

Patient-centered approach to pharmaceutical care in the recovery of patients with post-Covid syndrome

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Received 30 March 2021 ♦ **Accepted** 6 April 2021 ♦ **Published** 23 April 2021

Citation: Kasnakova P, Ivanova S (2021) Patient-centered approach to pharmaceutical care in the recovery of patients with post-Covid syndrome. *Pharmacia* 68(2): 381–385. <https://doi.org/10.3897/pharmacia.68.e66727>

Abstract

The possibilities for pharmaceutical care in the recovery of patients with post-COVID syndrome in the context of a patient-centered approach have been explored. The global COVID-19 pandemic has necessitated a reorientation of the concept of providing health-care to patients with COVID and post-COVID syndrome in patient-centered treatment and rehabilitation. Maximum recovery in holistic practice adopts a broader view of the patient's health, disease and treatment process. Applying a patient-centered approach to patients who have had a coronavirus infection will lead to many benefits, both in terms of the quality of health and pharmaceutical care, and in increasing their satisfaction with their quality of life.

Keywords

pharmaceutical care, Covid-19, immunostimulants, therapy

Introduction

The coronavirus disease appeared at the end of 2019 in Wuhan (People's Republic of China). The virus epidemic was declared a pandemic by the World Health Organization (WHO) on March 11, 2020, and the fight against it continues to this day. According to a WHO report, as of 10 September 2020, 27.7 million cases of COVID-19 infection have been reported worldwide. In the context of an ongoing pandemic, the main task of governments has been to maintain and support their health systems (Bhaskar et al. 2020).

The COVID-19 pandemic has necessitated the adoption of strict rules worldwide that restrict individual freedom and impose social distancing (temporary school closures, compulsory quarantine, restrictions on social

life, etc.) in order to prevent the collapse of national health systems (McCloskey et al. 2020).

During the COVID-19 pandemic, of increasing interest to the medical community are residual symptoms, structural and functional changes in various organs and systems, which last for weeks and months after illness and require comprehensive medical care. Symptoms of COVID-19 and “post-COVID-19 syndrome” remain long after the acute phase in many patients (Yvonne et al. 2020).

Providing care focused on patients' needs and expectations is a major factor influencing the quality of health services (Lorig 2002).

There are probably many more people who haven't been diagnosed with coronavirus infection than those diagnosed, and most of those infected have gone through a mild form of the infection and have been left without

systemic health care. All patients with the virus, regardless of the severity of the course, need therapy and recovery. In the context of the COVID-19 pandemic, the modern concept of health promotion presupposes a higher level of personal responsibility and effective monitoring for the protection of human health. Knowledge of self-monitoring and self-management of basic health indicators also applies to practically healthy individuals, and in patients after coronavirus infection is mandatory in order to effectively manage the risk of complications.

Pharmaceutical care is an element of health care that is provided in collaboration with patients, physicians, nurses, and other health care professionals (Cipolle et al. 1998). It is committed to a direct benefit to the patient, for which pharmacists are responsible (Anderson et al. 1996). Pharmacists' main goals and objectives for improving public health include supporting effective treatment, improving the health status and mental well-being of patients (Sabaté 2003). Pharmaceutical care is an integral part of modern pharmacy practice, which requires direct collaboration of the pharmacist with the patient and cooperation with other health professionals to achieve therapeutic goals (Dimitrova et al. 2016).

Improper adherence to therapy, especially in patients with coronavirus infection, seriously affects the quality of life and at the same time increases the cost of health care. It has been found that patients who do not follow their prescribed therapy use significantly more health resources than those who follow their strictly prescribed treatment. Such patients also have an increased risk of recurrence of the disease, as well as hospitalization (Ching et al. 2016).

There are more difficulties for patients who develop their own regimen, probably based on a misunderstanding of the disease and therapy. It is likely that in these cases the drug will be overdosed "for faster effect and recovery" or combined with alternative means to "enhance" its effects (Coyle and Lee 1988). For now, despite the great efforts of pharmacists and health professionals, patients' disagreement with the treatment (non-compliance) is a major therapeutic problem. Healthcare professionals solve non-compliance problems and can have a beneficial effect on the outcome of various therapies (Col 1990). The pharmaceutical plan to increase compliance in the recovery of patients with post-COVID syndrome should focus on their education or that of their family members on the disease and treatment. The pharmacist must provide information containing information about the nature of the disease; the applied therapy; the role of the patient in the fight against the disease; adverse effects during therapy. The introduction of pharmaceutical care in practice leads to the establishment of a connection between the pharmacist and the patient. The patient must be assured that the pharmacist is responsible for his or her medication. The pharmacist's primary task is to find out if and what the patient's medical problems are and, if possible, to solve or prevent them. The problems can be different, which can lead to: stopping medication; dose modification; changing the combination of drugs; inclusion of new drugs (Petkova 2017). Adequate decision is needed to achieve

the desired therapeutic effect by contacting the treating physician in order to improve the patient's condition. In the treatment and recovery of patients with post-COVID syndrome from all possible alternatives should be selected the best for each patient and to support the implementation of drug therapy. Drawing up a treatment plan and monitoring it is essential (Boysen 2004).

The patient was with complaints of cough, sore throat and fever of about 38 °C for 4–5 days, treated with Amoxiclav at home on the instructions of a personal doctor. The objective condition on admission were: severely damaged general condition, asthenic habit, pale cyanotic, intoxicated skin and visible mucous membranes, subfebrile at the time of examination 37.7 °C, with not enlarged peripheral lymph nodes in accessible places and no abnormalities in neurological status. In respiratory system was observed: normosthenic thorax, preserved respiratory motility, sonorous percutaneous tone, shortened bilateral basal, bilateral vesicular respiration weakened in the middle lung fields and pulmonary bases, with added small moist non-ringing rales, subcapular and atmospheric air saturation 88. The following treatment regimen was applied: combination antibiotic therapy in optimal. The necessity of early start of treatment, epidemiological control and identification of severe forms, requires defining of the main diagnostic steps that could be used by the clinicians doses – Doxycycline, Amikacin sulfate, ascorbic acid; thiamin nitrate, riboflavin, niacin, pantothenic acid, pyridoxine hydrochloride, biotin, folic acid, cobalamin, glucocorticoid – Methylprednisolone, Famotidine; anticoagulants – Nadroparin calcium; hepatoprotector – Ademetionine, malic acid, glycyrrhizic acid, glucosamine, arginine, glycine, calcium pantothenate, ascorbic acid, folic acid, cyanocobalamin, zinc sulfate, pyridoxal (Kobakova et al. 2020; Moneva-Sakelarieva 2021).

Extracorporeal circulation during cardiac surgery is characterized with increased risk for hypercoagulation because blood is exposed to foreign, nonendothelial cell surfaces. Thus, the usage of extracorporeal circulation is essentially not possible without anticoagulation. Open-heart surgery as well as many perioperative factors, such as acidosis, hypocalcemia, hypothermia, and hemodilution, might affect hemostasis and lead to coagulopathy and bleeding. A new insight into the effectiveness of anticoagulant therapy is applied to modify the dosing regimen with respect to the genetic CYP2C9 and VKORC1 allelic variants. A systematic literature search was performed for VKORC1 and CYP2C9 and their association with coumarin anticoagulant therapy and bleeding risk in postoperative period of cardiac surgery with extracorporeal circulation (Velizarova et al. 2021).

The patient-centered approach combines quality care and structured education at the individual, professional and organizational levels and helps patients become the active party in their treatment (Lorig and Holman 2003). The concept of patient-centered health care is not new. It appeared in the early 50's, but only in the late nineties was placed in the center of attention of research in connection with the continuous and rapid growth of funds

spent on health care (Balashkova and Valentinova 2011). Patient-centered health care improves the functional and psychological status of the patient, increases the quality and effectiveness of medical care, as well as patient satisfaction with it (Roter and Hall 2004).

The global COVID-19 pandemic has necessitated a reorientation of the concept of providing healthcare to patients with COVID and post-COVID syndrome. The mission of practicing pharmacists today is to help patients achieve the best use of their prescribed medications. In the Human Medicines Medicinal Products Act 2000, the term “dispensing” of medicines already includes patient consultation as a mandatory component. The pharmacist is required to become more active in the care of the patient with drugs and to ensure that the patient has understood his prescribed medication and will follow his prescribed medication regimen to achieve the desired therapeutic result. In a pandemic, professional competencies increase significantly, and skills are needed to provide appropriate feedback for effective communication.

The “care” itself implies the need for maximum collaboration between the members of the multidisciplinary health team: doctor, pharmacist, nurse, assistant pharmacist, rehabilitator, patient and his immediate environment (family). Modern pharmaceutical care shifts the focus from medicine to the patient as a holistic subject with his health needs, preferences, interests, expectations, special status, health culture and aims to achieve the general goals and objectives of health policy in the 21st century. Maintaining a permanent communication relationship doctor-patient-pharmacy-pharmacist-supplier is a condition and prerequisite for providing effective, humane, quality, effective health and pharmaceutical care. This requires the urgent introduction of an electronic health record of each patient / client, of which the medical record is an integral part (Stoycheva 2012).

Therapy in patients with prolonged Covid-19 syndrome. Pulmonary effects

Known as post-Covid syndrome affects the heart, lungs, kidneys and parts of the nervous system. The patient continues to have complaints after the disease. The most important thing in “therapy” are preventive measures that limit the spread of infection. Therapeutic strategies have a supportive role and should be applied with precise consideration of the benefit-risk balance, even for the administration of vaccines and some complications such as the development of respiratory failure (Erkennung 2020).

Many patients who have had the infection need additional, qualified and individually targeted care, regardless of the good outcome and treatment of the disease. Usually additional care is recommended for: polymorbid patients, the elderly, severe infection. Follow-up care for patients with coronavirus infection varies and shows great variety depending on the needs of the individual patient.

The organ symptoms after COVID-19 are controlled mainly by the respiratory system. The lung is the closest target organ to the virus and all pathogenetic processes caused by SARS-CoV-2 are most severe in the lung parenchyma: severe alveolitis caused by immunological imbalance and cytokine storm, vascular endothelial damage, thrombosis and thromboembolism, destruction of the alveolar-capillary membrane, secondary bacterial infections.

In a study by Zhao et al. 2020, 64% of patients with COVID-19 in the third month after discharge from hospital still had symptoms, and 71% still had radiographic changes characteristic of focal fibrosis and interstitial seals that may be associated with persistent symptoms and functional changes persisting in 25% of patients with reduced diffusion capacity.

One of the proposed protocols is with oral prednisolone in a maximum dose of 0.5 mg / kg body weight, and the duration of treatment is 3 weeks, with a gradual reduction of the dose for another 3 weeks with a total course duration of 6 weeks. In this therapeutic protocol, a good therapeutic effect was registered with clinical and functional improvement, with an increase in the levels of FVC by an average of about 9.6% and DC by about 31.6%. (Myall et al. 2021).

In the context of the COVID-19 pandemic, health care includes providing basic emergency treatment; decontamination assistance and coordination with other health care providers; providing holistic practices in the simultaneous management of multiple infections; communication, psychological support and palliative care, if necessary (Borasio 2020). The purpose of complex therapy is to restore harmony at the physical and mental level with treatment methods, following common approaches related to the holistic approach, stimulating the individual potential of each person to cope with the pathological process and individual approach to health care. Effective, healthy and balanced empathy-patient relationships based on empathy, supporting the healing process, create a sustainable motivation for successful therapy and recovery after Covid-19.

Patient-centered care improves communication between therapist and patient on treatment plans, improves health outcomes, and increases patient satisfaction (Olsson et al. 2013). Applying a patient-centered approach increases knowledge about the disease, the risks and benefits of treatment, increases empathy and adherence to a certain regimen, and increases the patient’s quality of life (Kripalani 2007). In modern healthcare, the active role of the patient is increasingly important, as it is a starting point for better cooperation in preventive measures and implementation of the therapeutic regimen (Bertakis 2011).

Rehabilitation measures

Rehabilitation among patients cured of coronavirus infection includes a variety of measures and tools depending on the needs of patients, the presence of complications developed during the disease or as a result of treatment.

of most importance is pulmonary rehabilitation, aimed at improving the condition of patients who have developed complications after tracheostomy, intubation or other treatment and resuscitation measures used to treat the disease (Polastri et al. 2021). Cardiovascular rehabilitation measures are aimed at improving the condition of patients who have developed heart failure, arrhythmia, peripheral vascular disease and other complications as a result of the infection. The complex measures also include those aimed at restoring the neuropathy developed during the disease, the consequences of prolonged lying down in hospitalized patients (muscle weakness) and others.

Care is focused on three levels, namely physical, mental (including emotional) and social, offering various types of rehabilitation measures to improve the condition and comfort of patients.

Conclusion

Prevention, health culture and active participation of patients in the treatment process in recovery after prolonged

Covid-19 are the basic approaches underlying health care in health care and health promotion, which are mandatory in therapeutic and prophylactic methods of exposure. Maintaining one's own health, especially in a pandemic, is a purposeful activity of the individual for the prevention or treatment of the disease, assisted by health experts and professionals. The attitude towards health depends on the character traits, health hygiene and training for the establishment of a healthy lifestyle and attitude to the possibilities of medicine and pharmacy. The growing share of Covid-19 patients requires the readiness of the national health system to provide both conventional and unconventional methods for improving patient health (Mancheva and Shivachev 2017). In the conditions of limited possibilities and resources of the health system it is necessary to introduce in the medical practice effective promotional and prophylactic measures for supportive treatment and rehabilitation in a complex approach, increasing the quality of life. Applying a patient-centered approach to patients who have had a coronavirus infection will lead to many benefits both in terms of the quality of health care and in increasing their satisfaction with the quality of life.

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