

## ABSTRACT

**Actuality of theme.** Parkinson's disease and Parkinson's disease are one of the most common forms of human pathology. In Ukraine, the problem of parkinsonism and other neurodegenerative diseases is paid little attention, and the volume of scientific literature is insignificant and has a predominantly observational or advertising character. Specialized centers for the study of motor disorders practically do not exist. For the diagnosis of parkinsonism, the clinical method and as auxiliary neuroimaging techniques are used. Therefore, these issues conditioned the relevance of this study and encouraged the study of foreign literature and the development of methods for hardware diagnosis of Parkinson's disease.

This work is devoted to the development of a technique for registration of limb movement disorders in connection with neurological diseases and the method of early diagnosis of parkinsonism and in particular Parkinson's disease.

The purpose of scientific research. The purpose of this work is to create a methodology and means for diagnosing primary signs of Parkinson's disease and Parkinson's disease.

Objectives of the study. To achieve this goal, the following scientific and technical tasks need to be addressed:

- analyze the symptoms and causes of parkinsonism and Parkinson's disease, investigate the informativity of the tremor and motor disorders as symptoms of the disease;
- analyze methods of diagnosing Parkinson's disease;
- to create an analytical model for the diagnosis of early signs of Parkinson's disease based on violations of the trajectory of the limb movement;
- To develop technical and analytical suggestions on instrumental means for determining the manifestations of Parkinson's disease for experimental research;
- to develop a methodology for the diagnosis of early manifestations of the disease based on an analysis of experimental studies.

**Object of study.** The object of the study is the development of diseases of the nervous system due to the development of Parkinson's disease, Parkinson's disease and associated violations of the trajectory of the limb movement.

**Subject of study.** The subject of the study is an instrumental method for diagnosing primary manifestations of parkinsonism in the preclinical (initial) stages.

The scientific novelty of the results is to develop a method for early diagnosis of parkinsonism and Parkinson's disease.

The diagnostic method of registration of motor disorders is proposed.

The practical value of the results obtained.

The results of the work make a scientific contribution to the development of neurology and the development of medical technology, can be used in research on similar topics.

Link with research work

Research Work "Creating the Fundamental Principles of Computer-Integrated Diagnostics of Biotechnical Objects State", DR 0116U006058

Research works "Creation of theoretical principles of the integrated system of early diagnosis and forecasting of the development of vibrational signs of common diseases", DR 0114U001471

Approbation of research results. The main provisions and results of work were reported and discussed at the scientific and technical conferences:

IX Scientific and Practical Conference of Students and Postgraduates "A VIEW IN THE FUTURE OF APPLIED DESIGN", Ukraine, Kyiv, NTUU "KPI", 2016

IX International Scientific and Technical Conference of Young Scientists and Students "New Areas of Instrument Development", Republic of Belarus, Minsk, BNTU, 2016.

X Scientific and Practical Conference of Students, Postgraduates and Young Scientists "A View to the Future of Instrumentation" ", Ukraine, Kyiv, NTUU" KPI ", 2017.

X international scientific and technical conference of young scientists and students "New directions of instrument development", Republic of Belarus, Minsk, BNTU, 2017.

XVII International Scientific and Technical Conference of Students and Postgraduates "Instrumentation: State and Prospects", Ukraine, Kyiv, NTUU "KPI", 2017.

Patents have been received for new technical solutions.

#### Publications

On the theme of the master's dissertation published 10 scientific papers, among them 2 articles in the publication, which is part of the scientific metric international bases, 4 theses of reports, including 2 abroad, 2 patents, reports on 2 research works. The list of scientific works is given in Appendix A.

#### Structure and volume of master's work

Master's thesis is presented on 120 pages of printed text, which consists of an introduction, conclusion, a list of sources (33 names) and applications. The work contains 35 tables, 40 figures, 240 formulas and 3 additional amount of 36 p.

Key words: PARKINSONISM, PARKINSON'S DISEASE, TREMOR OF LYMPHOLOGY, DIAGNOSTICS, VIRTUALS