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**FEATURES OF SPECIFIC ANTIBODIES FORMATION IN HUMANS
AGAINST THE CANINE DISTEMPER VIRUS**

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The article presents the data to establish the presence of specific antibodies titers against the canine distemper virus (CDV) in blood serum of humans diagnosed with insular (multiple) sclerosis. It was found that the most investigated blood serums (63%) had high specific antibodies titers against the CDV but in serum of humans who are in constant contact with various pets, CDV didn't show immunogenic properties.

Keywords: *lymphocytes, immunoglobulin G, blood serum, canine distemper virus (CDV).*

It has been established that the number of microorganisms with permanent micro flora in animal organisms are more than own immune protected cells. By the diversity of micro flora observed in the habitat and in the organism, the wide range of viruses that are found in humans and animals organisms should be added [1]. Conducted researchers to identify the canine distemper virus (CDV) in dogs had shown extraordinary prevalence of virus infection even without clinical signs of disease, indicating that the negative reaction to an antigen by ELISA do not exclude the possibility of disease [2, 3]. The assumption put forward that CDV can be the etiological agent of Paget's disease. By the method of ELISA antibodies to CDV were detected in patients serum. Antibodies formation to CDV in humans indicates the possibility of CDV infection [4]. Morphological changes identified in the neural pathological changes in dogs infected with CDV serve as an important model for the disease studied in humans with insular (multiple) sclerosis (MS) [5].

Comparative researches in spontaneously occurring inflammatory and cancer diseases in dogs and humans found similar immune response, particularly the role of the most powerful antigen presenting dendritic cells [6,7].

Discovered transmembrane PVRL4 protein serves as a receptor for CDV and it is found in the epithelial cells of the respiratory tracts in moderate quantity but its number increased with the development of lung and breast adenocarcinoma. This indicates that CDV infecting cells increases cancer effects and PVRL4 protein may serve as a cell marker of different cancer classes as in dogs and as in humans [8].

Perfect neural immune endocrine regulation directed on hard immunological control certainly that prevents development of diseases clinical signs in humans and animals. Symbiotic coexistence of organism and diversity of its micro flora can be broken and microorganisms can cause severe endogenous inflammatory processes under the certain conditions.

The aim of our researches was to identify specific immunoglobulin G against the canine distemper virus in human blood serum.

Materials and methods. For studies human and dog blood serum were used. The first group is people who have officially confirmed the diagnosis of insular (multiple) sclerosis (n = 16). The second group is people who are in constant contact with dogs (n = 10). Also blood serum of dogs with clinical signs of distemper was investigated for comparison. Specific antibodies titer was determined by ELISA test systems of Moscow company "Hema" in u/ml. In people with confirmed diagnosis of insular sclerosis, leycogramme indicators represented in history were studied.

Results and discussion. Analyzing the obtained data it should be noted that to identify specific antibodies titers in dogs to 20 units/ml is considered to be negative; 20-40 units/ml - doubtful; above 40 units/ml - positive. The evaluation of specific immunoglobulin titer against CDV in people diagnosed with insular sclerosis had established: in 2 people - titers <20 u/ml, in 4 people-titers within 20-40 u/ml and in 10 people - titers >40 u/ml. As formation of specific antibodies are usually the final stage of the immune response in the body, the detection of immunoglobulin G levels indicates CDV immunogenicity in humans.

According to the literature data (Lebedev K.A., 2013) microorganism's immune response ability is allowed only if specific membrane receptors are situated on the surface of immune competent cells. Cells receptors (pattern recognition receptor, PRR) associated with innate and adaptive immunity. Therefore we must assume that the presence of receptors to CDV on the surface of human immune competent cells are either genetically determined or they appear under certain conditions during the life (virus variability, homologous morbilivirus receptors or homologous morbilivirus antigens). The dysfunction of cellular immunity, presence of constant antigen source (pets – virus carrier) and others also can be as associated factors.

It should be noted that the study of human blood serum who are in constant contact with pets didn't not give any positive result, i.e., specific antibodies titers were not be detected. This fact may be confirmed as the virus immunogenicity appears only under the certain conditions which are probably the state of body's immune reactivity.



Fig.1 The level of lymphocytes in humans depend on the titer of antibodies to CDV

The figure shows the data of the number of lymphocytes in people diagnosed with multiple sclerosis, depending on the specific antibodies titers against CDV. It shows that people who have high specific immunoglobulin G titers in blood serum, they also have a high number of lymphocytes. Increased number of lymphocytes may be due to dysfunction of immune regulatory mechanisms such as the synthesis of signaling molecules that regulate the number of population immune competent cells and maintain their percentage.

CONCLUSIONS

It has been established that canine distemper virus under the certain conditions is immunogenic for humans and it is possibly to be one of the ethological factors which induces morphological changes found in the neural pathological changes in the body. People with high titers of specific antibodies also have a high relative number of lymphocytes.

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Анотація

Брошков М.М. Особливості формування специфічних антитіл у людини проти вірусу чуми м'ясоїдних. У статті представлені дані, щоб встановити наявність специфічних титров антитіл проти вірусу чуми м'ясоїдних (CDV) в сироватці крові людини з діагнозом розсіяний склероз. Було встановлено, що більшість досліджених сироваток крові (63%) мали високі титри специфічних антитіл проти CDV, але в сироватці крові людей, які знаходяться в постійному контакті з різними домашніми тваринами CDV не показують імуногенні властивості.

Ключові слова: лімфоцити, імуноглобулін G, в сироватці крові, собак вірус чумки (CDV).

Аннотация

Брошков М.М. Особенности формирования специфических антител у человека против вируса чумы плотоядных. В статье представлены данные, чтобы установить наличие титра специфических антител против вируса чумы плотоядных (CDV) в сыворотке крови человека с диагнозом рассеянный склероз. Было установлено, что большинство исследованных сывороток крови (63%) имели высокие титры специфических антител против CDV, но в сыворотке крови людей, которые находятся в постоянном контакте с различными домашними животными CDV не показывают

иммуногенные

свойства.

Ключевые слова: лимфоциты, иммуноглобулин G, в сыворотке крови, собак вирус чумки (CDV).