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RESIDUAL EFFECTS OF THE NEW CORONAVIRUS INFECTION

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Эпидемия COVID-19 постепенно перешла из острой в затяжную форму и ко второму году пандемии регистрируется «постковидный синдром». Завершение острой фазы коронавирусной инфекции имеет разный вариант продолжительности. Это показывают, динамические наблюдения за миллионами больных, переболевших за последние 2 года. В статье обсуждаются клинические признаки постковидного синдрома, наблюдаемые при подострой и хронической формах заболевания COVID-19. В постковидном периоде рассмотрены последствия заболевания COVID-19 и причины их возникновения. У трети больных островоспалительный период заболевания может пройти без каких-либо последствий. При тяжелом течении заболевания у большинства больных наблюдаются различные клинические признаки и остаточные явления. Часто эти остаточные явления пропорциональны тяжести заболевания, в ряде случаев исход и остаточные явления не зависят от периода острого воспаления и тяжести заболевания.

Ключевые слова: COVID-19, постковидный синдром, затяжная форма, остаточные явления.

COVID-19 epidemiyasi asta-sekin o'tkir shakldan uzoq davom etgan shaklga o'tdi va pandemiyaning ikkinchi yiliga kelib, "post-COVID sindromi" qayd etilmoqda. Koronavirus infektsiyasining o'tkir bosqichining tugashi boshqa muddatga ega. Buni so'nggi 2 yil davomida kasal bo'lgan millionlab bemorlarning dinamik kuzatuvidan bilsa bo'ladi. Maqolada COVID-19 kasalligining subakut va surunkali shakllarida kuzatilgan post-COVID sindromining klinik belgilari muhokama qilinadi. COVID -19 dan keyingi davrda COVID-19 kasalligining oqibatlari va ularning paydo bo'lish sabablari ko'rib chiqiladi. Bemorlarning uchdan birida kasallikning o'tkir yallig'lanish davri hech qanday oqibatlarsiz o'tishi mumkin. Kasallikning og'ir bosqichida bemorlarning ko'pchiligida turli xil klinik belgilar va qoldiq asoratlar mavjud. Ko'pincha bu qoldiq asoratlar kasallikning og'irligiga mutanosibdir, ba'zi hollarda natija va qoldiq asoratlar o'tkir yallig'lanish davriga va kasallikning og'irligiga bog'liq emas.

Kalit so'zlar: COVID-19, post-covid sindromi, cho'zilgan shakl, qoldiq effektlar.

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The COVID-19 epidemic has gradually passed from an acute to a protracted form, and by the second year of the pandemic, a “post-COVID syndrome” is being recorded. Completion of the acute phase of coronavirus infection has a different duration. This is shown by dynamic observations of millions of patients who have been ill over the past 2 years. The article discusses the clinical signs of post-COVID syndrome observed in subacute and chronic forms of COVID-19 disease. In the post-COVID period, the consequences of the COVID-19 disease and the causes of their occurrence are considered. In a third of patients, the acute inflammatory period of the disease can pass without any consequences. In the severe course of the disease, most patients experience various clinical signs and residual effects. Often these residual effects are proportional to the severity of the disease, in some cases the outcome and residual effects do not depend on the period of acute inflammation and the severity of the disease.

Key words: COVID-19, post-covid syndrome, protracted form, residual effects.

Introduction. The causative agent of the new coronavirus infection SARS-CoV-2 is the causative agent responsible for the development of COVID-19, which is recognized as a multi-organ disease with a wide range of symptoms [1,6,7]. The end of the acute period of coronavirus infection has a different duration. This can be seen from the dynamic observation of millions of patients who have been ill over the past 2 years. In a third of patients, the acute inflammatory period of the disease can pass without consequences [7,8]. In the severe clinical form of the d isease, most patients experience various clinical signs and residual complications. Often these residual complications are proportional to the severity of the disease, and in some cases the consequences and residual symptoms do not depend on the period of acute inflammation.

[1,2,4] This is not the problem we want to focus on. In a certain part of patients, residual complications and secondary syndromes affect the quality of life for several months and require special attention and special correction. The symptomatology of these adverse events is very diverse, covers dysfunctions of many organs and systems, requires the formation of a polymorphism of secondary and delayed complications. The term "polymorph" can be used on any phenotypic basis (morphological, physiological, biochemical, behavioral), including at the genetic level of a trait.

Early reports on COVID-19 analyzed residual complications such as fatigue, shortness of breath, chest pain, cognitive impairment, arthralgia, and reduced quality of life.[1] These consequences can lead to the production of inflammatory cytokines and cell damage as a result of a persistent immune system response. [9,10]

Polymorbid residual complications or signs that occur after a previous COVID-19 disease are observed with the manifestation of one or another symptom or syndrome

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predominance. With this in mind, we decided to analyze the post-COVID syndrome that occurs after infection with the novel coronavirus.

Materials and methods of research: outpatient cards of patients who were treated in a hospital, registered in the central multidisciplinary polyclinic of the Samarkand city medical association, served as the material for the study.

As research materials, blood, urine, feces were taken, a laboratory general analysis of blood, urine, feces, blood biochemistry, a study of the blood coagulation system according to Sukharev, the determination of D-dimer, procalcitonin, ferritin, instrumental MSCT of the chest organs, ECG were performed. EEG and UTT were used as examination methods. The results were retrospectively analyzed in an in-depth statistical analysis.

30.7% of patients fully recovered within 4 weeks of onset of COVID-19. 45.6% of patients had subacute or subacute COVID-19 disease. In this group of patients, some symptoms of COVID-19 persisted for 4-12 weeks. In 23.7% of patients, symptoms became chronic after the acute period of COVID-19 disease. These included symptoms and impairments that persisted past week 12 of the acute phase of the illness.

Comorbidities in patients include cardiovascular system (14.5%), chronic lung disease (11.7%), kidney disease (7.6%), diabetes mellitus (25.7%), grade II obesity (15. 6%), and III degree (8.4%), HIV. infection (5.8%), tuberculosis (4.7%), chronic liver disease (6%) and others observable.

In 2021 publications, it is customary to refer to changes after an acute period of COVID-19 as Post-COVID-19 Syndrome, or Long Covid. Post-COVID syndrome (ICD-10) has been included in the 10th revision of the International Classification of Diseases as a “post-COVID-19 condition.”[8,10] In 2020, the UK International Health Association:

- acute COVID-19 (if symptoms last 4 weeks); - prolonged COVID-19 (if symptoms last from 4 weeks to 12 weeks); - post-covid syndrome (symptoms of the disease lasting more than 12 weeks, not explained by other diagnoses, changing from time to time, appearing and disappearing with damage to many organs and systems)

1st table.

Damage to organs and systems and their clinical manifestations in the post-COVID period in patients under observation

Damaged organs and systems	Syndromic symptoms of diseases	%
The cardiovascular system	Heart attack, arrhythmias, hyper- and hypotensive syndrome, chronic heart failure, various localized thromboses	23%

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Respiratory system	Obstructive bronchitis, intercostal neuralgia, prolonged painful cough, prolonged wheezing	13,5%
Digestive system	The state of dysbacteriosis, intestinal dysfunction, persistent flatulence	5,6%
Nervous system	Depressive states, headache, insomnia, memory loss, forgetting professional skills, lifestyle changes, inactivity, constant state of fear, vegetative-vascular dystonia, stroke, smell and taste disorders, encephalopathy, encephalitis, polyradiculoneuritis, cerebrovascular complications.	21,7%
Kidneys and excretory system	If the patient has previously suffered from kidney disease, during COVID-19 dysfunction of the genitourinary system, chronic renal failure, impaired spermatogenesis in men	7,6%
Endocrine system	Transient hyperglycemia due to dysfunction of the pancreas, damage to the adrenal glands, changes in the production of hormones TSH, T3, T4 due to dysfunction of the thyroid gland.	9,6%
Basic movement system	Scattered pain in muscles, joints, arthritis of unknown etiology, myositis	11,2%
The immune system	The response of the immune system in the post-COVID-19 era is neither adaptive nor well understood. A strong inflammatory process developed in the body, other organs and systems were involved in the process. It was noted that the levels of C-reactive protein, ferritin and ECT indicators remained at a high level for a certain period of time after the acute period of COVID-19 disease in patients.	7,8%

The table presents many post-morbid changes, the duration of which followed the disappearance of the primary respiratory syndrome with varying degrees of severity of pulmonary-bronchial lesions. All these cases can be combined by the term "polymorphism" (symptoms, syndromes, diseases). These residual symptoms were observed in patients for 1 year (Table 1).

When analyzing the rate of systemic changes, it became clear that changes in the cardiovascular system and the nervous system predominate (Fig. 1).

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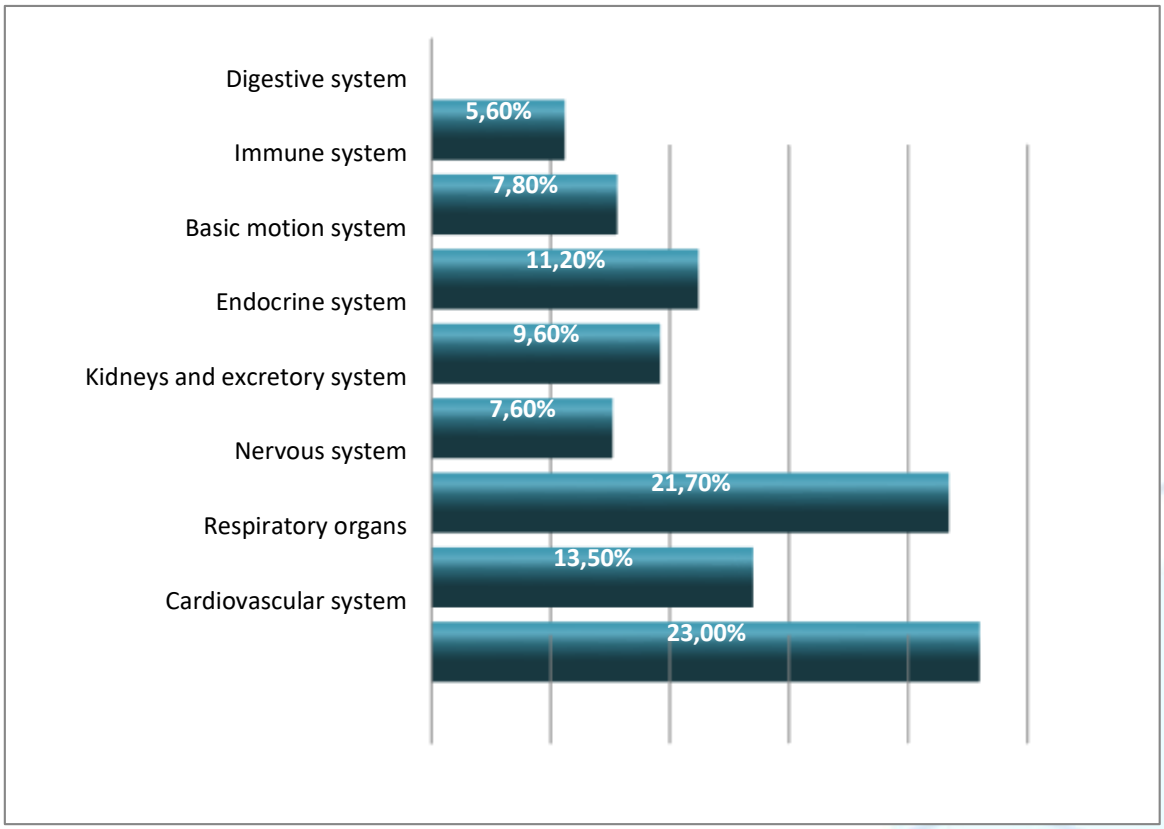

1st figure. The rate of occurrence of changes in organs and systems in post-COVID syndrome

At the present stage of studying COVID-19, it can be said that marker polymorphism is the ability of the virus to grow in many tissues, since the SARS-CoV-2 APF2 receptor is involved in the primary inflammatory process, in addition to systemic genetic, neurological, hormonal, and other control of the disease may cause dysfunction. The pathophysiological abnormalities in COVID-19 disease are multifactorial and include microvascular ischemia and injury, immobility, and metabolic changes in severe and severe disease. Besides,

During the COVID-19 pandemic, patients were included in the risk group for infection with bacterial, fungal and other pathogens after the acute period of the disease. Changes after the acute period of the disease are not well studied in large clinical trials. The acute period of the disease leaves certain damage in the body, and in some cases it proceeds easily, secondary syndromes are not excluded. Most often, these residual syndromes occur in the elderly or in people with a set of comorbidities, which in turn leads to poor disease outcomes.[4,5]

However, the issue of studying these conditions in clinical practice is still being discussed in the literature. We considered the course of SARS-CoV-2 against the background of concomitant diseases, mainly in the acute period. It should be remembered that the functioning of any body system is almost always controlled by an ensemble of genes, which normally exists in normal equilibrium. In the acute period of COVID-19 disease, there are a number of comorbid conditions that lead to a severe

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course of the disease, an unpleasant outcome of the disease, and the development of post-COVID syndrome.

These are diseases of the cardiovascular system, kidney failure, diabetes mellitus, lung diseases, obesity, endocrine diseases, liver diseases, intestinal dysfunction, etc.

Summary. The accumulation of clinical data on post-COVID changes in patients in the post-pandemic period indicates that disorders involving organs and systems are observed in the later course of the disease. The presented data show that it is necessary to conduct a number of studies to analyze the duration and methods of correction of the post-COVID syndrome in COVID-19 disease.

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