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A CASE REPORT ABOUT COVID-19 WITH DIABETES MELLIUS

Abhishek Borkar¹, Shubhada Bhopale², Nandkishor Deshmukh³, Ravikumar More⁴
Shankar Musale⁵

Shraddha Institute of pharmacy Kondala Zambre washim-444505

Shraddha Institute of pharmacy Kondala Zambre washim-444505

Corresponding Author: Abhishek Borkar

E-Mail: abhishekborkar467@gmail.com

Contact:91-9579558385

Address: Shraddha Institute of pharmacy Kondala Zambre washim-444505

Abstract: Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is the novel coronavirus first detected in Wuhan, China, that causes coronavirus disease 2019 (Covid-19) and pneumonia. Covid-19 pneumonia is defined by a positive result for SARS-CoV-2 on a reverse-transcriptase–polymerase-chain-reaction (RT-PCR) assay of a specimen collected from the upper or lower respiratory tract together with radiological features of pneumonia and clinical features of hypoxaemia and dyspnoea. Although more than 80% of patients with Covid-19 infection have mild disease and make a full recovery, a significant proportion of patients progress to pneumonia, and about half of these cases will develop severe acute respiratory syndrome (ARDS). Initial reports from China suggested that age >65 years and medical comorbidities are risk factors for poor outcomes. However, the role of systemic corticosteroids is currently being re-evaluated in mechanically ventilated adults with ARDS. The pandemic of coronavirus disease (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has involved more than one hundred million individuals, including more than two million deaths. Diabetes represents one of the most prevalent chronic conditions worldwide and significantly increases the risk of hospitalization and death in COVID-19 patients. In this review, we discuss the prevalence, the pathophysiological mechanisms, and the outcomes of COVID-19 infection in people with diabetes. We propose a rationale for using drugs prescribed in patients with diabetes and some pragmatic clinical recommendations to deal with COVID-19 in this kind of patient.

Keywords: COVID-19, SARS-CoV-2, coronavirus, diabetes, chronic conditions, review

INTRODUCTION

In early December 2019, the first pneumonia cases of unknown origin were identified in Wuhan, the capital city of Hubei province. The novel pathogen was an enveloped RNA-beta-coronavirus-2 named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), with phylogenetic similarity SARS-CoV (1). Initially, the outbreak was reported starting from a zoonotic transmission in live animal and seafood market. It soon became apparent that efficient person-to-person transmission was also occurring (2). The disease has rapidly spread from Wuhan to other areas. By March 11, 2020, the WHO (World Health Organization) declared the pandemic status (3). Globally, up to February 3, 2021, there have been 103,201,340 confirmed cases of COVID-19, including

2.237.636deaths,reported to COVID-19 Dashboard by the Center for Systems Scienceand Engineering (CSSE) at Johns Hopkins University.Considering the rapid spread and high mortality rate ofCOVID-19, it is necessary to evaluate the possible risk factors affecting the progression of disease in COVID-19 patients

The pandemic has involved millions of persons, and their related chronic conditions could have prognostic and therapeutic implications. One of the essential chronic conditions is, without anydoubt, diabetes for its impact on hospitalization, mortality, and economic burden. To date, about half a billion people have diabetes worldwide, and the number will increase by 25% in 2030 and 51% in 2045 (5). The prevalence is estimated to be 9.3% (463 million people), rising to 10.2% by 2030 and10.9% by 2045 (5). According to various studies, the prevalence of diabetes in COVID-19 patientsranged from 5% to 36%. Considering that diabetes is one of the most important comorbidities inSARS patients, it is necessary to clarify all the aspects concerningthe links between the two conditions to offer the scientific andclinical community those elements useful to face this pandemicin the best possible way. An extensive search of SCOPUS,PubMed, and CENTRAL was performed using the following string “(SARS-Cov-2 OR COVID-19) AND (diabetes OR hyperglycemia)”. Dry cough, high fever, and respiratory distress are among the most common symptoms of COVID-19 infection. These findings are generally mild. However, sometimes the disease can lead to multiple organ failure and severe pneumonia. The data show that the mortality rate is 1-2% (2). Although most patients progress asymptotically, the condition may be more severe in the elderly and those with comorbid diseases. Hospitalization rates and the need for intensive care are also high in these people.

CASE REPORT:-

A 57-year-old male patient with a previously known diagnosis of diabetes mellitus, hypertension and coronary artery disease visited our hospital. His medications were as follows: gliclazide 30 mg, two tablets daily, losartan potassium/hydrochlorothiazide 50/12.5 mg, one tablet daily, metoprolol 50 mg, one tablet daily. he was using an oral antidiabetic for diabetes treatment. The patient presented with complaints of fever, back pain, and shortness of breath that started 1 day before admission. On his physical examination upon arrival, his general condition was moderate. he had mild tachypnea, a respiratory rate of 24, a temperature of 37.9 °C, blood pressure of 155/95 mmHg, and oxygen saturation (at room air) of 95%. On examination, his liver function tests and kidney function tests were normal. His C-reactive protein (CRP) level was 11 mg/L, and his white blood cell count was 8600 mm³ (neutrophil 95%, lymphocyte 2%). His hemoglobin, ferritin and procalcitonin levels were 12.3 g/dL, 348 ng/mL and 0.29 ng/mL, respectively. His platelet count was 156000 U/L. His lactate dehydrogenase and D-dimer levels were 616 U/L and 670 µg/mL, respectively. Computed tomography (CT) was requested because of the complaints of fever, shortness of breath and comorbid disease. Peripheral multiple infiltration areas extending from apex to basal in a patchy pattern in bilateral lung parenchyma seen on thoracic CT (Figures 1 and 2) were found to be compatible with COVID-19 infection, and when the patient's history was deepened, there was a history of contact with another patient diagnosed with COVID-19. For this reason, the COVID-19 polymerase chain reaction (PCR) test was taken after being hospitalized and the test result was positive. In addition to her drugs, favipiravir 200 mg one tablet twice a day, heparin 0.6 mg, once a day SC, hydroxychloroquine 200 mg, one tablet twice a day, methylprednisolone 40 mg ampoule once daily, bronchodilator and symptomatic treatment were started. In the blood glucose monitoring

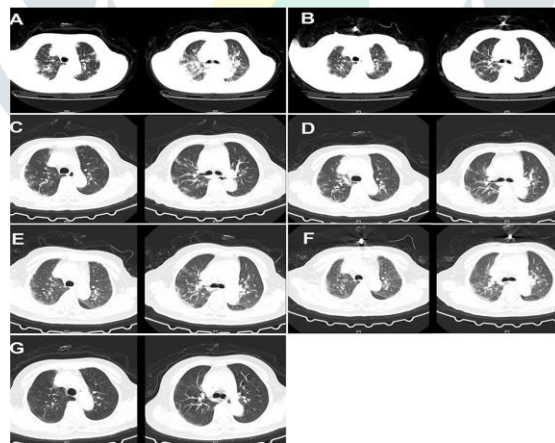


Fig.1 CT report

the regulated blood glucose values increased to 200-300 on the 3rd day of her hospitalization. For the treatment of the patient, it was planned to keep blood glucose in the range of 120-200 by adding crystallized insulin according to the blood glucose before meals. On the 5th day of her admission, the patient's respiratory distress increased and his oxygen saturation regressed to 90. he was followed up in the intensive care unit. During the follow-up in the intensive care unit, the insulin doses were continuously increased as the blood glucose levels remained at 300. The patient was not intubated. he was treated in intensive care for 3 days, and when vital signs stabilized he was followed up in the. The patient's treatment continued in the service for 7 days after 7 to 14 days patient's was not able to breat properly and movent he got heart attack and patients was dies.

DISCUSSION

The frequency of COVID-19 in individuals with comorbid disease also varies in different studies and country-based data. It has been reported that the diabetes prevalence in COVID-19 patients in different regions of China is at high values ranging from 7.4-20% (4).

The prevalence of diabetes in COVID-19 patients hospitalized in Italy was found to be 8.9%, and this rate is above the prevalence of advanced age diabetes (5). In different studies, COVID-19 patients with diabetes were found to be more frequently associated with serious or critical illness, ranging from 14% to 32% (6). Initial data reported that infection with COVID-19 and the development of severe pneumonia were higher in diabetics compared to those without diabetes, thus mortality rates were also higher (7). While the need for intensive care is around 30% for those without chronic diseases, this rate can reach up to 70% for diabetic individuals. There is a significant correlation between COVID-19 severity and diabetes. It is also reported that mortality in diabetic individuals with COVID-19 varies between 22-31% (8). It is said that mortality in people with diabetes is approximately three times higher than in those without diabetes.

CONCLUSION

This case study described the symptoms, diagnosis, treatment, and management of a COVID-19 patient. A 57-year-old male patient with a previously known diagnosis of diabetes mellitus, hypertension and coronary artery disease, emphasizing the need to pay attention to underlying diseases in COVID-19-positive patients. More information about this disease is still needed in order to successfully explore its clinical management.

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