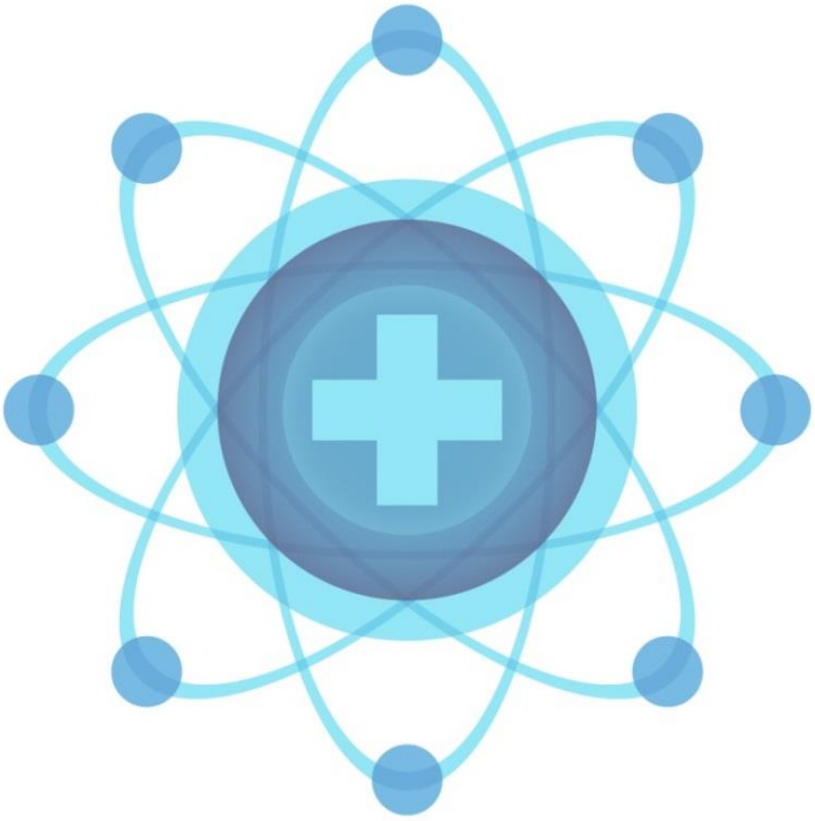

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RISK OF FORMING PARKINSON'S DISEASE AT THE EARLY STAGES

Daminova Kh.M., Matmurodov R.J.
Tashkent Medical Academy, Republic of Uzbekistan, Tashkent
daminovahilola@gmail.com, nevropatolog@mail.ru

Abstract. The article presents the results of observation of 213 patients with PD, including 90 (42.25%) women, 123 (57.75%) men. Patients with PD were selected in accordance with the international criteria of the British Brain Bank “Parkinson's Disease Society Brain Bank". A comprehensive assessment of the general condition of patients, as well as the diagnosis of PD, was carried out in order to identify factors affecting the progression of PD in general: determination of the main unmodifiable risk factors and non-motor manifestations of PD progression, clinical neurological studies, laboratory research methods, neuropsychological studies, magnetic resonance imaging (MRI), electroencephalography (EEG).The results of the study showed that the identification of early biomarkers of the premotor phase of the disease is important for early diagnosis and treatment and their predictive significance in the progression of PD.

Keywords: Parkinson's disease, risk factors, biomarkers of the premotor phase, early diagnosis, primary health care.

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Relevance. Parkinson's disease (PD) is a progressive neurodegenerative disease, the main pathomorphological substrate of which is the loss of dopaminergic neurons in the compact part of the substantia nigra of the midbrain [1,2,3]. Despite significant progress in the study of this disease, its early diagnosis is a difficult clinical problem. Diagnosis of Parkinson's disease remains a complex problem of modern neurology. The prevalence of the disease is very high, averaging 120 to 150 cases per 100,000 population. 10 years after the onset of the disease, 65% of patients become severely disabled [3,6].

Like all neurodegenerative diseases, PD has a long latent period from the onset of the neurodegenerative process to the onset of movement disorders. It is believed that the disease manifests with the death of more than 50% of neuronal cells of the substantia nigra and a decrease in the level of dopamine in the striatum by more than 80% [4,7]. But long before the manifestation of characteristic motor symptoms, the pathological process covers peripheral autonomic neurons, as well as cells of the caudal parts of the brain stem and olfactory bulbs. Attempts at neuroprotection in the late stages of PD may not be successful, which is why the ability to detect the disease at the premotor and prodromal stages is so important. Nevertheless, despite the good knowledge of this pathology by doctors, in the early stage of PD, the frequency of diagnostic errors, even in the conditions of specialized centers for movement disorders, reaches 10-30% [5,8].

In this regard, the development of approaches to the early diagnosis of the “latent” (prodromal) phase of the disease has attracted considerable interest in recent

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years. Almost all biomarkers of PD are considered for their use in the diagnosis of early and premotor stages of diseases. The diagnosis of the prodromal stage of PD is based on the presence/absence of risk factors and prodromal markers of the disease. The risk of developing PD is considered to be increased within 4 years after the detection of hyposmia; with an increase in the period from 4 to 8 years, this factor loses its predictive value.

Despite significant progress in the study of this disease, its early diagnosis is a difficult clinical problem. Diagnosis of Parkinson's disease remains a complex problem of modern neurology [3,4]. Despite good knowledge of this pathology by physicians, in the early stage of PD, the frequency of diagnostic errors, even in the conditions of specialized centers for movement disorders, reaches 10-30%. The disease most often manifests itself after 50 years, but there are frequent cases of the onset of the disease at an earlier age (from 16 years). It is assumed that the onset of the disease is influenced by genetic factors, the external environment (possible exposure to various toxins), and aging processes. Genetic factors play a dominant role in the early development of Parkinson's disease.

Early diagnosis of PD is difficult due to the similarity of clinical manifestations in the early stages with essential tremor, multisystem atrophy, progressive supranuclear palsy, etc. That is why the search for biomarkers of the neurodegenerative process in PD is currently recognized as extremely relevant - biochemical, neurophysiological, neuroimaging, etc. With this, considerable interest in recent years has been the development of approaches to the early diagnosis of the "latent" (prodromal) phase of the disease, which is the most promising in terms of the possibilities of implementing neuroprotective strategies and preventive therapy in patients with PD.

Objective. To study the risk of developing Parkinson's disease in the early stages in primary health care.

Materials and methods. We observed 213 patients with PD, of which 90 (42.25%) were women, 123 (57.75%) were men. Patients with PD were selected in accordance with the international criteria of the British Brain Bank "Parkinson's Disease Society Brain Bank". To exclude other causes of parkinsonism syndrome, patients underwent MRI of the brain. In patients with PD, the form of the disease (akinetic-rigid, mixed, or trembling) and the functional stage of the disease (according to the Hoehn-Yahr scale) were assessed. The severity of the condition was assessed according to the Unified Parkinson's Disease Rating Scale (UPDRS), the stage of the disease was assessed according to the Hoehn-Yar functional scale. A comprehensive assessment of the general condition of patients, as well as the diagnosis of PD, was carried out in order to identify factors affecting the progression of PD in general - determination of the main non-modifiable risk factors and non-motor manifestations of PD progression, clinical and neurological studies, Laboratory research methods, neuropsychological studies, magnetic resonance imaging (MRI), electroencephalography (EEG), blood lipid spectrum, uric acid levels. All patients underwent an assessment of the quality of PD diagnostics on an outpatient basis.

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Results and its discussion. When using the developed questionnaires in primary health care, 213 patients with Parkinson's disease were selected for a pro- and retrospective study in primary health care. A random sampling method (every 2nd case history) was used to conduct a retrospective analysis of data from the case histories of patients with AKI at the level of primary care physicians. We examined 213 patients with PD, 90 (42.25%) women, 123 (57.75%) men, were divided into two groups, group I - with an early onset of PD, consisted of 79 (37.09%) patients, of of which 31 (14.55%) patients with an early onset and with a burdened family history (SA). Group II - with a late onset of PD, consisted of 134 (62.91%) patients with a late onset, of which 76 (35.68%) patients with a late onset, and with a burdened family history. According to the results of the study, from group I - with an early onset of PD, consisted of 79 (37.09%) patients, of which 20 (25.32%) patients were not diagnosed with PD within 2 years from the moment the first symptoms appeared, with 37 (46.84%) of them went to the doctor within 6 months after the development of clinical manifestations. Many people do not even realize that they are sick, although there is a violation of the letter - the handwriting changes, becomes small (micrography), less legible, and in advanced stages it is completely incomprehensible; difficulty brushing teeth, shaving, etc. It is significantly difficult to turn in bed, getting up from a chair or a low chair is a problem, often patients are not able to lie down in the bath and get out of it, therefore they can only wash themselves in the shower. Many patients associate these phenomena with "weakness" and make corresponding complaints. Subsequently, eating becomes difficult due to the difficulty of chewing, choking occurs when swallowing. Due to akinesia of the muscles of the pharynx, swallowing movements become more rare, which leads to the development of salivation. The latter can be so intense that patients are forced to constantly use a handkerchief or towel. Often akinesia and rigidity are combined with tremor. A typical parkinsonian tremor is very peculiar, it is difficult to confuse it with another type of tremor. In such cases, one should mainly focus on the effect of levodopa preparations; in other diseases, this effect is not so pronounced, short-lived, and often absent altogether. This is due to damage to postsynaptic receptors with which levodopa should interact. A rapid rate of progression, at which the transition to the next stage occurred within less than two years, was detected in 8 (10.13%) patients, a moderate rate with a stage change within 2-5 years was detected in 62 (78.48%), a slow pace with a change in stage for more than 5 years - in 9 (11.39%) patients. Bradykinesia (slow initiation of voluntary movements with a progressive decrease in the speed and amplitude of repeated actions) is observed in early parkinsonism 7 (8.86%), muscle rigidity 30 (37.97%), was more pronounced in the limbs (mainly in the distal sections) and in the neck , was characterized by an increase in muscle tone according to the plastic type and was detected during passive stretching of the muscle. The severity of stiffness, as assessed by Part III of the UPDRS, correlated with Hoehn-Yar stage ($r=0.67$; $p<0.05$), disease duration ($r=0.47$; $p<0.05$), severity of gait impairment ($r=0.65$; $p<0.05$) and postural instability ($r=0.74$; $p<0.05$). Tremor at rest with a frequency of 4-6 Hz is expressed in 45 (56.96%) patients. Postural instability in Parkinson's is characterized by a staggering gait, a

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tendency to fall. In severe cases, patients cannot even stand or sit on their own, freezing, falling is noted in 51 (64.56%) patients with PD. In 37 (46.84%) patients - a change in posture with a predominance of tone in the flexion, which led to a specific "beggar's position", 73 (92.41%) - impaired walking; in the extended and late stages, 50 (63.29%) patients had postural instability, 20 (25.32%) patients had stiffness, of which 2 (10.0%) had stiffness when walking in a straight line.

Dysphagia 10 (12.66%), anxiety 27 (34.18%), and depression 21 (26.38%). Postural hypotension (5-10 years after diagnosis) 16 (20.25%). Treatment-resistant axial symptoms (5-10 years after diagnosis), salivation 20(25.32%), urinary incontinence 11(13.92%), nocturia 48(60.76%). Sexual dysfunction: according to the results obtained, sexual dysfunction in the form of sexual dissatisfaction and / or erectile dysfunction (ED) occurs in almost 56 (70.89%) men, while in women it was determined only in 29 (36.71%) cases, being one of the most important factors in reducing the quality of life. Cognitive disorders 49 (62.03%) (Probability increases with time). Disability 27 (34.18%).

The danger of the problem of PD lies in the fact that patients are observed for a long time by therapists and specialists - "not neuropathologists", which leads to late detection of PD, when the possibilities of therapy have been exhausted. Despite sufficient knowledge of the disease, its diagnosis is often belated. One of the reasons for late diagnosis is the untimely visit to the doctor. The results of the study showed that when analyzing the appealability of our patients with PD, it showed that the majority of patients first sought medical help during the period when there were already quite pronounced manifestations of the disease: 146 (68.54%) patients had the 2nd stage of the disease with bilateral symptoms, 15 (7.04%) were at stage 3 and only 52 (24.41%) had stage 1 PD. According to the results of the study, 54 (25.35%) patients were not diagnosed with PD within 2 years from the onset of the first symptoms, while 25 (46.30%) of them went to the doctor within 6 months after the development of clinical manifestations.

Based on the results obtained, we have developed a "Computer program for the diagnosis and prevention of the progression of early (non-motor) manifestations of Parkinson's disease in primary health care" (Certificate No. DGU 15174 dated 07.03.2022, author DaminovaKh.M.). Patients undergo a computer questioning. Each indicator is assigned a specific score. As a result, the score is summed up, on the basis of which the program issues certain recommendations for further management of the patient.

Conclusions.

1. Underdiagnosis of Parkinson's disease was established in primary health care (24.88%), erroneous diagnosis, which did not take into account, non-modifiable and non-motor manifestations of risk factors for the development and progression of Parkinson's disease.

2. For the first time, a “Computer program for early diagnosis and prevention of PD progression” was developed (Certificate No. DGU 15174 dated 07.03.2022, author DaminovaKh.M.) for use at the level of primary care physicians, which contributes to better identification of patients with PD (24, 88%), slowing down the

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progression of the disease, prolonging the early stages of the development of PD, determining a treatment strategy that helps reduce disability, which will prolong the active life of patients and improve the quality of life of patients with PD in the primary health care setting.

Used Literature.

1. Baziyan B.Kh., Chigaleichik L.A., Teslenko E.L. Trajectory analysis for early detection of a neurodegenerative process in Parkinson's disease. In the book: Parkinson's disease and movement disorders: A guide for physicians based on the materials of the II National Congress. M., 2011.

2. DaminovaKh.M. Modern view to optimization of the diagnosis of the course of parkinson'sdisease.//Журнал «Новый День в Медицине».-Avicenna-MED.UZ.-.-№1(39).-2022-январь- март.-С.115-119.

3. Illarioshkin S.N. The modern concept of movement disorders / ed. S.N. Illarioshkin, O.S. Levin.// Guidelines for physicians based on the materials of the IV National Congress on Parkinson's Disease and Movement Disorders.-2017.-p.336.

4. Shtok V.N., Fedorova N.V. Parkinson's disease // Extrapyramidal disorders: guidelines for diagnosis and treatment / ed. V.N. Shtok, I.A. Ivanova-Smolenskaya, O.S. Levin. M.: Medpress-inform, 2012. S. 87–124.

5. Levin O.S., Fedorova N.V. Parkinson's disease. 7th ed. - M.: "MEDpress-inform", 2017. - 384 p.

6. Al Shahrani M, Heales S, Hargreaves I. et al. Oxidative Stress: Mechanistic Insights into Inherited Mitochondrial Disorders and Parkinson's Disease. J Clin Med. 2017 Oct 27;6(11)

7. Sobirjonovna, Kurbonova Nozima. "Factors determining the clinical significance of depiptidyl peptidase 4 inhibitors in the treatment of patients with type 2 diabetes mellitus." World Bulletin of Public Health 8 (2022): 67-72.

8. Sadulloeva, Iroda Kurbonovna. "Ashurova NG Clinical and immunological features of congenital heart defects in adolescent girls." Europe's Journal of Psychology 17.3 (2021): 172-177.

9. Saidjonovna R. D. Method For Improving The Prevention Of Dental Caries In Children Using The Device Aerodent //Web of Scientist: International Scientific Research Journal. – 2021. – Т. 1. – №. 01. – С. 26-32.

10. Ахророва Ш. Б. Диабетической полинейропатии при сахарном диабете i типа //журнал неврологии и нейрохирургических исследований. – 2021. – №. Special 1.

11. Ахророва Ш. Б. Возрастные и гендерные клинико-патогенетические особенности острой невропатии лицевого нерва //Международный неврологический журнал. – 2017. – №. 4 (90). – С. 52-56.

12. Baratova M. S., Atayeva M. A. The estimation of heart rhythm disturbances at the left atrial stunding on early stages of remodeling left ventricular //World medicine journal. – 2020. – №. 1. – С. 1.

13. Атаева М. А., Баратова М. С., Кобилова Г. А. Вирусные гепатиты, осложненные кардиомиопатиями //Новый день в медицине. – 2019. – Т. 25. – №.

1.

14. Costa J., Lunet N., Santos C., Santos J. et al. Caffeine exposure and the risk of Parkinson's disease: a systematic review and meta-analysis of observational studies (англ.)//Journal of Alzheimer's Disease(англ.)рус.journal.— 2010.—Vol. Suppl 1.— P. S221—3

15. Ermatov N. J., Bobomuratov T. A., Sagdullaeva M. A. Prolonged newborns and prolong pregnancy: A modern view on the problem //International Journal of Health and Medical Sciences. – 2022. – Т. 5. – №. 1. – С. 26-30.

16. Ermatov N. J., Abdulkhakov I. U. Socio-hygienic assessment of the incidence rate among various strata of the population-based on the materials of appeals and in-depth medical examinations //International Journal of Health and Medical Sciences. – 2021. – Т. 4. – №. 3. – С. 309-314.

17. Ermatov N. J., Sagdullaeva B. O. Influence of physical training on morbidity rate of students of tashkent city //Международный журнал прикладных и фундаментальных исследований. – 2011. – №. 6-2. – С. 4-6.

18. Esamuratov A., Ermatov N. J. Features of the occurrence of single-nucleotide polymorphism il10 (c592a) among patients with purulent-inflammatory diseases of the middle ear and assessment of its contribution to the mechanisms of disease formation //British Medical Journal. – 2022. – Т. 2. – №. 4.

19. Ermatov N. J., Abdulkhakov I. U. Influence of diet and other risk factors on endocrine system diseases //Asian Journal of Multidimensional Research. – 2021. – Т. 10. – №. 8. – С. 182-189.

20. Azizova F. L. et al. Current state of health and functional capabilities of military personnel (Literaturj reyiew). – 2022.

21. Esamuratov A., Ermatov N. J. Study of the features of single-nucleotide genetic polymorphism IL6 (C174G) in purulent diseases of the middle ear //Art of Medicine. International Medical Scientific Journal. – 2022. – Т. 2. – №. 1.

22. Ermatov N. J., Khamraev N. R. RESULTS OF LIFE QUALITY ASSESSMENT IN REHABILITATION TREATMENT OF CHILDREN WITH TRAUMATIC BRAIN INJURY //СОВРЕМЕННАЯ НАУКА: АКТУАЛЬНЫЕ ВОПРОСЫ, ДОСТИЖЕНИЯ И ИННОВАЦИИ. – 2022. – Р. 212-214.

23. Azizova F. L., Ermatov N. J., Kutliev J. A. HYGIENIC RECOMMENDATIONS FOR ORGANIZING A HEALTHY DIET TO INCR EASE THE PHYSICAL ACTIVITY OF MILITARY ATHLETES //Art of Medicine. International Medical Scientific Journal. – 2022. – Т. 2. – №. 1