S U M M A R Y

of the doctoral thesis entitled:

RESEARCH ON THE CLINICAL-PATHOGENETIC AND DIAGNOSTIC COORDINATES IN ANEMIA IN COMPANION ANIMALS

PhD student:
Scientific coordinator:

KEY WORDS: *anemia, canids, felines, diagnosis, pathogenesis*

The doctoral thesis, titled "***Research on Clinical-Pathogenetic and Diagnostic Coordinates in Anemia in Companion Animals***," is structured according to current legal requirements and consists of two main parts:

- Part I includes a bibliographic study, extending over 29 pages, which represents 18,6 % of the thesis.
- Part II, "Original Research," comprises 127 pages, equivalent to 81,4 %of the thesis.

The research was conducted from 2020 to 2024 at the Clinic of the Faculty of Veterinary Medicine Bucharest and at the veterinary clinics Vet Medical Consulting S.R.L. and Canivet S.R.L., which have institutional collaboration agreements with our faculty, providing veterinary medical services to current standards.

Anemia, with its variety, clinical polymorphism, and multiple systemic and organ-related pathophysiological interactions, combined with an extremely diverse and complex etiopathogenetic context, represents a major issue in companion animal pathology.

The first chapter of Part I of the thesis presents a selection of the specialized literature on the topic, with a brief overview of the morphophysiological characteristics of blood in carnivores, including concepts of erythropoiesis physiology in the mentioned species.

Chapter II of Part I provides general information on anemia and its classification, including posthemorrhagic anemia, hemolytic anemia and its subtypes, and anemia induced by erythropoietin deficiency. It also includes literature data on the anamnesis and clinical examination of anemic patients, as well as the paraclinical tests used for confirming the diagnosis.

Part II of the doctoral thesis, titled “Original Research,” constitutes approximately 72% of the total thesis and is structured into three chapters, general conclusions, and

bibliography. The results of the investigative studies are illustrated with 40 tables, 24 graphs, and 59 figures.

Studies on the incidence of anemia, identifying predisposing, favoring, and determining factors aimed at developing a relevant investigative framework for diagnosing these conditions. Clinical investigations focused on assessing systemic, functional, and physical changes in the circulatory system to establish a dominant clinical context that supports the presumptive diagnosis of anemia in companion animals.

The first chapter of Part II, titled "***Clinical and Paraclinical Research in Hemolytic Anemia in Companion Animals***," describes the structure of the patient group diagnosed with hemolytic anemia, presenting with clinical signs specific to this type of condition. The results highlighted the presence of three different causes in the patient group: parasitic, infectious, and immune-mediated hemolytic anemia. Diagnostic methods included blood smear examination, PCR tests, and 4DX tests, except for immune-mediated anemia, which was diagnosed using the Coombs' autoagglutination test.

In the first chapter of our study, data correlated with the type of anemia in patients with parasitic anemia revealed that 46.34% (n=19) had normocytic and normochromic anemia, with regenerative characteristics in 53.65% (n=22) of patients. In cases of infectious anemia, most animals exhibited normochromia and normal cell sizes. For patients with immune-mediated anemia, the degree of regeneration was identified in 72% of subjects.

Chapter IV, titled "***Clinical and Paraclinical Research in Chronic Anemia in Companion Animals***," presents the complete study group with chronic anemia, totaling 33 canines and 26 felines, which exhibited symptoms specific to trauma resulting in acute hemorrhage and ultimately severe anemia. Data showed that the most common canine breeds were mixed breeds (39.39%, n=13) and German Shepherds (12.12%, n=4), reflecting their high prevalence in the country and increased predisposition to such pathologies. For felines, the most common breed was the European cat (76.92%), which is explained by the high number of these cats living outdoors and being susceptible to various types of trauma.

Additionally, among dogs, mixed breeds (39.39%, n=13) and German Shepherds (12.12%, n=4) were the most frequent. The predominant age categories were: 15 animals between 1 and 5 years, 9 dogs between 11 and 15 years, and 7 dogs between 6 and 10 years.

For felines, the most frequent breed was the European cat, constituting 76.92% (n=20) of cases. The most common age groups were: 9 cats between 1 and 5 years, 7 felines between 6 and 10 years, and 5 cats between 11 and 15 years.

The degree of anemia regeneration, assessed by reticulocyte counts, is crucial for determining severity and developing a therapeutic plan. In our study, 6.77% of animals

(n=4) had a reduced number of reticulocytes, indicating a non-regenerative anemia, while 93.22% (n=55) had normal reticulocyte counts.

Investigations included anamnesis, clinical signs, and hematological and biochemical analyses. Results showed that most cases of posthemorrhagic anemia did not present changes in erythrocyte constants, with 89.83% of patients having normocytic and normochromic anemia, indicating normal dimensions and hemoglobin concentrations in erythrocytes.

The third chapter of Part II, titled "***Clinical and Paraclinical Research in Chronic Anemia,***" predominantly presents the patient group with chronic renal failure, comprising 117 cases: 41 canines and 76 felines.

The study also included dogs from common breeds such as 8 mixed breeds, 4 Golden Retrievers, and 4 Bichons (Havanese and Maltese), distributed by age groups: 2 dogs between 16-20 years, 4 dogs between 11-15 years, 8 dogs between 6-10 years, and 8 dogs between 1-5 years.

Regarding felines, the most representative breeds were European (32 specimens) and Persian (15 specimens). Age categories for cats were: 29 felines between 16-20 years, 24 between 11-15 years, 20 between 6-10 years, and 3 cats between 1-5 years.

Our study results indicate various forms of chronic anemia. We observed normocytic and normochromic anemia in 99 patients, normocytic and hypochromic anemia in 5, microcytic and hypochromic anemia in 7, and microcytic normochromic anemia in 6 patients. Approximately 84.61% of subjects had normocytic and normochromic anemia, suggesting that erythropoietin deficiency does not affect the size and hemoglobin concentration of erythrocytes.

Chapter VI includes a number of 171 bibliographic references cited in the text.