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RHEUMATOID ARTHRITIS AND COVID-19 THE CLINICAL PICTURE DURING THE LIFE OF PATIENTS

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Abstract: Since the beginning of the COVID-19 pandemic, a large amount of information has been accumulated concerning not only the clinical picture and outcomes of the disease, but also cases of persistent persistence of various symptoms, such as weakness, low-grade fever, shortness of breath, arthralgia, etc., that arose during or shortly after SARS infection -CoV-2 [1–4]. Thus, Italian authors reported that in 87.4% of patients after hospital treatment for COVID-19, individual symptoms persisted for two months or more [2]. Another study showed that 35 days after hospitalization, convalescents of SARS-CoV-2 infection continued to experience high levels of fatigue, with the majority of study participants reporting decreased quality of life and dissatisfaction with both physical and mental health [4]. Similar results were obtained by other researchers [7].Thus, the interest of clinicians is not limited to information about mortality and outcome of this infection, since it is also necessary to understand the long-term prospects of patients who have recovered from COVID-19.

Key words: COVID-19, rheumatoid arthritis, symptom,inflammation.

In October 2021, the World Health Organization (WHO) defined post-Covid syndrome (PCS) as a condition that occurs in individuals with a history of probable or confirmed infection with the SARS-CoV-2 virus, usually within 3 months. from the onset of COVID-19 and is characterized by the presence of symptoms for at least 2 months, as well as the impossibility of explaining them with an alternative diagnosis [8]. According to WHO, it is possible that symptoms may either appear after a period of recovery from an acute COVID-19 infection or that symptoms may persist from the time of the initial illness. In addition, there may be intermittent onset or recurrence of symptoms over time. It should be noted that in most studies of PCS, patient groups were not stratified based on individual comorbid conditions. Thus, at the moment, only a small number of studies are available that evaluate the course of PCS in patients with rheumatic diseases (RD) [9]. The purpose of this study is to characterize the features of the course of COVID-19 in patients with rheumatoid arthritis (RA), as well as to conduct a comparative assessment of clinical and demographic indicators in groups of RA patients depending on the presence of PCS.

Materials and methods

The study included 60 adult patients over 18 years of age (29 women, 90%) who were inpatients at the ASMI clinic with a definite diagnosis of RA in accordance with the ACR/EULAR criteria. All patients had COVID-19, which was verified using the reverse transcription polymerase chain reaction method to detect SARSCoV2 RNA, for the period from November 15, 2021 to December 10, 2023. Material for further analysis was collected using a questionnaire developed at the Federal State Budgetary Institution “NIIR named after V.A. Nasonova” and created taking into account the main provisions of the World Rheumatology Alliance questionnaire [10]. The questionnaire consisted of several blocks and contained questions regarding the sociodemographic data of respondents, information about rheumatological history, comorbid diseases, data on previous COVID-19, including cases of re-infection, and on PCS. The questionnaires were filled out by patients during a

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conversation with a doctor-researcher. For patients treated in a hospital for COVID-19, the information is supplemented with data from discharge summaries.

One of the most common symptoms of PCS according to the results of our study was sleep disturbance. Similar results were presented by other researchers [12–16]. Thus, according to A. Pavli et al. for 2021, the incidence of PCS is estimated at 10–35%, while for hospitalized patients this figure can reach 85% [7]. M.S. Petersen et al. in 2021 reported that with a mean follow-up time of 125 days, 53% of patients who had COVID-19 indicated persistence of symptoms, of which fatigue, anosmia and arthralgia were the most common [8].

Results.

In our study, increased arthralgia as a manifestation of ACL occurred in more than half of the cases. In the work of S. Lopez-Leon et al. In 2021, almost every fifth patient with ACL reported joint pain [5]. Distinguishing between arthralgia within inflammatory joint disease and ACL can pose significant challenges for the clinician. Obviously, if there are complaints of persistent arthralgia within the framework of PCS, it is necessary to conduct a comprehensive examination of the patient, including the study of serological markers (rheumatoid factor, CRP, antibodies to cyclic citrullinated peptide, antinuclear factor) to verify the onset or exacerbation of pre-existing RD (including part RA).

An important aspect of studying PCD is identifying patients at high risk of developing it. It has been previously reported that patients with RD may be more vulnerable to SARS-CoV-2 and are prone to more severe COVID-19 [6]. However, at present, there is still insufficient information on the risk factors for the development of ACL. Joint damage due to infection

SARS-CoV-2 occurs at different times as it may be the initial symptom of infection, occur during the acute phase (sometimes during hospitalization) or manifest after recovery. In most cases joint symptoms appeared after 2–4 weeks (average duration – 21±13 days) after infection, while in two cases joint symptoms were noted simultaneously with the diagnosis of COVID-19. It was characteristically mono- (n=10) or polyarticular (n=15) inflammation with a redominance of lesions of the joints of the lower extremities. Signs of defeat joints included: arthritis of the knee joints – in 40%, ankles – in 32%, hand joints and feet – in 32%, wrists – in 20%, elbows – in 12%, shoulder – in 8% and hip joints – in 4% of those examined. The presence of polyarthritis with damage to the joints of the hand is typical for virus-associated arthritis occurring with a structure similar to rheumatoid arthritis [7]. Achilles tendon enthesitis has been reported in two cases. Extra-articular signs were present in two patients in the form of balanitis and skin lesions. In a patient with monoarthritis of the right elbow joint that arose after COVID-19, psoriatic lesions of the nails were simultaneously observed, but despite this, The patient was diagnosed with ReA . Possibility of post-infectious arthritis cannot be excluded if early arthritis is detected after SARS-CoV-2 infection, but viremia documented in only 15% of COVID-19 cases [8] and was not found in the SF and/or synovium in any of the presented observations. Microbiological (blood, urine and stool cultures) and serological tests did not allow a comprehensive differential diagnosis. diagnosis of the spectrum of bacterial ReA in everyone patients. For differential diagnosis, it is important that in acute arthritis associated with COVID-19, joint puncture was also studied for the presence of crystals using polarized optics, since infectious processes are known risk factors and triggers for attacks of gout and pseudogout, and such cases have also been described in the context COVID-19 pandemic. M.D. López-González et al. [9] reported four cases of arthritis induced by sodium urate crystals and calcium pyrophosphate, detected using SG microscopy in polarized light during hospitalization for infection SARS-CoV-2. The

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essence of this phenomenon is that humans and viruses have common antigens determinants. In this case, the immune response initiated by cell wall components causative agents of arthritis (so-called arthritogenic peptides), can lead to cross-reactions with similar autoantigens of affected human tissues. High level of antibodies to the pathogen in a number of cases persists for quite a long time, which can be explained by the persistence of antigens of trigger viruses in the macroorganism [9]. According to According to research, coronaviruses have common molecular epitopes with human proteins (for example, glycoprotein S) that play a key role in host cell invasion, giving the infectious agent the ability to evade immunity [26]. Mimicking epitopes may also be present in synovial membrane and cause acute local inflammation by a similar mechanism. Various autoimmune neurological and hematological COVID-19 complications seen as potential results of 'molecular mimicry' [4]. In particular, some cases of the syndrome Guillain-Barre have viral similarities to heat shock proteins. HSP) as a pathogenic mechanism [5]. At In inflammatory arthritis, HSP-60 and HSP-70 are upregulated and appear to stimulate proliferation and activation of synovial and peripheral T cells [10]

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