kennels and 1.88% at the individual sector. However, seropositivity highlights that canine herpesvirus-1, the occurrence of disease in dogs, acting either alone or in community with other potential pathogenic microbial agents.

Also seropositivity differ by **race**, when the 14 races showed a prevalence variable with values between 33.33% German Shepherd and breed Pekinese and 9.09% Rottweiller breed.

Analysis results, based on the number of dogs per breed, show that the share of variable seropositivity without major differences, which can be appreciated that all races examined clinically and serologically are prone to the same extent, to infection with canine herpesvirus-one.

**Chapter. VI**, entitled "*Research on clinical aspects of canine herpesvirus-1 infection*," Investigations conducted in 180 dogs of different breeds, ages and state of repair of some districts of Moldova, of which 37 were adults and youth over 28 days and 28 puppies aged up to 28 days with positive serological reactions to infection with canine herpesvirus-1. Of the 180 dogs, breed, age and state of repair different clinically examined by inspection, palpation and auscultation, 65 had clinical manifestations of infection with herpesvirosis, which is 36.11%. Of the 65 clinical manifestations exmplare, 22 (33.83%) had progressive form of neonatal, 21 (32.34%) ocular, 9 (13.84%) as respiratory, 7 (10.76%) as genital and 6 (9.23%) systemic form.

Increased percentage of 33.83% recorded neonatal form, shows that most susceptible to infection with canine herpesvirus -1 are puppies after birth (pups) that frequently infected during parturition. Lowest percentage of 9.23% was obtained in the form of system evolution, although most studies bibliographic noted a high frequency of this form of manifestation of canine herpesvirosis. The investigation results indicate that neonatal acute viremia and systemic infection of pregnant females are the most important diseases caused by canine herpesvirus-1.

Clinic, in the period after birth, puppies have lost appetite, exhibited a lethargic state and refused to suckle from the mother. Continuously decreasing body temperature from 39°C to 35°-36°C, which promotes viral replication role in increasing neonatal mortality.

In **Chapter VII**, entitled "*Research on the pathological aspects of canine herpesvirus-1 infection*," the results of investigations carried out on a total of 27 dogs aged 2-18 days, coming in 5 women with positive serological reactions to infection with canine herpesvirus-1. The opening of the bodies of the dogs dead or sacrificed, lesions were seen in the enlarged features of bleeding internal organs, especially the liver, lungs and kidneys.

In most of the organs and tissues have been observed multifocal areas and bleeding in the lymph nodes, adrenal glands, white-gray appearance with a size between 3 and 5 mm, and in natural cavities found the presence of a liquid citrine, bleeding, in small amounts and spread to internal organs

Macroscopically, the liver was increased in volume, partially or totally discolored with areas of necrosis and hemorrhage, amid which were disseminated foci reddish gray, and in more severe cases, the presence of large numbers of petechiae and-white foci gray surrounded by rings bleeding, liver visible both on the surface and the section.

Lungs, with mottled, edematous, with modifications from a simple congestion, the presence of hemorrhagic areas, and the presence of a liquid sparkling section, multiple microbleeds and white gray areas distributed lobular structure.

Kidneys were boiled organ generalized aspect of the existence of foci of necrosis and hemorrhage as areas circumscribed red, standing out on a gray background, as the presence of multiple areas of yellow hue subcapsular hemorrhage.

Histological examination performed on samples taken from the bodies of macroscopic changes, stained and examined microscopically showed a picture multiforme lesion, the presence of foci of necrosis disseminated acidophilic and basophils intranuclear inclusions and bleeding in parenchymal organs (liver, kidney, adrenal , lungs, small intestine, lymph nodes). Around the necrotic areas was a perivascular accumulation of mononuclear cells and histiocytes.

In the renal cortex, there was a distortion of normal parenchyma, disrupting and obliterating the tubules, proliferation of fibroblasts and mononuclear cell infiltration moderate.

The liver lesion was consistently observed capillary ectasia and overloading hematic sinusoids with hepatocytes displaced Remak cords. The sinusoidal capillaries and vessels in port area frequently to establish the presence of large cells with basophilic cytoplasm and numerous or one nucleus bud.

In the small intestine, the main histopathological changes, were the epithelial cell hyperplasia in the duodenum and jejunum villi, in a slight necrosis of the cells in the crypts of the intestinal villi and numerous cellular inclusions.

Generalized infection in dogs, histopathology performed on lymph nodes, revealed rare follicular lymphoid necrosis lesions.

In **Chapter VIII**, entitled "*Investigation haematological canine herpesvirus-1 infections*" are presenting results performed using automated hematology analyzer, ABX PETRA, on blood samples taken from 38 dogs, of which 30 seropositiv against herpesvirus infection dog-1 and 8 apparently healthy.

CBC results highlight an increase in red blood cells to values over  $8.5 \text{ mil/mm}^3$ , in adult dogs, canine herpesvirus infection. The increase in red blood cells than the normal value of  $5.5 \text{ to } 8.5 \text{ mil/mm}^3$  vary, depending on the condition being reported, ranging between  $10.5 \text{ and } 19.2 \text{ mil/mm}^3$  genital disease in dogs, between  $8.8 \text{ and } 10.4 \text{ mil/mm}^3$  those with respiratory conditions, between  $8.2 \text{ to } 10.7 \text{ mil/mm}^3$  pregnant females and between  $8.5\text{-}8.7 \text{ mil/mm}^3$  in the apparently healthy.

Adult dogs with eye diseases and puppies older than 8 weeks, the number of red blood cells excuse below the minimum normal values between  $6.5 \text{ to } 7.9 \text{ mil/mm}^3$  in adults and between  $3.9 \text{ and } 5.2 \text{ mil/mm}^3$ , 11 of the 12 dogs investigated.

The results highlight an increase in WBC counts of leukocytes (leukocytosis) at  $12 \text{ mii/mm}^3$ ) in all cases investigated. Depending on the condition, the values of the different white as follows: - in dogs with respiratory values of 35-49%; - in patients with eye diseases between 58-60%; - those with genital disease between 61-75%; - pregnant females between 58-74%; - the youth under the age of 8 weeks between 57-75% and; - in the apparently healthy range from 35-47%.

Lymphocyte count was different, depending on condition and age as follows: - pregnant females range from 23 to 33.5%, from 20.0 to 24.5% of dogs with eye problems, in people with genital disease 19-25% , 14-21% patients with respiratory diseases, apparently healthy dogs values of 13-14%.

Investigations on granulocytes in the blood polynuclear taken showed values within the normal percentage of 4-5% for eosinophils and 0,5-1% for basophils, both in dogs with various diseases, as well as the slight increase in apparently healthy and the number of eosinophils, from 5% to 6%, 3 of 12 dogs of the age of 8 weeks. In contrast, neutrophils showed elevated compared to normal (45-50%) in dogs with various diseases, ranging from 50-55% in those with respiratory conditions, between 57-59% with ophthalmic disorders, between 52 -58% with genital disease and between 52-59% in pregnant females.

In **Chapter IX**, entitled "*Investigation on immune response to infection with canine herpesvirus-1*" values are presented immunoglobulin (Ig.A, Ig.G and Ig.M) and fraction C 3 determined on serum samples taken 38 dogs, including 18 with different clinical manifestations (respiratory, eye, genital and pregnant) and positive reactions to infection with canine herpesvirus-1, 8 sera from apparently healthy dogs, but seropositive and 12 from puppies younger than 8 weeks, derived from HIV-positive bitches.

The results, show different values depending on the type of immunoglobulin (Ig.M, Ig.G and Ig.M) and the conditions in dogs indicated that serum samples were collected. Of the 38 sera investigated immunoglobulin A elevations 17 samples, which is about 44.73% and in 21 (55.73%) Normal values were recorded between 100 and 300.

Ig.G values have increased in 27 samples, representing 71.05%, while 11 (28.95%) sera values were within normal limits in 1145 and 2250.

Values Ig.M. showed an increase in 23 samples, representing 60.52% and 15 (39.48%) were within normal limits, ranging from 60 to 280. These variations in the values results immunoglobulins (Ig.A., Ig.G. and Ig.M.) can be explained, on the one hand due to the dynamics of the immune response and the evolution of different viral infections, and on the other part due to the low value of canine herpesvirus-1 antigenic.

The investigations carried out on 38 samples, the serum complement, show elevated to 25, which is 65.78%, and at 13 (34.22%) were within the normal range of between 4.5 and 5.5. The results of the C3 complement fraction values correlate with increasing titers of immunoglobulin, which shows, in most cases, the presence of infections of chronic.

In **Chapter X**, entitled "*Conclusions*" are summarized in the 34 formulations key issues drawn from research on canine herpesvirosis.