

## **ABSTRACT**

Leptospirosis is a widespread disease în all parts of the world, infectious and contagious disease affecting both domestic and wild mammals and man, manifested by different symptoms depending on serotype infection, age and physiological status of individuals affected.

It produsă germs of the genus *Leptospira*, clinical translated clinically în states of sepsis, jaundice, haemoglobinuria, nerve disorders, kidney, and the pregnant through abortions.

Leptospirosis are a group of infectious diseases due to pathogens called leptospire, family Spirochaetaceae.

*Leptospira* are susceptible to infection all homeoterme animal species and man. Receptivity heteroterme animals is questionable, but positive serological reactions and they were found. Among domestic mammals, the receptors are pigs, steers and dog.

Routes of infection are multiple. Of these, the direct path seems to be the most common. As seen is the indirect transmission path, the consumption of polluted water is very important. Leptospire can penetrate through wounds or erosions of the skin and mucous membranes, sometimes through intact skin.

Transmission of leptospire is achieved more easily în hot and humid periods of the year, when the seeds are better conditions for survival în the environment and the human and dog contact with infected waters is carried out în greater. The disease usually occurs due to contact with water în the urine of sick animals came from Leptospirosis or healthy carrier of bacteria of the genus *Leptospira*.

PhD thesis entitled "The aetiology and epidemiology leptospirozelor în terms of the Danube Delta has a volume of 196 pages and is structured according to the criteria în force în two parts: first part summarizes the main bibliographic database of literature regarding the animals and constitutes leptospirozele "The current state of knowledge" and the second is related to their research.

In part drawn up within the first 3 chapters are presented aspects of the history, importance, and data dissemination leptospirozelor etiology, epidemiology, pathogenesis, symptoms, Pathology, diagnosis and combating leptospirosis.

The second part of their research, developed în five chapters and one of general conclusions, follows the issues of prevalence and distribution of serotypes leptospire în Tulcea County (chapter IV), leptospire serotypes of wild life (chapter V), immune response after vaccination (chapter VI), epidemiological and clinical research în an episode of leptospirosis (chapter VII), and correlation of *Leptospira* serotypes în animals and humans (Chapter VIII). în the last chapter (cap.IX) a brief general conclusions.

The first chapter, entitled "Data on the history, importance and spread leptospirozelor" presents data from the literature on the first descriptions of the disease and the described, the prevalence and importance of this disease.

Leptospirosis, although presently unknown for a long time was described that entity morbid initially in humans at the end of last century in Germany by Weil (1886) and co in Russia by Vasiliev (1885-1886), which made the disease named "Vasiliev-Weil disease." Spirochaete nature of causative agents is discovered only after 30 years in Japan către Inada (1915) which called germ "Spirochaeta icterohaemorrhagiae morphology" and in Germany on the one hand Uhlenhuth and Frome, and the other part Huebener and Reiter, isolated microorganism was appointed Two different each of these collective: Spirochaeta icterogenes and Sp. nodosa. In 1917, Naguchi, detailed studies these germs, it gathers in a new genus within the order "Spirochaetales", which he named "Leptospira".

Chapter II, entitled "Data on the etiology, epidemiology and pathogenesis leptospirozelor animals, is structured into three subchapters synthesis of key data from the literature on the etiology of leptospires, epidemiological characteristics and pathogenesis.

In Chapter III issues are treated the symptoms and lesions produced by the germs of the genus Leptospira, but also about the diagnosis, prevention and control.

Although the etiology is varied, the clinical picture of disease is similar to animal species. Symptoms may be, more or less pronounced, depending on disease severity. As is said before it seems that infections by *L. grippotyphosa* are more rebellious at the same time producing the highest mortality.

The incubation period ranges between 10 and 30 days. The disease begins by hyperthermia strong right from the start (41,5-42 ° C), usually 2-3 days before the appearance that other symptoms. Fever is always accompanied by an general state of depression. Milk production drops dramatically, milk becomes phanthe and yellow or even red bloodstone.

Dupe 2-3 days from the appearance of these symptoms, the be installed jaundice usually frank from the beginning, visible especially in mucous membranes and while it hemoglobinuria. Initially, jaundice is the nature of the marrow. Thereafter, liver injury occurs that determines retention of direct bilirubin and jaundice condition worse.

Modifications lesion, differ depending on age, sex, physiological state, and forms of evolution of disease severity.

Primary lesion is a generalized jaundice, it is visible to all and seroaselor mucosa, skin and internal organs. Sometimes, are colored in yellow even bones. Subcutaneous connective tissue show

large areas of infiltration semigelatinous and suffused blood type. Skin and mucous membranes, especially the buccal mucosa, gums, tongue lesions are frequently meet ulceronecrotic. Muscle is pale, with shades jaundice.

The liver is increased in volume, pale yellow-green (like clay), sometimes reddish and low consistency. Gall bladder is always filled with viscous bile, pleiocroma. Spleen is also hypertrophied, consistency. pulp. The kidneys are and they married in volume, with the capsule off or slightly off, closed or dark red and consistency diminished. Cortical layer and rarely in the spinal injuries he is often seen point or small necrotic foci.

Prevention and control of the disease is achieved by following some general rules that put an emphasis on serological surveillance.

Chapter IV of the first part of their research, presents "Investigations on the prevalence and distribution of serotypes of leptospire in Tulcea County. This chapter presents the materials and methods used during 2004-2007 to determine the prevalence and distribution in Tulcea county leptospire serotypes.

Serological examination performed on 10,819 serum samples revealed a total of 176 positive samples, representing 8.61% and 10,643 serum samples were negative which is 91.39%. As to the species of the 7753 cattle tested, 175 were seropositive, with a prevalence of 8.27%. The horse serum samples were negative strains of leptospire of diagnostic kit and pigs from 1 to 629 samples examined were seropositive, with a prevalence of 0.34%. Most cases of serologically positive number of samples examined we met in town Chilia-house in a total of 51 bovine serum samples, representing a rate of 29.14% of positive samples, followed by a number of Sulina 27 bovine serum samples positive is a percentage of 15.42%.

In Chapter V, entitled "Research on the serotypes of leptospire wildlife in Tulcea County" was followed leptospirosis in wild animals regarded as the main reservoir leptospire.

Of the 47 serum samples reacted positively reviewed 27 which is a percentage of 57.44% and 20 samples were negative at a rate of 42.56%.

In sera of house mice (32) a total of 12 samples reacted positively to *L. hardjo* serotype of an actual range between 1 / 200 and 1 / 1600 which represents a rate of 38%.

Of field mice sera (6) a total of 3 reacted positively to *L. hebdomadis* (17%), serotype 3 from *L. grippothyphosa* (17%), serotype 5 in *L. Wolff* (28%), and 1 to *L. hardjo* (1%) with titers between 1 / 200 and 1 / 3200.

When sera from rats of water (2) a total of 2 reacted positively to *L. icterohaemorrhagiae* (67%), and one of them reacted positively and *L. tarassovi* serotype (33%) with titers between 1 / 400 and 1 / 3200.

In sera of house rats (7) a total of 7 samples reacted positively to *L. icterohaemorrhagiae* serotype of an actual range between 1 / 800 and 1 / 3200 which represents a 100%. In Chapter VI, entitled "Research on the immune response after vaccination" I watched and dynamics of specific antibody immune response after vaccine administration antileptospiric in the extensive growth of households in farm dogs and intensive growth in pigs. Research on immune responses after vaccination were performed on two different batches: one batch consisting of 64 sows and 6 boars with high genetic potential, and a lot consisting of 48 stray dogs belonging to people living in various localities of Tulcea County

Were examined a total of 354 serum samples, of which 192 (54.23%) serum samples collected from breeding sows, 18 (5.08%) samples from breeding boars and 144 (40.68 %) serum samples from dogs community. If vaccination of breeding sows found a good setup of immunity 18 days after vaccination with titres between 1 / 1600 and 1 / 6400. Results show an immune response by 100% for serotype *L. pomona* and 93.75% for *L. Icterohaemorrhagiae* and 6.25% had poor immunity to strain *L. Icterohaemorrhagiae*. At 74 days of vaccination gilts still had a good immunity to the vaccine, but begins to decrease slightly titre ranging between 1 / 400 - 1 / 6400 to stem *L. pomona* (93.74%) and 1 / 400 -- 1 / 3200 (93.72%) to *L. Icterohaemorrhagiae*.

At 140 days after vaccination of breeding sows found a drop in titer at 1 / 200 - 1 / 400 so the *L. pomona* (90.61%) as in *L. Icterohaemorrhagiae* (84.36%).

After the vaccine batch of breeding boars at 18 days of vaccination was found a very good immune response with titers between 1 / 1600 and 1 / 6400 for the two strains *L. pomona* (100%) and *L. Icterohaemorrhagiae* (100 %).

After 74 days of vaccination boars still had a good immune response, but begins to decrease slightly titre ranging between 1 / 400 - 1 / 3200 to stem *L. pomona* (99.98%) and *L. Icterohaemorrhagiae* (99 , 98%).

After 140 days of vaccination boars still had a good immunity, even if titre began to decline ranging between 1 / 400 - 1 / 1600 to stem *L. pomona* and 1 / 200 - 1 / 800 to *L. Icterohaemorrhagiae*

If stray dogs vaccinated a good immune response in 18 days of vaccination with titres between 1 / 1600 and 1 / 12800 for both serotype *L. canicola* (100%) and for *L. Icterohaemorrhagiae* (100%).

After 74 days of vaccination dogs still had a good immunity to the vaccine, observing a slight increase of specific antibody contained between 1 / 400 - 1 / 6400 to stem *L.canicola* and *L. Icterohaemorrhagiae*.

At 140 days after vaccination of dogs was observed that after this period the animals still had a good immunity with a predominant strength în both strains of 1 / 800.

In Chapter VII, entitled "Epidemiological and Clinical Research în an episode of leptospirosis passive" to present the results of a study conducted eidemiologic and clinical. The disease broke out în late September 2008 în an intensive farm pigs.

From a group of 20 pregnant sows disease affected a total of 12 animals aborted piglets from which 133 of 77 piglets dead and 56 live piglets but viable.

Group of 100 pig of a total of 16 died, 50 of plump clinical signs (apathy, vomiting, hyperthermia, pronounced weight loss, disturbances în balance, paralysis of the hindquarters), and 34 had no clinical signs of disease.

The emergence and evolution leptosirozei was favored by several factors, including an important role antileptosirice vaccination, serological surveillance but also the fight against rodents.

Clinical, pregnant sows showed no symptoms Prodromos, complete up to one hour avortand fetuses with fetal envelopes.

Clinical grasunii showed apathy, vomiting, hyperthermia, pronounced weight loss, disturbances în balance, paralysis of the hindquarters.

Pathology în pig revealed no jaundice necropsiati în mucous membranes, instead there were injuries to the kidneys în the form of interstitial nephritis and haemorrhagic diathesis on mesenteric and intestinal mucosa, liver degeneration.

The abortion was reported following signs morphopathological: seroaselor color of jaundice and subcutaneous connective tissue, skin, anemic, rising subicterice gelatin, kidney and liver dystrophy, muscular look cooked.

After the 12 serological examination (75%) samples from sows that aborted, had a titre range between 1 / 6400 and 1 / 12800 for *L.pomona* strain.

Following serological examination 18 (39.13%) had an actual pig contained between 1 / 12800 and 1 / 25600 to *L.pomona* strain, and 3 of these samples had a titre of 1 / 400 the strain *L. tarassovi*.

Chapter VIII entitled "Investigations of leptospire serotypes în animals and humans în Tulcea County" presents leptospire serotypes common to both humans and animals.

Of the 291 human serum samples worked în 2004-2007 a total of 32 had positive reactions which is a percentage of 10.99% and the remaining 259 samples were negative rate of 89%.

Of the 10,819 serum samples reacted positive animals examined 175 (8.27%) serum samples of cattle and 1 (0.34%) serum suine. Persoanele suspected disease from areas with a large quantity of water, ponds, etc..

Most sick people have come into contact with contaminated environments by job they have (fishing, animal caregivers, gardeners, children that are bathed în different pools near villages, etc.)

He noted the predominant serotypes *L. Icterohaemorrhagiae*, *L. Wolff*, *L. canicola* în humans. Serotype *L. Wolff* was found both în animals and to people în villages: Chilia Veche Murighiol, Isaccea, Sulina, Dunavatu bottom. Where there is no disease în animals and human cases of leptospirosis. The disease is seen throughout the year, but especially în warm seasons. Since 2004 and until 2007 we were confronted with a dry season în May we found a significant reduction of cases of leptospirosis în both animals and humans

Increased frequency of disease is of Tulcea County wetland area localities where large proportion is covered în water.

In Chapter IX are presented the final conclusions.