

депресії. Компоненти мікробної клітини, наприклад, LPS, що виробляється грамнегативними бактеріями та периферичні запальні сигнали досягають мозку, перетинаючи гематоенцефалічний бар'єр, що призводить до нейрозапалення, що згодом індукує нейропатологічні зміни через хронічну активацію специфічних клітин, включаючи синаптичні дефекти, демієлінізацію, аномальний нейрогенез і вивільнення нейромедіаторів, які беруть участь у патогенезі депресії. Також кишкова нервова система (ENS), яку називають «другим мозком», бере участь у розвитку розладів мозку. Аномальна активність ENS, що виникає внаслідок кишкової патології, посилює патологічні зміни, пов'язані з депресією, змінюючи кишкову секрецію, імунний захист, моторику та проникність.

Висновки. На відміну від геному хазяїна, мікробіом кишечника динамічний, різноманітний і здатний до зовнішньої модуляції. Контроль дієти, додавання живих мікроорганізмів (окремих або змішаних видів) і прийом молекулярних речовин, які є корисними для росту мікробіоти, можуть маніпулювати мікробним складом і функціями для підтримки здорового балансу в кишечнику. Це підкреслює можливість використання кишкової мікробіоти як нової терапевтичної мішені при лікуванні депресії.

PARKINSON'S DISEASE AND GUT MICROBIOTA

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Introduction. Parkinson's disease is a slowly progressive degenerative disease accompanied by a range of motor and postural disorders. Parkinson's disease (PD) affects approximately 3 million people worldwide. According to the Ministry of Health statistics, more than 23,000 people with PD are registered in Ukraine, or 61.4 per 100,000 people. Every year, 2,500 Ukrainians learn about this diagnosis from doctors.

Aim. To evaluate the role of the gut microbiota in patients with different forms of CP.

Materials and methods. The analysis of scientific sources in the field of research, systematic and method of generalisation of results were used. At the Centre for Patients with Parkinson's Disease and Other Neurodegenerative Diseases, 30 patients of different sexes, aged 45-80 years with Parkinson's disease and 15 patients without signs of neurodegenerative disease were examined, who formed the control group. The state of the intestinal microbiota was assessed using the results of a fecal examination for dysbiosis (bacteriological method), which was carried out in the bacteriological laboratory at the Poltava Regional Clinical Hospital named after M.V. Sklifosovsky of the Poltava Regional Council.

Research results. Experts pay great attention to the relationship between stress-induced diseases and the gut microbiota. Evidence suggests that the gut microbiota plays a major role in several stress-related neuropsychological conditions, including anxiety and depression, as well as neurodegenerative diseases, including PD. Changes in the gastrointestinal microbiota populations may contribute to the development and progression of PD, which is a severe neurodegenerative movement disorder characterised by motor and non-motor impairment.

Clinical manifestations of CP depend on the qualitative and quantitative composition of the gut microbiota. Approximately 80% of people with CP have digestive problems. Difficulty swallowing, nausea and constipation are typical manifestations of the disease. Metagenomic studies

have shown that almost 30% of the gut bacteria in people with CP differ from those without the disease. In particular, there is an increase in the number of pathogenic *Escherichia coli*, *Klebsiella pneumoniae* and *Klebsiella quasipneumoniae*, a significant increase in the content of *Bifidobacterium dentium* bacteria (almost 7 times), which cause anaerobic infections such as brain abscesses, and the number of *Roseburia intestinalis* bacteria, which are inhabitants of a healthy colon, was reduced by 7.5 times. The presence of *Helicobacter pylori* in the digestive system of patients with CP can exacerbate the deterioration of motor functions and accelerate the progression of the disease.

According to the results of our own studies, the composition of the gut microbiota in patients with CP differed from the control group by a significant qualitative and quantitative increase in the content of bacteria with anti-inflammatory properties, which are closely related to intestinal barrier disruption. There was an increase in the representation of *Lactobacillaceae* and *Bifidobacteriaceae* and a decrease in the number of "anti-inflammatory" bacteria. In patients with akinetic-rigid form of the disease, a statistically significant decrease in normal intestinal flora and enzymatic function disorders were recorded compared to the group of patients with akinetic-rigid-tremulous form of the disease and the control group.

Intestinal dysbiosis (ID) has a direct impact on the symptoms of PD and can serve as a marker of this disease. CD causes numerous and complex metabolic changes. The next step and consequence of CD is the occurrence of increased intestinal permeability, local and systemic inflammation, and the production of bacterial amyloid proteins that promote the aggregation of α -synuclein (a protein marker of PD). In addition, dysbiosis reduces the effectiveness of dopaminergic treatment. A diet enriched with uridine and choline has been shown to improve motor symptoms, reduce α -synuclein accumulation and colon inflammation. According to clinical trials, one of the strategies for treating CP may be the introduction of probiotics, which are normally used to correct IBD: to correct the quantitative and qualitative composition of the microbiota, improve the immune and barrier functions of the intestinal mucosa, improve fermentation, etc.

Conclusions. The results of the study showed that among the non-motor manifestations in the clinical picture of patients with Parkinson's disease, disorders of the gastrointestinal system and psycho-emotional sphere dominate. In terms of motor disorders, patients with akinetic rigidity have a higher frequency of motor fluctuations, which correlate with the duration of the disease, doses of levodopa therapy and clinical manifestations. The composition of the intestinal microbiota of patients with CP indicates the presence of dysbiosis due to a decrease in normal microflora and enzymatic activity disorders, which affects the development of non-motor, namely gastrointestinal symptoms.

PREVENTIVE MEDICINE IN MOROCCO: APPROACHES TO VACCINATION

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Introduction. In the North African nation of Morocco, preventive medicine plays a crucial role in safeguarding the health of the population. The historical evolution of preventive medicine practices in Morocco reflects a dynamic response to changing health landscapes, with the nation demonstrating a commitment to proactive health promotion and disease prevention.