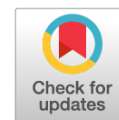


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Амбулаторное лечение пациентов с COVID-19: нормативные документы и/или клиническое мышление

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Согласно правовой базе оказания медицинской помощи, оценки и контроля ее качества в России лечащий врач должен неукоснительно выполнять положения нормативных документов. Однако рекомендованные алгоритмы соответствуют не всем клиническим случаям. Во время пандемии новой коронавирусной инфекции помимо следования установленным правилам, необходимо тщательное наблюдение за каждым пациентом и своевременная коррекция лечебно-диагностических мероприятий, в том числе за рамками предписанных требований. Методы дистанционного контроля состояния пациентов в существующем виде не обеспечивают объективной оценки отдельной клинической картины. Очные осмотры больных новой коронавирусной инфекцией, получающих медицинскую помощь амбулаторно, следует проводить не реже чем каждые 72 ч. Отсутствие эффекта от терапии в течение 3 сут может стать показанием для перевода пациента на следующий уровень оказания медицинской помощи.

Ключевые слова: COVID-19; клиническое мышление; амбулаторное лечение; принятие медицинских решений.

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Outpatient treatment of patients with COVID-19: Normative documents and/or clinical thinking

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The legal framework for the provision of medical care, its evaluation and control of quality in Russia requires the attending physician to strictly comply with the provisions of regulatory documents. At the same time, clinical practice shows that the recommended algorithms for the provision of care do not allow in all situations to provide medical care of adequate quality. Analysis of the clinical example shows that in the era of the COVID-19 pandemic, in addition to compliance with the established rules, a thorough assessment of a specific clinical situation in the dynamics of development is necessary and timely correction of treatment and diagnostic measures, including those in excess of the established requirements, are required. The methods of remote monitoring of the patient's condition need to be improved, since in their current form they do not provide an objective assessment of the patient's condition. Face-to-face examinations of patients with COVID-19 receiving medical care at home should be carried out at least every 72 hours, regardless of the result of the remote assessment. The absence of the effect of therapy within three days may be an indication for transferring the patient to a higher level of medical care.

Keywords: COVID-19; clinical thinking; outpatient treatment; medical decision making.

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INTRODUCTION

The special aspects of the manifestations of epidemic and infectious processes in coronavirus disease-2019 (COVID-19) induced the development and implementation of the Order of the Ministry of Health of Russia dated March 19, 2020, No. 198n "On the temporary procedure for organizing the work of medical organizations to implement measures in prevention and reduction of the risk of spreading a new coronavirus infection" and the temporary guidelines of "Prevention, diagnostics, and treatment of new coronavirus infection." These documents in the current editions are based on medical care, particularly, patient routing, and determine the treatment and diagnostic approach at different stages of patient monitoring.

Concurrently, not a single document, even a carefully prepared one, can provide all the characteristics of patients and replace the clinical thinking of the attending physician. The constant development and ambiguity of professional approaches in COVID-19 diagnostics and treatment questions the permissible circumstances of deviations from the regulatory document requirements and the formalization of these deviations in medical documentation.

CLINICAL CASE

We have read the extract from the registration form No. 025/u on "Medical record of a patient receiving medical care on an outpatient basis" and provide information about the patient and the clinical case.

A 52-year-old male patient, a professional driver, was examined by an attending physician at home on day 1 of the illness. He complained of fever up to 38°C, sore throat, and general weakness. During the physical examination, the doctor considered the patient's condition satisfactory, as the body temperature was 37.7°C; the skin was of normal color, without eruptions; nasal breathing was difficult; lymph nodes were of normal size and are painless on palpation; pulse was regular at 103 beats per minute; blood pressure was 135/80 mm Hg; and heart sounds were clear and regular. The lung percussion revealed a clear sound, without dullness. The auscultatory findings revealed vesicular breathing in the lungs, without

wheezing. Oxygen saturation (SpO₂) was 97%. The abdomen was of normal shape and size and soft on palpation and is painless. The liver was not enlarged upon palpation. The spleen was not palpable. The costovertebral angle tenderness symptom in the lumbar region was negative on both sides. According to the patient, the urine was of normal color, and the defecation was normal. Peripheral edema was not observed.

The patient was diagnosed with an acute respiratory viral infection and issued a work incapacity certificate for 14 days. Additionally, a smear for the presence of COVID-19 was taken from him. Prescription included paracetamol at 500 mg for temperatures of 38°C (no >4 times a day); umifenovir at 200 mg, 4 times a day for 5 days; throat irrigation with Hexoral spray, 2 times a day, for 5 days; spray Tizin or Xylene 0.1%, 1 drop in each nasal passage no >3 times a day, for 5 days; Lizobact, Doritricin, or Strepsils intensive at 1 tablet 4 times a day, for 5 days; and recombinant interferon-alpha at 3 drops, 5 times a day in each nasal passage, for 5 days. The patient was advised to contact a doctor or emergency team in worsened conditions.

From the point of view of the normative documents in force at the time of the described case [1, 2], the attending physician correctly performed all the actions but did not indicate the severity of the acute respiratory viral infection. According to the description that he recorded in the patient's medical record, the clinical presentation corresponded to a mild degree of severity.

The patient was followed-up by the method of audio control (Table). On day 2, a positive test result for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) ribonucleic acid (RNA) was obtained. The case was registered at the Center for Hygiene and Epidemiology, and the patient was informed about it by phone. After the patient agreed to be treated on an outpatient basis, the procedure for observing the anti-epidemic regimen was explained to him. The contents of the follow-up diary and the checklist of the audio control were placed in the patient's medical record.

According to the checklist, from day 1 to day 3 of the illness, the patient did not show complaints, did not notice a deterioration in his health status, and changes were not observed over time in the controlled manifestations.

Table. Follow-up checklist of the patient

Таблица. Чек-лист динамического наблюдения пациента

Audio control day	1	2	3	4	5	6	7	
Day of illness	2	3	5	6	7	8	9	10
General condition: 1: improved, 2: no changes, 3: worsened	2	2	2	2	2	2	3	
Temperature (maximum) during the day, °C	37.7	37.9	37.7	37.5	37.7	37.9	37.9	
Cough: 1: yes, 2: no	2	2	2	2	2	2	1	
Complaints of dyspnea, shortness of breath, chest pain: 1: yes, 2: no	2	2	2	2	2	2	1	
Complaints about the gastrointestinal tract function (diarrhea, nausea, and vomiting): 1: yes, 2: no	2	2	2	2	2	2	2	

hospitalization

The general practitioner conducted a second full-time examination on day 4 of the illness when the patient complained of an increased body temperature up to 38°C, muscle aches, nasal congestion, weakness, and sore throat. During the physical examination, the doctor considered the patient's general condition as satisfactory, as he had a body temperature of 37.8°C, the skin was of normal color, without eruptions; nasal breathing was difficult; the oropharynx was pink, without plaque; tonsils were not enlarged, peripheral lymph nodes were of normal size, painless on palpation; pulse was regular at 103 beats per minute; blood pressure was 135/80 mm Hg; and heart sounds were clear and regular. Lung percussions revealed a clear sound, without dullness. The respiratory rate was 18 breaths per minute. SpO₂ was 97%. Auscultatory results showed vesicular breathing in the lungs, without rales. The patient had no peripheral edema.

The general practitioner recorded the diagnosis of complicated COVID-19 with an acute respiratory viral infection. In addition to the previously-indicated prescriptions, he recommended self-isolation within the apartment until a negative SARS-CoV-2 RNA test result, as well as daily thermometry and audio monitoring, persistent disinfection, and a swab from the oropharynx and nose for COVID-19 after 10 days.

At the beginning of the disease, according to the rules, the patient did not need hospitalization, since his condition did not correspond to the moderate severity of COVID-19, which include an SpO₂ level of <95%, body temperature of not <38°C, and respiratory rate of >22 breaths per minute [1].

Additional diagnostic measures were also indicated to the patient, such as a complete blood count, determination of the C-reactive protein level, ferritin, and radiation methods of research. His condition remained stable, intoxication did not increase, and signs of organ failure were not revealed.

Considering the patient's condition and the changes over time of the disease course, which are entered in the checklist and medical records, other means of therapy for the patient according to the normative document [2, Appendix 8.1] are not recommended, since there is no information about the concomitant pathologies, risk factors (obesity, diabetes mellitus, smoking, etc.), or drug intake before the present disease.

Medical assistance was provided to the patient from day 1 to day 4 of the illness in full accordance with the regulatory document requirements.

Analysis of subsequent entries in the audio control checklist (the person who exactly called the patient, a doctor or a nurse, was unknown) shows that until day 9 of the illness, the controlled parameters (general condition, maximum body temperature, the presence of cough, shortness of breath, and dyspeptic complaints) remained stable, without changes over time; therefore, the treatment and diagnostic process was not corrected.

On day 9 of the illness, the patient called an ambulance and complained of general weakness, sweating, a fever of up to 39°C, and paroxysmal dry cough. Anamnesis revealed that the patient fell ill 9 days ago, when the body temperature rose to 39°C, and he had general weakness and cough. For 9 days, the body temperature increased within the range of 37.5°C–40°C. The patient was reported with a chronic stomach ulcer.

Ambulance staff defined the general condition of the patient as satisfactory, as he had calm behavior, clear consciousness; Glasgow score of 15 points; the skin was normal; the body temperature was 38.3°C; the SpO₂ was 96%; no edema, eruption, focal neurological symptoms, meningeal signs, or dyspnea; the respiratory rate was 16 breaths per minute. Auscultatory findings revealed harsh and regular breathing. On percussion, the pulmonary sound was normal. The pulse was 100 beats per minute, of normal volume. Blood pressure was 140/80 mm Hg (habitual). The heart rate was 100 beats per minute, was regular, with heart sounds were clear, and without murmur. The oropharynx was hyperemic, without plaque. The electrocardiogram showed a sinus rhythm with a heart rate of 100 beats per minute without acute coronary pathology.

Unspecified pneumonia (J18.9) and identified COVID-19 (U07.1) were diagnosed. Solution of Analgin 50% at 2 ml, solution of diphenhydramine 1% at 1 ml, drotaverine solution 2% at 2 ml intramuscularly; dexamethasone solution at 16 mg, 16 ml of slow intravenous injection of sodium chloride solution 0.9%; and ascorbic acid solution 5% at 4 ml were prescribed.

The treatment was effective, as blood pressure was 130/80 mm Hg, heart rate was 90 beats per minute, pulse was 90 beats per minute, respiratory rate was 16 breaths per minute, body temperature was 37.9°C, and the SpO₂ was 97%.

The patient refused the proposed inpatient treatment, and the ambulance staff referred the call for an urgent visit to the patient by a general practitioner.

The ambulance team acted in full compliance with the regulatory documents, namely examined the patient, established the correct diagnosis, provided effective assistance, offered hospitalization, and, upon receiving a written hospitalization refusal, transferred the data to the clinic.

On day 10 of the illness, the patient was examined by the doctor on duty. The patient complained of an increased body temperature up to 39°C, dyspnea at rest, dry cough, and weakness. The doctor recorded the objective status as a condition of moderate severity with the body temperature of 38.5°C, pale skin, no eruptions, sclera vascular injection; pulse was regular 117 beats per minute; blood pressure was 130/80 mm Hg; heart sounds were clear and muffled; upon examination, the chest was of correct shape, symmetrical; dullness was observed lung of the percussion from both sides; and respiratory rate was 24 breaths per minute. The auscultatory data showed weakened breathing on both sides. The SpO₂ was 93%. The abdomen was of normal shape and size, soft

on palpation, and painless. The liver was not enlarged on palpation. The spleen was not palpable. The costovertebral angle tenderness symptom in the lumbar region was negative on both sides. According to the patient, his urine was of normal color and the defecation was normal. No peripheral edema was observed. The doctor diagnosed him with complicated COVID-19 with community-acquired bilateral polysegmental pneumonia (suspected) and respiratory failure I or II degree and called an ambulance for emergency hospitalization.

The patient was taken to the hospital. The actions of the team and the doctor on duty at the polyclinic fully complied with the regulatory document requirements.

The examination in the emergency room revealed a patient's history of grade II hypertension disease and coronary heart disease. Computed tomography of the lungs showed signs of bilateral polysegmental pneumonia of viral etiology, stage II.

The primary diagnosis was COVID 19 of moderate severity and grade II hypertension disease, risk 3, with complications in the form of community-acquired moderate bilateral polysegmental pneumonia, a degree I or II respiratory failure, and intoxication. Additionally, a concomitant diagnosis of duodenal ulcer in remission and moderate risk of thromboembolism was established.

Favipiravir, anticoagulants, glucocorticoids, selective immunosuppressants, and oxygen support were prescribed to the patient. However, despite the comprehensive treatment, the patient's death occurred on day 17 of inpatient treatment (day 26 of the illness).

DISCUSSION

Leaving the therapeutic approach at the stage of hospitalization out of the scope of discussion, we intend to determine whether everything was done at the outpatient stage to prevent a poor disease outcome. From the standpoint of regulatory documents, medical care of appropriate quality was provided to the patient. However, from the point of view of the doctrine of infectious diseases and clinical thinking, not all actions were performed.

We believe that in the process of providing medical care, cognitive errors, particularly, confirmation errors, were made [3, 4].

Carefully describing the complaints, anamnesis, and objective status during the in-person examinations on days 1 and 4 of the illness, the doctor did not pay due attention to the fact that a 52-year-old man working under stress had tachycardia (heart rate of >100 beats per minute) not corresponding to a body temperature below 38°C.

The general practitioner also did not note the borderline systolic blood pressure in the patient. Even in the absence in the indications of hypertension history, the doctor could assume its presence by the characteristic signs as early as

day 4 of the illness, enter it as a concomitant diagnosis, and offer persistently the inpatient treatment due to the risk of a severe course of COVID-19 [1, Appendix 12, paragraph 8].

The attending physician did not take into account the insufficient improvement during the therapy with the recommended drugs in the regulatory documents, either during the first 3 days of their use or later. Based on the contemporary understanding of the COVID-19 dynamics, assessing the potential severity of the disease course and establishing the diagnosis in this case as moderate COVID-19 is advisable. Starting from day 4 of the illness (at the repeated in-person examination), considering the possibility of prescribing an oral antiplatelet/anticoagulant to the patient was necessary. The effectiveness of such drugs at the prehospital stage is actively studied, but their use is limited in regulatory documents. Thrombosis of the microvasculature and microangiopathy is the main pathogenetic mechanism of multiple organ failure and lethal outcomes [5]; therefore, in our opinion, prescribing anti-thrombotic drugs on days 9–10 from the onset of the disease is too late.

The follow-up checklist in the presented form does not fulfill its tasks, namely control of the condition, timely adjustment of treatment, and diagnostic approach. Only one (body temperature) out of the 3 parameters that determine the disease severity at the prehospital stage (and, consequently, further routing), was taken into account moreover, without objectification, according to the patient. Such a mandatory parameter as the SpO₂ level can be monitored on an outpatient basis only by video communication with a patient who operates correctly the provided pulse oximeter. Additionally, the patient cannot independently measure the frequency of the respiration rate; however, monitoring of this indicator is necessary when follow-up over a patient with COVID-19 and concomitant diseases.

CONCLUSION

An analysis of a clinical case confirms that the presence of regulatory documents does not obviate the need for a thorough study of a specific clinical situation and the corresponding actions of the attending physician. The organization of remote monitoring of patients with COVID-19 should be improved and an in-person examination of the patient should be performed at least every 72 hours, regardless of the results of remote monitoring.

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