

**Introduction.** Parkinson's disease (PD) is one of the most common chronic neurodegenerative diseases, caused by the progressive destruction and death of dopaminergic neurons of black substance and other parts. Despite various trigger events, during the development of the disease chronic immune activation, in particular microglia, of resident macrophages of the central nervous system is observed. It leads to neuronal damage by affecting the blood-brain barrier, which attracts cells of the adaptive immune system that exacerbate the pathogenesis of the disease. In this regard, the study of the immunophenotype of peripheral blood and cerebrospinal fluid is an important diagnostic value.

**Aim.** To assess the subpopulation subsets of peripheral blood lymphocytes and cerebrospinal fluid cells in patients with PD (n=2).

**Materials and methods.** The material for the study was the whole blood and cerebrospinal fluid of PD patients (n=2). Subpopulation of lymphocytes was determined by flow cytometry using monoclonal antibodies.

**Results.** Cytofluorimetric analysis of peripheral blood lymphocytes in PD patients showed normal values of the total number of lymphocytes in both patients:  $2,2 \cdot 10^9/l$  and  $1,3 \cdot 10^9/l$ , respectively, compared to normal rate of  $1,2-2,5 \cdot 10^9/l$ . However, a detailed analysis of the lymphocytes subsets revealed a reduction of all T-cell subpopulations in the first patient with aggressive course of PD: total number of CD3+ T cells amounted  $352 \cdot 10^6/l$ , at the normal rate of  $652-1500 \cdot 10^6/l$ , number of CD3+CD4+ T cells was  $121 \cdot 10^6/l$ , at the normal rate of  $350-1290 \cdot 10^6/l$ , number of CD3+CD8+ T cells amounted  $148 \cdot 10^6/l$ , at the normal rate of  $190-1120 \cdot 10^6/l$ . All the T-lymphocytes of the second patient with usual course of PD were within the normal range. Meanwhile it was established an increased content of NK cells in the first patient ( $634 \cdot 10^6/l$  at the normal rate of  $108-475 \cdot 10^6/l$ ). The number of B cells vary within the normal range:  $162 \cdot 10^6/l$  – in the first patient and  $179 \cdot 10^6/l$  in the second, at the rate of  $100-600 \cdot 10^6/l$ .

The investigation of cerebrospinal fluid has revealed a significant excess of all the subpopulations of lymphocytes in the PD patients. The total number of lymphocytes of the second patient was  $127 \cdot 10^6/l$ , at the normal rate of  $0,66 [0,16-1,88] \cdot 10^6/l$ , which is 192 times higher than the normal parameter; while in the first patient these indicators are 3494 times higher than the norm and counted  $2306 \cdot 10^6/l$ . Herewith the values of CD3+ T cells, CD3+CD8+ T cells, CD19+ B cells and CD56+ cells were hundreds of times higher than normal findings – in PD with usual typical course, and exceeded the normal rate by a thousand times – in patients with aggressive course. In both patients the number of CD3+CD4+ T cells practically did not differ and amounted  $79 \cdot 10^6/l$  in the first patient and  $75 \cdot 10^6/l$  in the second, at the normal rate of  $0,44 [0,08-1,43] \cdot 10^6/l$ , that is more than 150 times higher than the normal values.

**Conclusion.** The obtained data confirm the exceeded content of the adaptive immune cells in cerebrospinal fluid in patients with PD. The data of the two patients were differed and pointed to the aggressive course of the disease in the first patient and the unfavorable prognosis. Thus it is important to estimate the lymphocytes subsets numbers not only in peripheral blood but also in cerebrospinal fluid for the diagnosis and prognosis of neurodegenerative diseases, in particular PD.

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## THYROID CANCER MORBIDITY IN PINSK REGION IN 2009-2016

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Statistical data on the incidence of thyroid cancer in the population of Pinsk and Pinsk district of the Brest region and Belarus for 2009–2016 years. In the period 2009–2016, there is a tendency to increase the incidence of thyroid cancer in the population of Pinsk and Pinsk districts. For 2012–2016 was 22 cases of thyroid cancer. children of Pinsk and Pinsk district.

**Keywords:** thyroid cancer, endocrine system, malignant tumor, iodine deficiency, the incidence of.

Thyroid cancer (TC) is one of the most spread malignant tumors of endocrine system. It may develop in any age. The significant growth of TC morbidity occurred during the period after the accident on Chernobyl NPP,

especially in Gomel and Brest region. It was connected with so called “iodine blow” on the background of iodine deficiency in environment.

The aim of this work was to study the levels of incidence of thyroid cancer in the town of Pinsk and Pinsk district and compare them with levels in Brest region and Belarus.

Comparative evaluation of statistical data of the incidence of thyroid cancer in the population of Pinsk and Pinsk district, Brest region and the Republic of Belarus in the period 2009–2016 has been done.

During analyzing period, we can see tendency for growth of the incidence of thyroid cancer in the population of Pinsk and Pinsk district (236 per 100 thousand in 2009 and 390 per 100 thousand in 2016). The difference between 2009 and 2016 years was not significant.

22 cases of TC were registered during 2012–2016 years. in children of Pinsk and Pinsk district. We didn't reveal significant difference in the incidence of TC in children during this period (0,13 per thousand in 2012 and 2013; 0,2 per thousand in 2014; 0,03 per thousand in 2015 and 0,1 per thousand in 2016).

We revealed steady significant growth of TC morbidity during 2009–2016 years in Brest region (244 per 100 thousand in 2009 and 399 per 100 thousand in 2016).

The incidence of TC in the population of Pinsk and Pinsk district was significantly lower, than in Brest region in 2006 ( $p < 0,05$ ), in, in 2014 and 2016 ( $p < 0,01$ ) and in 2013 ( $p < 0,001$ ). The incidence of TC in the population of Pinsk and Pinsk district in 2010–2011 was significantly higher ( $p < 0,05$ ).

During analyzing period the incidence of TC in the population of Pinsk and Pinsk was significantly lower than in Republic of Belarus in 2009 ( $p < 0,05$  in 2010;  $p < 0,01$  in 2010, 2012 and 2014;  $p < 0,001$  in 2013 and 2016).

Almost the same situation was noticed with morbidity during 2009–2016 years in Brest region in comparison with Republic of Belarus.

## **DYNAMICS OF BACTERIAL AND VIRAL INFECTIONS OF RESPIRATORY TRACT IN SLUTSK REGION**

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In this paper the results of health status monitoring of the population of Slutsk and Slutsk district for the period 2011–2015 on the main incidence of morbidity of respiratory tract infections are represented. The comparative analysis of the morbidity of bacterial and viral respiratory tract infections has been implemented, the structure of nosologies, the age composition of the diseased and the annual dynamics of the incidence of respiratory infections in the district has been examined.

**Keywords:** respiratory tract, morbidity of infection, contagiousity, epidemic situation, vaccination, dynamics.

The present stage of epidemiology and infectology is characterized by the recognition that infectious diseases occupy leading positions in human pathology. Respiratory infections take the first place in the structure of infectious pathology and appear the most common and uncontrolled diseases causing significant damage to the health of population and the economies of countries around the world.

The aim of this work is to monitor the health status of residents of Slutsk and Slutsk district with the study of the dynamics of the incidence of bacterial and viral respiratory tract infections.

To realize this aim, the annual bulletins of Slutsk Zonal Hygiene and Epidemiology Center were analysed on the main incidence of morbidity and health of the inhabitants of Slutsk district, data of the National Statistical Committee of the Republic of Belarus.

The study found out that in Slutsk district for the period of 2011–2015 the greatest contribution in the structure of the morbidity of bacterial infections of the airways is made by tuberculosis (70,89 %) and scarlet fever (27,48 %).

The analysis of long-term dynamics of active tuberculosis morbidity of the population of Minsk region and Slutsk district demonstrates a moderate downward trend, however, there is a tendency to increase the proportion of patients with multidrug-resistant (MDR), which in 2015 was recorded at the level of 22,22 % of newly diagnosed patients with active tuberculosis. The major part of the sick accounts for the asocial layers of the population (2015 – 48,52 %) and the age from 45 to 64 years. Among patients, 66,67 % with bacilli (BK +). In 2015 6 cases of death from tuberculosis infection (MDR 80 %) were registered. The peak of morbidity was registered in 2011.