

## **СЕКЦІЯ 15. ЗАСТОСУВАННЯ КОМП'ЮТЕРНИХ ТЕХНОЛОГІЙ ДЛЯ ВИРІШЕННЯ НАУКОВИХ І СОЦІАЛЬНИХ ПРОБЛЕМ У МЕДИЦИНІ ТА БІОЛОГІЇ**

### **ASSESSMENT OF COGNITIVE DISORDERS IN PATIENTS WITH DISCIRCULATORY ENCEPHALOPATHY**

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In recent years in Ukraine there has been a persistent tendency to increase discirculatory encephalopathies (DE) in the structure of cerebrovascular pathology. In modern conditions, there are actual issues of studying the mechanisms of formation and specificity of clinical manifestations of DE in the able-bodied population.

Development of DE occurs with multiple focal or diffuse lesions of the brain of the vascular genesis. The leading clinical manifestations of the disease are intellectual-mnestic disorders of varying severity, including cognitive disorders (CD).

Disorders of mental activity and negative psychological factors make it difficult to treat the disease, the rehabilitation and rehabilitation processes, and are one of the main causes of temporary disability and disability of patients in more than 50% of cases.

For diagnosis, clarification of the nature and extent of therapeutic intervention, it is important to assess the acuity, severity, dynamics of development of the CD and the relationship with the state of other brain functions. A short scale for assessing the mental status of MMSE is used to evaluate the CD. A classification has been developed in which light, moderate and heavy CD are isolated.

For the prediction of the degree of expression of the CD, in many cases, in the medical practice, methods of mathematical modeling are used, in particular, discriminant analysis, which, on the basis of measuring various characteristics of an object, allows it to be attributed to one of the groups in the optimal way.

The aim of the study is to study the severity and structure of CD in patients with DE, depending on the stage of the disease, the degree of disability, and to identify risk factors for the development of cognitive disorders and to develop a mathematical model for assessing the probability of developing a cognitive deficit in DE patients.

The subjects who participated in the study (147 people) were divided into three equal groups: the first group consisted of patients with no CD, the second group had patients with mild CD, and the third group had patients with moderate CD.

All patients underwent a survey in which such methods were used: clinical-psychopathological, clinical-anamnestic, psychodiagnostic using clinical anxiety and depression scales and laboratory-diagnostic, which enabled analysis of 40 indicators.

To construct a mathematical model for predicting the development of CD in patients with DE, linear discriminant analysis was used. Calculation using the method of multiple linear discriminant analysis of Fisher, in which the procedure of stepwise inclusion of variables was used to select the most informative features, helped to identify 11 significant for classification indicators.

The developed mathematical model allows to correctly classify 97.3% of the CD in patients with DE. The analysis of the obtained data made it possible to develop new approaches to the justification of the complex examination of patients of psycho-neurological clinics, to reveal the characteristic laboratory, instrumental and psychological signs that affect the determination of the degree of CD in patients with DE.