

# COVID-19 – GLOBAL CHALLENGE OF OUR TIME

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**Abstract:** Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The first diagnosed case of COVID 19 in Macedonia with a PCR diagnostic test was on February 27, 2020. The first diagnosed case of COVID 19 in Bitola with a PCR diagnostic test was on April 03, 2020.

The purpose of this paper is to present our experiences in the fight against the new unknown disease, with special reference to clinical expressions and post-covid conditions. A great problem and challenge for the infectologists in Clinical Hospital, Bitola, were the therapeutic possibilities, especially in treatment of patients with multiple comorbid conditions. This paper covers patients who were treated in the Infectious Diseases department's COVID-19 center at the Clinical Hospital, over a period of 2 years. The fight against the SARS-CoV 2 continues and we are already facing the new - seventh wave of the pandemic.

Keywords: *Covid-19, SARS-CoV-2, pneumonia, post Covid conditions*

Field: *Medicine*

## INTRODUCTION

The SARS-CoV-2 virus was first detected in a fish and seafood market in Wuhan, China in December 2019. In a short period of time, the virus had spread throughout the world and in March 2020, a global pandemic of COVID 19 was declared by the World Health Organization.

The main carriers of the virus are birds and mammals, mostly bats. Basic features of the SARS-CoV-2 virus are the following: very pathogenic RNA virus, with a high power of rapid transmission, and possibility of genetic mutations and transformations into different strains (alpha coronavirus, beta coronavirus, gamma coronavirus, delta coronavirus, omicron coronavirus).

The surface of the virus is covered with a coat with many extensions in which the S protein (spike glycoprotein) is located, with which it attaches to the cells of the infected person, reproduces in them, destroys them and then attacks new cells and the same thing repeats itself again.

The virus is transmitted through aerosols that infected people throw out in the external environment by coughing and sneezing, talking loudly, singing, and also through the mouth, if it is touched with contaminated hands. It enters upper respiratory tract, nose and conjunctivae. Incubation lasts 5-6 to 14 days, and with the latest omicron strain, 2-3 to 5 days.

The SARS-CoV-2 virus disease has a wide range of clinical presentations and manifestations. After the incubation period, symptoms of the disease are manifested, or the infected person can pass the infection without symptoms (asymptomatic), but such people become transmitters of the virus to the environment.

80% of infected cases show a mild clinical form that resembles a common cold with the following symptoms:

- fever,
- dry cough
- fatigue and malaise,
- body aches,
- sore throat,
- conjunctivitis,
- discoloration of the skin on some parts of the body and/or skin rash,
- smell and taste loss,
- stomach pain, vomiting, and/or diarrhea.

Such conditions require therapy and monitoring by a family doctor (vitamins, antipyretic, intake of more fluids, rest).

Approximately 20% of infected cases manifest serious symptoms, which vary from medium, through

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severe to very severe (critical) form of the disease:

The medium severe clinical form includes:

- Unilateral bronchopneumonia,
- Bilateral bronchopneumonia
- Pleuropneumonia

The severe clinical form has the following symptoms:

- Massive bilateral bronchopneumonia,
- Low SpO<sub>2</sub>,
- Dyspnea,
- Peripheral cyanosis,
- Intense cough,
- Malaise to adynamia,
- Involvement of multiple organs and systems

Symptoms of the very severe (critical) clinical form are:

- Severe respiratory failure,
- Coagulopathy with DIC,
- Sepsis,
- Need for intensive treatment and artificial ventilation.

For patients with mid to severe and very severe clinical form of the disease, hospitalization and appropriate treatment in the COVID 19 centers is necessary.

Risk factors (conditions that affect the severity of the disease are:

- patient's age,
- unvaccinated persons,
- comorbid conditions,
- cardiovascular diseases, hypertension, heart failure, thrombosis, thrombophlebitis,
- Chronic obstructive pulmonary disease (COPD),
- leucosis, cancers,
- autoimmune diseases, lupus, rheumatoid arthritis, Morbus Crohn's,
- chronic kidney failure, liver diseases,
- obesity,
- smoking,
- pregnancy.

## MATERIALS AND METHODS

During period from April 03 2020 to April 10, 2020 a total of 3007 patients were hospitalized in the Infectious diseases departments COVID-19 center in Clinical Hospital, Bitola.

For diagnostics, we used:

- standard laboratory-biochemical analyzes of hemostasis and D-dimers,
- X-ray of lungs,
- echo diagnostics,
- computed tomography,
- magnetic resonance,
- microbiological analyzes of throat swabs, nasal swabs, sputum, tracheal aspirate,
- urine culture,
- SARS-COV-2 diagnostic test with PCR method.

1894 (63%) of the total number of hospitalized patients, were men, while 1113 (37%) were women. The most common age group was from 60 to 85 years of age. Children up to 5 years of age, were treated at the pediatrics department.

The therapy was carried out in accordance with the received medical protocols from the Clinic for Infectious Diseases, Skopje.

Patients were treated with corrective fluid therapy with isotonic solutions, combined antimicrobial

and antiviral therapy (favipiravir, remdesivir, tocilizumab), anticoagulant therapy with low-molecular heparin, bronchodilators, and gastroprotective agents.

Patients with low oxygen saturation were placed on intermittent or continuous oxygen support at a flow rate of 15 liters per minute. In a certain number of patients, substitution therapy with blood derivatives, plasma, and 20% human albumins was prescribed.

All patients were prescribed multivitamins, symptomatic therapy, while sedatives and antipsychotics were used in treatment of agitated and delirious patients.

## RESULTS

Patients were treated on an outpatient basis, in a day hospital and as an inpatient at the COVID department.

2.857 patients (95%) were completely cured, while the number of deceased was 150 or 5% of the total number of patients. The deceased patients mostly had comorbid conditions and were over 75 years of age, as well as unvaccinated patients against COVID 19.

20% of cured patients developed post COVID symptoms and conditions: fatigue and malaise that had lasted for several months, muscle weakness, insomnia, depression, hair loss, cardiovascular complications, hypertension, heart rhythm changes, acute myocardial infarction, neurological symptoms, paresthesia, strokes, lungs fibrosis and dependence on oxygen support, thrombosis, thrombophlebitis of the extremities and high D Dimer values over a long period of time, kidney and liver damages.

## DISCUSSIONS

The COVID 19 mortality rate in region of Bitola is almost identical to the mortality rate in Macedonia. The therapy was carried out in accordance with the existing protocols and guidelines by the Clinic for Infectious Diseases, Skopje.

## CONCLUSIONS

Prevention is most important in breaking the chain of transmission (spreading) of the disease.

Effective prevention measures are: proper wearing of protective masks (through the nose and mouth), hand hygiene (soap or alcohol wipes), maintaining physical distance (2 meters), ventilation and disinfection of premises, avoiding grouping in closed space and vaccination.

Vaccination (complete immunization with three doses of available vaccines) is the safest, cheapest and most accessible prevention in all vaccination points in the country. Vaccination provides great protective effect up to 90% and mild clinical symptoms in people infected with coronavirus.

There are still dilemmas and gaps in the knowledge of the disease process and the mysterious SARS-CoV-2 virus, and our fight against this mysterious virus continues.

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