

INFECTIOUS AND CLINICAL LABORATORY MARKERS IN CHILDREN WITH DIFFERENT FORMS OF RHEUMATOID ARTHRITIS

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Potential biomarkers of the diagnostic forms of the JRA course can be the specific amount of leukocytes and neutrophils, as well as the calcium and glucose concentration in the synovial fluid, which can be used for early diagnosis of the disease.

Keywords: Juvenile rheumatoid arthritis, oligoarthritis, monoarthritis, synovial fluid, blood, clinical laboratory markers, infectious markers.

Juvenile rheumatoid arthritis (JRA) refers to autoimmune diseases; hereditary, genetic and environmental factors are involved in its development. While some of the rheumatic diseases are associated with infections, the etiological significance of the infection is assumed for JRA, but it has not yet been proven. Children with JRA have quite specific features that distinguish this disease from rheumatoid arthritis in adults. The aim of the work is to study infectious and clinical laboratory markers of various forms of juvenile rheumatoid arthritis.

Infectious and clinical diagnostic markers in synovial fluid and peripheral blood were studied in juvenile rheumatoid arthritis (n = 46) proceeding as mono- and oligoarthritis. In the process of work, a set of laboratory diagnostic tests such as ELISA, PCR, microbiological methods, immunodiagnostic tests of blood, complete blood count, and physicochemical, biochemical and cytological investigation of synovial fluid were used. Statistical analysis of the obtained data was carried out using nonparametric criteria using the program "Statistica 8.0".

In the blood serum of children with JRA, the presence of antibodies to infectious agents was identified: *Herpes viridae-1*, 2 (57,1 %), *Epstein-Barr virus* (48,6 %), *Cytomegalovirus* (25,7 %), *Chlamidia psittacii* (42,8 %), and *Borrelia burgdorferii* (28,5 %) in the absence of DNA infectious agents in the synovial fluid, which indicates the trigger role of bacterial and viral pathogens in the pathogenesis of JRA.

With JRA, which proceeds as oligoarthritis, a tendency to leukocytosis is registered in the synovial fluid due to an increase in the relative amount of neutrophils ($p < 0,05$) including the ragocytes, and the presence of macrophages, in combination with an increase in the calcium concentration ($p < 0,05$) and glucose ($p < 0,05$), which indicates the pathogenetic role of calcium-binding proteins secreted by activated neutrophils and monocytes. Children with oligoarthritis are characterized by a decrease in platelet counts and a relative amount of basophils with an increased relative monocyte content compared to the same figures in the group of children with monoarthritis ($p < 0,05$).

In JRA that proceeds as a monoarthritis there is a statistically significant increase in the amount of leukocytes in the synovial fluid due to the expressed neutrophilia ($p < 0,01$), which may indicate the predominant role of Th17 cells in the pathogenesis of the disease.

Potential biomarkers of the diagnostic forms of the JRA course can be the specific amount of leukocytes and neutrophils, as well as the calcium and glucose concentration in the synovial fluid, which can be used for early diagnosis of the disease.

COMPARATIVE ANALYSIS OF MORTALITY OF PNEUMONIA IN CHILDREN OF MOLODECHENO DISTRICT

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The work considers the definition and classification; clinical features of pneumonia in children; diagnosis and treatment of this pathology. A practical study of the features of the course of pneumonia in children and a comparative analysis of the incidence of children in the Molodechno district.

Keywords: pneumonia, respiratory system.

Diseases of the respiratory organs occupy the first place in the structure of the general morbidity of children and adolescents, accounting for almost 50 % among children under 14 and about 30 % among adolescents. There is a tendency to increase the spread of respiratory diseases in recent years.

In the Republic of Belarus, the incidence of pneumonia is an average of 4 to 17 cases per 1,000 children. Children of early age are ill 2–3 times more often than teenagers.

The purpose of the survey was to study the features of pneumonia in children, as well as to conduct a comparative analysis of the morbidity in the Molodechno District in connection with the current trend towards an increase in the spread of respiratory diseases in recent years.

For pneumonia in children, there is a high probability of severe course and development of complications.

In the Republic of Belarus, pneumonia is diagnosed in about 15–20 cases per 1000 children of the first year of life, in 36–40 cases per 1000 children at preschool age, and at school and adolescence, the diagnosis of "pneumonia" is established in approximately 7–10 cases per 1000 children and adolescents.

The frequency of hospital pneumonia depends on the contingent and the age of the patients (up to 27 % of all cases of nosocomial infections) and is maximum in young children, especially in newborns and premature babies, as well as in children who underwent surgery, trauma, burns, etc.

The mortality from pneumonia (together with the flu) averages 13,1 per 100 000 population. Moreover, the highest mortality is observed in the first 4 years of life (30,4 per 100 000 population), the lowest (0,8 per 100 000 population) – at the age of 10–14 years.

The incidence is sporadic, but in rare cases, outbreaks can occur among children who are in the same team.

In total for the year of 2016, 563 cases of pneumonia in children were registered in Molodechno and Molodechno District. Of them, under the age of 1 year – 112 cases; from 1 year to 3 years – 127 cases; from 4 years to 5 years – 68 cases; from 6 years to 17 years – 256 cases.

In Molodechno and Molodechnorayons, there is a large incidence of pneumonia in children up to a year from the republican one – 20 % compared to 11 %, but a much lower incidence of children aged 4–5 years – 12 % compared to 34 %.

Since there is a high incidence of children under one year, a detailed study of neonatal pneumonia and the causes of their occurrence are relevant.

THE USE OF LASERS OF LOW INTENSITY IN DERMATOLOGY. LASEROUS REJUVENATION

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The paper describes the main indicators of laser therapy. The anatomical and physiological structure of the skin is considered to explain the effect of laser beams on its functional abilities; various types of lasers and their individual effect on the human skin; the changes in its functions and structure under the influence of low-intensity lasers are analyzed.

Keywords: cosmetology, lasers of low intensity, laser therapy, age changes of women's skin.

Low-intensity laser radiation (LLLI) is primarily used for laser therapy of skin diseases. The effect of LILS is the activation of cell membrane enzymes, the increase in the electrical charge of proteins and phospholipids, the stabilization of membrane and free lipids, the increase in oxyhemoglobin in the body, the activation of tissue respiration processes, the enhancement of cAMP synthesis, the stabilization of oxidative phosphorylation of lipids (reduction of free radical complexes).

There are some types of lasers used in dermatology:

1) Laser co2.2) Erbium laser

When NILI is exposed to biotissue the following main effects are observed:

1) Anti-inflammatory effect

2) Antioxidant effect

3) Anesthetic effect

4) Immunomodulating effect

To study the effect of low-intensity lasers in dermatology, a study was conducted.

Sixty women aged 20 to 55 years were examined.