



Fig. 1. – The aldol condensation

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EPIDEMIOLOGICAL ANALYSIS OF THE INCIDENCE AND THE PREVALENCE OF MENTAL DISORDERS IN THE REPUBLIC OF BELARUS FROM 2010 TO 2017 YEAR

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The research is relevant because of the fact that mental disorders are among the most common human diseases nowadays. At least 1 out of 10 people on the planet has a mental disorder. They account for more than 10 % of the total economic losses caused by human diseases [3]. The incidence rates of the population of the Republic of Belarus by mental disorders from 2010 to 2017 year are analyzed in this research.

Keywords: mental disorders, psychoses, schizophrenia, non-psychotic mental disorders, mental retardation, trends.

The purpose of the work was to analyze the dynamics of the incidence and the prevalence [1] of the population of the Republic of Belarus by the most common types of mental pathology from 2010 to 2017 year.

The results of the analysis indicate the controversial nature of mental disorders among the population of Belarus.

The incidence of mental disorders in 2010–2017 is characterized by an unstable upward trend ($R^2 = 0,459$). There is a pronounced increase of the incidence of psychoses ($R^2 = 0,852$). At the same time, there is a lack of any trend of the incidence of schizophrenia ($R^2 = 0,21$). There is an unstable trend towards a decrease of the incidence of non-psychotic mental disorders ($R^2 = 0,514$). And at the same time, there is an unstable trend towards an increase of the incidence of mental retardation ($R^2 = 0,435$).

The ups and downs of the incidence of mental disorders in various regions of the Republic of Belarus do not have a clear temporal correspondence; they are erratic. So, we can conclude that this incidence is not directly related to the economic or political situation of the Republic of Belarus, but is due to other determining factors.

Among men there is an unstable trend towards a decrease the incidence of mental disorders ($R^2=0,652$) while among women there is no trend at all ($R^2 = 0,005$).

The total number of patients with mental disorders registered at the organizations of the Ministry of Health of the Republic of Belarus in 2010–2017 is growing ($R^2 = 0,9$). There is also a steady upward trend of the total number of patients with psychoses ($R^2 = 0,987$) and mental retardation ($R^2 = 0,897$) for the studied period of time. The total number of patients with schizophrenia gradually reduces ($R^2 = 0,889$), and the number of patients with non-psychotic mental disorders remains at a relatively constant level ($R^2 = 0,345$). There is a steady increase of the total number of patients under advisory supervision ($R^2 = 0,877$).

Obviously, the situation in the Republic of Belarus requires constant monitoring. It is necessary to continue studying the various epidemiological aspects of the incidence and the prevalence of mental disorders in order to develop and introduce new more effective methods of prevention, diagnostics and treatment. This will work as a basis for strengthening the mental health of the population [2].

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THE RESEARCH OF THE MICROELEMENT DISTURBANCE IN OSTEOARTHRITIS

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An imbalance in the body of the levels of individual trace elements is considered as one of the important clinical and pathogenetic components of degenerative inflammatory diseases of the joints. Trace elements play the role of cofactors involved in the processes of articular inflammation. A decrease in the concentration of trace elements such as calcium, iron, copper and zinc in patients with osteoarthritis has been established. The results can be used to assess the level of trace elements in patients with musculoskeletal pathology and correct their nutrition.

Keywords: osteoarthritis, gonarthrosis, coxarthrosis, hair, X-ray fluorescence analysis, microelements.

Osteoarthritis is considered to be a multifactorial disease, in which all joint structures are involved in the pathological process. Every year, in the Republic of Belarus there is an increase in the incidence of degenerative joint diseases and occurs in every third person after 45 years. Osteoarthritis significantly affects the quality of life of patients and is one of the main causes of temporary and permanent disability.

Microelementosis - an imbalance in the body of the level of trace elements - is considered as an important factor in the development of degenerative diseases of the joints. Trace elements are components of many enzyme systems and are part of enzymes and coenzymes and affect the functioning of cell composition and joint homeostasis.

The chemical composition of hair is better than the rest of biological media reflects the effect on humans of both elevated concentrations of chemical elements and the provision of physiological needs in them. Hair is able to accumulate in itself all those chemical compounds that are present in the body or in the environment. Analysis of the mineral composition of hair is an analytical test that is widely used in the diagnosis of pathological conditions.

The aim of the research was to study microelement disturbances in gonarthrosis and coxarthrosis and to evaluate the clinical significance of microelementosis in the development of osteoarthritis.

The study material was hair with the informed consent of 24 patients, treated in the 11th City Clinical Hospital, as well as the hair of 8 donors who served as a control group. To study the microelement composition of hair, the method of x-ray fluorescence analysis was used. The reference interval for the calcium (Ca) content in adult hair is 300–1000 µg/g; zinc (Zn) – 120–200 µg/g; copper (Cu) – 9–30 µg/g; iron (Fe) – 15–35 µg/g. Statistical processing of the obtained data was performed using nonparametric methods in “STATISTICA 8” software.

A decrease in the concentration of Ca ($p = 0,0009$), Cu ($p = 0,004$), Zn ($p = 0,0002$) in patients with coxarthrosis was found. Patients with gonarthrosis showed a statistically significant decrease in Zn concentration ($p = 0,004$) when compared with the reference interval.