DYNAMIC OF ENZYMES ACTIVITY ON COMPLEX THERAPY OF DOGS, SICK WITH ACUTE CATARRHAL BRONCHOPNEUMONIA

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Abstract. Enzymes play very important role on the metabolism. One of their key role is protection of organism against pathological factors. Also Enzymes catalyze (enhance through increased rate of chemical reaction) virtually every function in the body, from digestion to tissue repair, and from hormone function to energy production. Bronchopneumonia cause great disbalance of enzymes. Today there are a lot of methods of treatment, but they are not always effective. The purpose of our work was to compare traditional therapy and complex anthyhomotoxyc therapy.

Introduction. Enzymes play very important role on the metabolism. One of their key role is protection of organism against pathological factors. Also Enzymes catalyze (enhance through increased rate of chemical reaction) virtually every function in the body, from digestion to tissue repair, and from hormone function to energy production. Without them, these same processes would occur much too slowly to be compatible with life. Veterinarians may prescribe enzymes when they feel a particular body process needs to be supported. Commonly prescribed enzymes include combinations of lipase, amylase, protease, papain, bromelain, and cellulase [6].

Dogs, sick with catarrhal bronchopneumonia, have significant changes in the activity of enzymes. In particular, there is an increase in the activity of alkaline phosphatase, aldolase, ceruloplasmin, sialic acids, an increase in catalase number and catalase index [1,2,5,6].

Today there are a lot of methods for treatment of dogs, sick with acute catarrhal bronchopneumonia. However, these methods are not always affective and some of them have side effects. That is why more and more specialists try to use natural recourses during the treatment.

One of the methods of treatment and correction of enzymes activity is homeopathy and variety of it - complex antihomotoxic therapy. Homeopathy, as an

addition to traditional therapy, aims to use biotechnological methods for the treatment of animals.

The animal's organism is struck by the complexity of the structure and the perfection of functions. Interest in its design and laws of functioning developed in parallel with reasonable human activity and had not only positive significance. The historical time scale does not diminish the amazing importance of the way in which the evolution of our ideas about the phenomena of health and pathology has evolved - from the Hippocratic crasis, cruditas, coctio and crisis to the discovery of the molecular mechanisms of diseases in our day. One of the main tendencies of this evolution attracts attention - the natural shift of accents to a deeper level of organization of living matter - from the body, then to tissues, cells, subcellular structures and, finally, to molecules. Moreover, the growing volume of scientific information has caused the allocation of new and new scientific disciplines, the formation of scientific subsections, the formation of new departments in accordance with the real requirements of practical veterinary medicine [3,4].

It is established that all substances and information entering the cell pass through the molecular sieve filter, the extracellular space (matrix). Any sieve can be "clogged", but with the help of appropriate drainage measures its functions can be restored. In addition, immunocompetent cells are patrolled in the main substance, which perform distinctive and detoxifying functions. The picture of the basic regulation is supplemented by the circumstance that the main substance is attached to the nervous and hormonal systems. This confirms the antihomotoxic theory of H.H. Rekieweg [4].

The purpose of our work was to evaluate different methods of treatment of dogs, sick with catarrhal bronchopneumonia and to explore the dynamic of enzymes activity during the treatment.

Materials and methods. The material for the study was twenty dogs, selected according to the principle of analogs, sick with acute catarrhal bronchopneumonia. The dogs were divided into two groups of 10 animals each. Each animal was monitored for 20 days. Every day animals were subjected to clinical explorations. At the beginning and at the end of the treatment we spent the X-ray exploration. On the first, tenth and twentieth day we spent hematological and biochemical researches. Fallen animals were also subjected to pathoanatomical studies. The determination of enzymes was based on photometric analysis. Photometric analysis is one of the oldest and most common physical and chemical methods, it requires relatively simple equipment, at the same time it is characterized by high sensitivity and the ability to

determine a large number of organic substances. The discovery of ever new reagents forming colored compounds with inorganic ions and organic substances, the development of the principles of conjugate reactions makes the application of this method almost unlimited at present.

Receiver of optical radiation on the corresponding radiation fluxes. In routine laboratory practice, it is customary to designate devices that detect the absorption of light by matter, photometers, and reflection by reflective photometers.

The treatment of animals was carried out in a complex manner. Thus, in the first group we used mucaltinum 0.5 g orally twice a day up to recovery, bicillinum-3 50 thousand UA/ kg once every three days intramuscularly, dissolving in 2 ml of isotonic sodium chloride solution and vitaminum B12 1 ml once in Day subcutaneously during 10 days. In the second group we used mucaltinum 0.5 g orally twice a day up to recovery, bicillinum-3 50 thousand UA/ kg once every three days intramuscularly, dissolving in 2 ml of isotonic sodium chloride solution, intradermal leidase 32 UA with 1 ml 0,5% solution of novocaine for 3 consecutive days, then 3 times a week, traumeel lymphotropically regionally for three consecutive days, 1 ml intradermally, then every three days and phosphorus-homaccord lymphotropically regionally 1 ml every three days up to recovery.

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Results of researches. At the beginning of treatment, the animals showed characteristic signs of bronchopneumonia. Among these signs was an increase in the level of sialic acids, which indicates the inhibition of the general state of the organism. On the X-ray pictures we saw lands of inflammation, from a pigeon to a hen's egg on size, the veiling of the borders of the lungs, the blurring of the overall picture of the thoracic cavity. During the treatment the condition improved, and more

clearly it is noticeable in the group where we used complex antihomotoxic therapy (Table 1).

Table 1. Results of complex therapy

Group of animals	Number of animals	Results of treatment			
		Duration of treatment (days)	Total recovery	Came to chronic condition	Died
I	10	17-19	7(70%)	2(20%)	1(10%)
II	10	10-12	9(90%)	1(10%)	-

Also at the beginning of treatment we noticed the rise of the enzymes activity. During the treatment the normalization of enzymes activity figures was observed. Moreover, normalization of enzymes activity in the second group was a lot faster, than in the first group (table 2-3).

Table 2. Dynamic of enzymes activity of dogs of first group.

Figure	Clinically healthy animals	Dynamic of figures, n=10		
		1 day	10 day	20 day
Alkaline phosphatase, ncat/l	634,30±85,30	1096,90±6,81***	841,80±25,37*	781,80±16,73
catalase index, U.	0,69±0,13	1,19±0,14*	0,91±0,10	0,83±0,08
catalase number, ncat/l	3,88±0,58	9,89±0,42***	6,52±0,29***	4,90±0,32
ceruloplasmin, mmol/l	2,85±0,22	5,94±0,27***	4,87±0,31***	3,64±0,17**
sialic acids, mmol/l	1,59±0,04	4,54±0,20***	3,50±0,15***	2,45±0,47◊
aldolase, ncat/l	57,34±10,28	108,69±8,04***	95,68±7,34**	65,84±3,72

Note: ◊ – p<0,1; * – p<0,05; ** – p<0,01; *** – p<0,001 compared with clinically healthy dogs

Table 3. Dynamic of enzymes activity of dogs of seacond group.

Figure	Clinically healthy animals	Dynamic of figures, n=10		
		1 day	10 day	20 day
Alkaline phosphatase, ncat/l	634,30±85,30	634,30±85,30	1113,60±23,54***	846,80±16,26*
catalase index, U.	0,69±0,13	0,69±0,13	1,27±0,09**	0,82±0,04
catalase number, ncat/l	3,88±0,58	3,88±0,58	9,50±0,58***	5,38±0,17***
ceruloplasmin, mmol/l	2,85±0,22	2,85±0,22	5,83±0,21***	3,98±0,10***
sialic acids, mmol/l	1,59±0,04	1,59±0,04	4,75±0,22***	2,55±0,20***
aldolase, ncat/l	57,34±10,28	57,34±10,28	110,02±5,21** *	85,77±4,65*

Note: * – p<0,05; ** – p<0,01; *** – p<0,001 compared with clinically healthy dogs

Conclusions

1. Bronchopneumonia is common in dogs

2. One of the most important indicator of catarrhal bronchopneumonia is the activity of enzymes

3. complex antihomotoxic therapy with using complex antihomotoxic preparations traumel and phosphor-homaccord is more effective compared with traditional therapy

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