

ЯАР-22

*Moscow State Academy of Veterinary
Medicine and Biotechnology – MVA
by K. I. Skryabin (Moscow SAVMB)*
<http://www.mgavm.ru>



*Seasonal biochemical parameters of
domestic dogs' blood from various breeds*



Anna A. Oleshkevich,
Fedor I. Vasilevich &
Svetlana A. Komarova

Moscow, Russia.

kompotita@gmail.com

Materials and Methods



Monitoring of the health status of domestic dogs included seasonal measurements of blood serum indicators of dog breeds: *Beagle, Pomeranian, German Shepherd, Russian-European Laika, Bull Terrier, Black Russian Terrier, Toller, Jack Russell Terrier, Sheltie, Labrador Retriever, Shih Tzu, Dogo Argentine, Briar, Toy Terrier, Pug, Dachshund, Yorkshire Terrier, Kerry Blue Terrier, Rottweiler, French Bulldog, Zwerck Schnauzer, Scotch Terrier, Bullmastiff, English Bulldog, Chinese Crested, Brewer York, Maltese, King Charles Spaniel, American cocker spaniel, Russian spaniel, Golden Retriever.*

Materials and Methods

Blood samples were taken throughout the year from 139 dogs: 86 males and 53 females.

The dogs were of different breeds, ranging in age from 1.5 to 18 years old, both healthy animals and diagnosed with metabolic, cardiovascular and endocrine diseases.



Biochemical analysis

Serum biochemical analysis was performed using an Olympus AU400 automated clinical chemistry analyzer.

There were determined:

- the activity of aspartate aminotransferase EC 2.6.1.1 (AST);
- the activity of alanine aminotransferase EC 2.6.1.2 (ALT);
- the activity of creatine phosphokinase EC 2.7.3.2 (CK);
- the activity of lactate dehydrogenase EC 1.1.1.27 (LDH);
- the activity of alkaline phosphatase EC 3.1.3.1 (ALP),
- the activity of some others enzymes, as well as the concentration of trace elements.



Animal groups

- The data array of biochemical parameters of healthy dogs and animals diagnosed with internal non-infectious diseases (IND) was divided into two groups in accordance with the values of enzyme activity and changes in the concentration of trace elements in the blood serum.

Mathematical methods

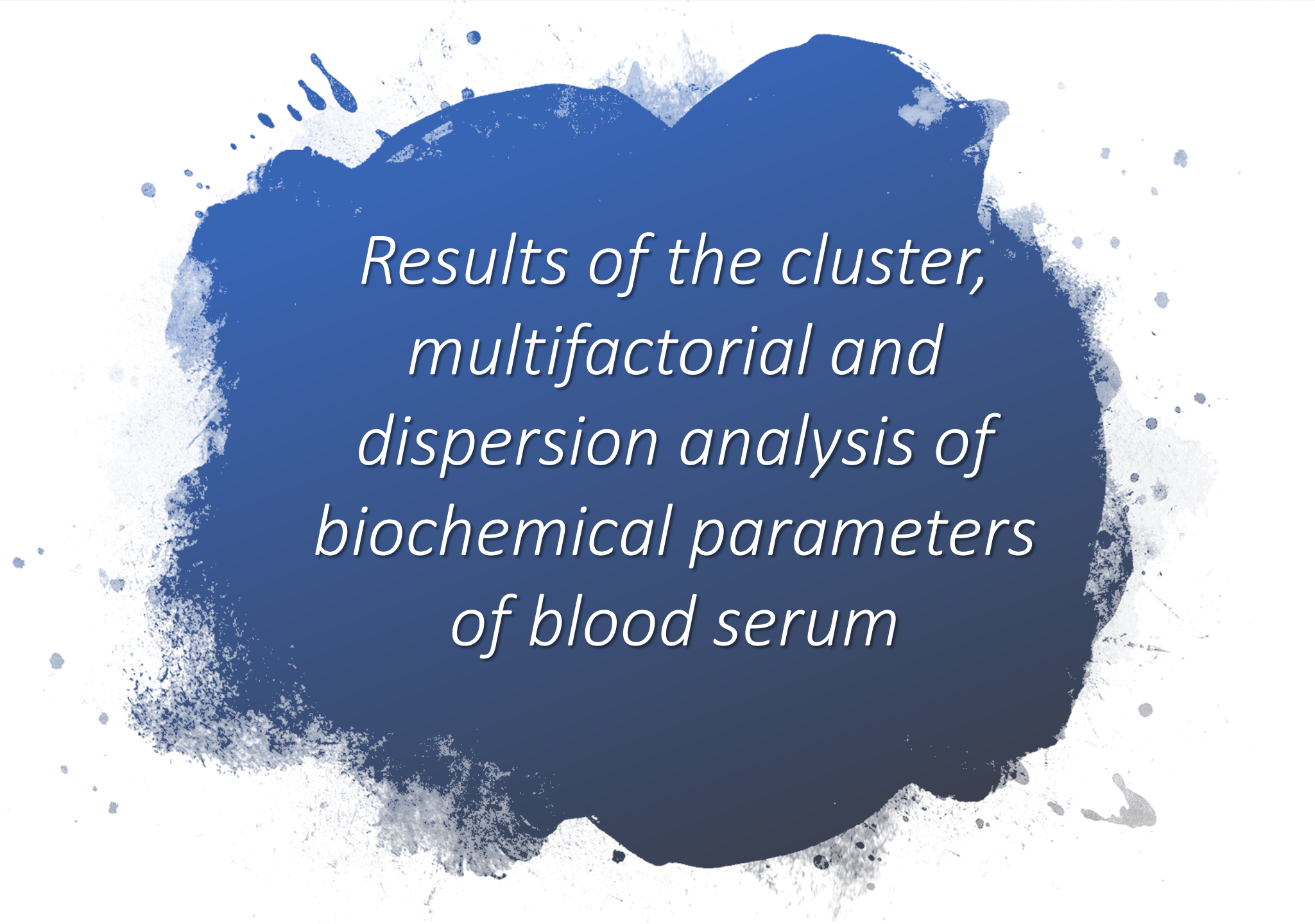
- The results of 12-month monitoring of biochemical parameters of blood serum from dogs were analyzed by methods of mathematical non-linear dynamics & biological statistics .



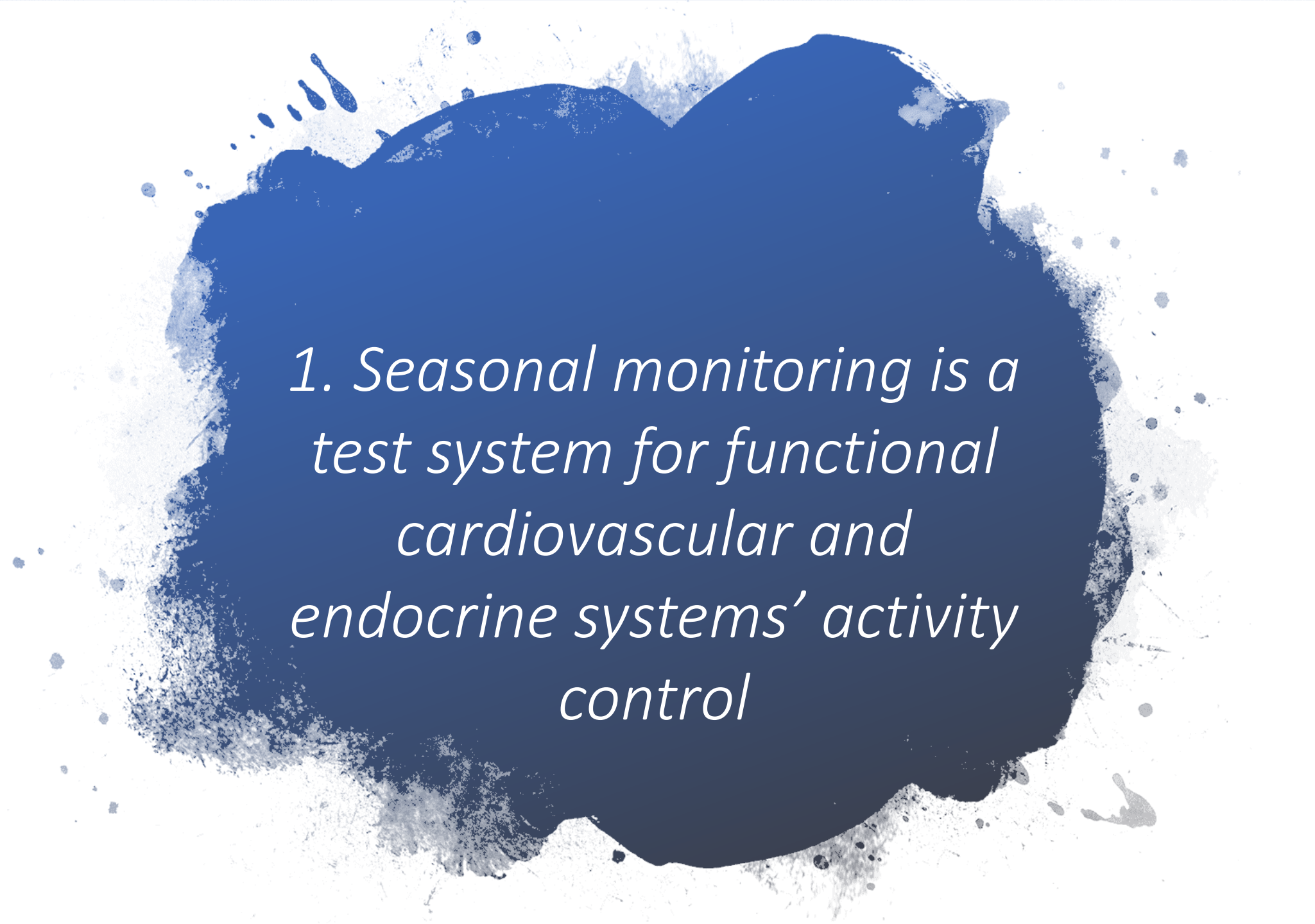
RESULTS

Changes in the enzyme activity

- Based on the results of biochemical studies of the blood serum of healthy and sick domestic dogs of different ages and sex, carried out during the year, the parameters of the breed and seasonal features of the functioning of the homeostasis system were revealed.
- In addition, the characteristic directions of the combined changes in the activity of enzymes and the concentration of trace elements in blood serum in diseases of the cardiovascular system, kidneys and liver of dogs of non-invasive etiology were determined.



*Results of the cluster,
multifactorial and
dispersion analysis of
biochemical parameters
of blood serum*



1. Seasonal monitoring is a test system for functional cardiovascular and endocrine systems' activity control

data obtained

Of considerable interest for practical application are the data obtained in the work, indicating the possibility of using seasonal monitoring of the activity of homeostasis enzymes as a test system for the simultaneous assessment of the functional activity of the cardiovascular and endocrine systems of dogs with internal non-communicable diseases.

*roadmaps for
therapeutic and
diagnostic
measures*

- The developed parameters should be taken into account to create roadmaps for therapeutic and diagnostic measures in veterinary medicine.
- The facts may be of interest for the development of methods of pharmacology, experimental medicine, individual selection of drugs and gerondoprotectors, diagnosis and therapy of internal non-communicable diseases and malignant neoplasms.

Acknowledgments



- Our sincere thanks to Sc. Dr. ***A.M. Nosovski*** for his invaluable advice & consultations.