

Diagnosis and treatment methods in our covid-19 patients: A single-center study

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Abstract

Aim: To present the treatment regimens of our patients diagnosed with coronavirus in the covid wards of our Kafkas University Faculty of Medicine hospital, and the recovery and mortality results of our patients during and after these treatments.

Materials/Methods: In our study, the records of 201 patients in the Covid service and intensive care unit of Kafkas University Medical Faculty Research Hospital between November 1 and November 16, 2020 were retrospectively analyzed. Patients who were found to have positive polymerase chain reaction (PCR) test and whose radiological findings were compatible with covid infection and who were diagnosed with Covid-19 who had symptoms were included in the study. Demographic findings, laboratory examinations and radiological findings of all patients at the first admission date were recorded.

Results: In the study, 205 patients diagnosed with Covid-19 were admitted to our hospital. Polymerase chain reaction (PCR) test was positive in all of our patients. Of the patients, most of whom were over the age of 65 (61.7%), 85 (41.5%) were female and 120 (58.5%) were male. In laboratory findings, leukocytosis was detected in 67%, lymphopenia in 37%, increase in AST level by 12.4%, increase in ALT level by 21.32%, while lactate dehydrogenase level increased by 26.3% and CRP level increased by 59.2%. Chest tomography revealed ground glass opacities and subsegmental consolidation areas in 181 patients. In 24 patients, multilobar and subsegmental consolidation areas were detected in thorax tomography. 24 patients were treated in intensive care units. Our mortality rate in these patients was 13.

Conclusion: In conclusion, Covid 19 is a disease that needs to be treated in a multidisciplinary way. We believe that early diagnosis and initiation of treatment will reduce morbidity and mortality.

Keywords: Covid-19; chest tomography; positive polymerase chain reaction; intensive care units.

Introduction

The coronavirus epidemic has become a global problem all over the world due to its organ defects and high mortality rates. The coronavirus S, N, E, M protein is involved in the emergence of infection. It is concluded that the S protein binds to the angiotensin converting enzyme 2 (ACE2) receptor with high affinity in humans and the ACE2 enzyme is expressed in the lung tissue, as well as in the heart, kidney, intestinal epithelium and vascular endothelium, and as a result, it may cause death by causing multiple organ damage.

appeared [1,2,3,4]. The coronavirus is divided into 4 groups as alpha, beta, delta and gamma coronaviruses [5]. In the literature, fever is the most common in 83-98% of the patients, cough in 76-82%, muscle aches, diarrhea, sore throat and headaches, weakness and fatigue in 11-44%. Severe picture is severe pneumonia and multiple organ damage [6]. In the treatment, on the other hand, treatment is usually given for the symptoms, and no definite decision has been made about the efficacy of the treatment by applying hydroxychloroquine and chloroquine treatments to the patients at the beginning. Again, treatments such as favipiravir have been used [7,8].

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Our aim in this study is to present the treatment regimens of our patients diagnosed with coronavirus and the recovery and mortality results of our patients during and after these treatments in our Caucasian University Medical Faculty hospital.

Materials/Methods

In our study, the records of 201 patients in the Covid service and intensive care unit of Kafkas University Medical Faculty Research Hospital between November 1 and November 16, 2020 were retrospectively analyzed. Patients who were found to have positive polymerase chain reaction (PCR) test and whose radiological findings were compatible with covid infection and who were diagnosed with Covid-19 who had symptoms were included in the study. Approval for the study was obtained from the Non-Invasive Clinical Research Ethics Committee of the Faculty of Medicine of Kafkas University and the Ministry of Health of the Republic of Turkey. Our inpatients were included in the study. Demographic findings, laboratory examinations and radiological findings of all patients at the first admission date were recorded. Patients with positive polymerase chain reaction (PCR) test and Co RADS 4-5 radiological finding of Covid 19 in thorax tomography and ground glass appearance mostly in the lung basal and middle zones were hospitalized and treated.

Statistical Analysis

Descriptive statistics (mean, standard deviation, minimum, maximum, percentage values) of the data were calculated. Mann Whitney U test for two independent groups and Kruskal Wallis test for more than two independent groups were used as non-parametric test for the comparison of non-normally distributed parameters between groups. The results were found to be statistically significant at a 95% confidence interval, $p < 0.05$.

Results

In the study, 205 patients diagnosed with Covid-19 were admitted to our hospital. Polymerase chain reaction (PCR) test was positive in all of our patients. Out of 115 (61.7%) patients, most of whom were over the age of 65, 85 (41.5%) were female and 120 (58.5%) were male. 78% of the patients had fever, cough, 38% had shortness of breath, 68% had cough, 85% had diffuse myalgia and low back and back pain (**Table 1**). As an additional disease, 20% of the patients had diabetes, 21% had hypertension, and 30% had heart disease. In laboratory findings, 67% had leukocytosis, 37% had lymphopenia, AST level increased 12.4%, ALT level increased. It was detected at a rate of 21.32, an increase of 26.3% in the lactate dehydrogenase level and a 59.2% increase in the CRP level. In the chest X-rays of our patients, there were irregularly bordered non-homogeneous opacity areas in the middle and lower zones of the lung. Ground glass opacities and subsegmental consolidation areas were found in 181 patients in the lung tomography. Multilobar and subsegmental consolidation areas were detected in the thorax tomography in 24 of our patients (**Figure -2**). The oxygen saturation of these patients was below

60 and In the blood gas evaluation, there were findings consistent with metabolic acidosis. These patients were followed up in the intensive care unit because the oxygen saturation could not be increased above 60 even in patients who were given oxygen, the general condition of the patient deteriorated and mechanical ventilator support was required. Our mortality rate was 13 in these patients. The patients were older and had additional diseases such as diabetes, chronic lung and heart disease.

Table 1: Descriptive statistics of the variables

| Variable | Number (n) | Percentage (%) |
|-----------------|------------|----------------|
| Age | | |
| 35-49 years | 40 | 15.6 |
| 50 - 64 years | 50 | 24.4 |
| >= 65 years | 115 | 56 |
| Total | 205 | 100.0 |
| Gender | | |
| Female | 85 | 41,5 |
| Male | 120 | 58,5 |
| Total | 205 | 100.0 |
| Diabetes | | |
| None | 169 | 82.4 |
| Present | 36 | 18.6 |
| Total | 205 | 100.0 |
| KH | | |
| None | 165 | 81.9 |
| Present | 40 | 18.1 |
| Total | 205 | 100.0 |
| Fever | | |
| None | 48 | 22 |
| Present | 157 | 78 |
| Total | 205 | 100.0 |



Figure 1: Ground glass appearance in the middle and basal zones.

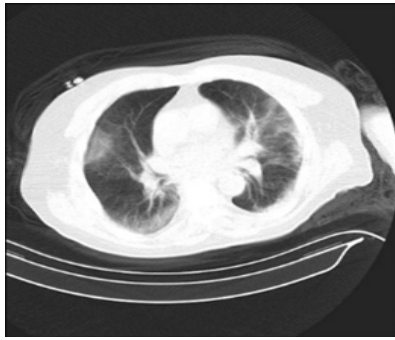


Figure 2: Ground glass appearance in the middle and basal zones.

Discussion

The new type of corona virus causes great concern all over the world due to its global spread. The general problems with this new virus are as follows; diagnosis, mode of transmission, long incubation period (3 to 14 days), negativities in accurately estimating the number of infected cases in the community and easy spread environments that cause pandemics (shopping malls, public transportation vehicles, education, health institutions, family, living spaces, etc.) is insufficient protection. The transmission of this disease to healthcare workers and its easy spread in the community complicates the disease [9,10]. At the same time, since there is no definite treatment and vaccine for this viral disease, which can spread so easily, the situation causes an even more serious picture for people with suppressed immune system, elderly patients and people with chronic diseases [10,11]. In our study, mortality occurred in patients who were both hospitalized in intensive care units and in patients with multiple organ failure, as a result of which the elderly and patients with chronic diseases. The patient groups identified as 19 are the groups that constitute the most frequent indication for hospitalization. In addition, pregnancy and old age are other risky conditions that should be followed meticulously [12]. In studies conducted on this disease, fever is seen in 85.81% of the clinic and it is measured as 38 degrees. It is stated that 53.88% of the patients have a fever below 38 degrees. Dry cough, which is the second most common symptom, was detected in 67.10% of the patients. Diarrhea and vomiting were detected in 12.47% of the patients had symptoms of dyspnea.

We did not have a patient hospitalized with complaints of severe diarrhea and vomiting. In studies, increased international normalized ratio (INR) was found in 32.04% of patients with leukocytopenia, 16.77% with lymphocytopenia, 1.08% with thrombocytopenia and 14.84%, and decreased albumin levels in 36.56%. While increased ALT level was observed in 10.11% of the patients, increased AST level was detected in 11.18% of the patients. Again, the amount of creatine kinase was increased by 4.95% and lactate dehydrogenase levels were determined to be increased by 25.16%. In over 50% patients increased erythrocyte sedimentation rates and C Reactive Protein (CRP) were detected [13]. In our study, leukocytosis was found in 67% of our patients, lymphopenia in 37%, increase in AST level was 12.4%, ALT level increased by 21.32%, lactate dehydrogenase level increased by 26.3% and CRP level increased by 59.2% seems compatible. While lung involvement is detected at a rate of 30-60% in the literature on chest radiographs, this appearance is seen as peripherally located, irregular limited non-homogeneous opacity increases in the middle

and lower zones of the lung. Even if there is no involvement in the lung radiograph, Covid 19 infection cannot be excluded [14,15]. The diagnosis of Covid 19 disease can be made by Thorax Tomography in patients with positive PCR test. While bilateral involvement is detected at a rate of 98% in the thorax tomography of the patients, ground glass opacities and subsegmental consolidation are observed in the patients who do not need intensive care, while multilobar and subsegmental thoracic tomography of the patients hospitalized in the intensive care unit is observed. consolidation areas are observed. Again, although pleural effusion and focal pleural thickening are rare, they can be seen in patients with advanced Covid 19 lung disease [16]. At the same time, thoracic CT Angio should be performed in patients prone to thrombosis [17]. In our study, 181 (88.29%) patients had ground glass opacities and subsegmental consolidation areas, whereas 24 (11.70%) patients had multilobar and subsegmental consolidation areas on thorax tomography. In imaging studies, pneumonia was detected in 88.31% of patients, and ground-glass appearance and consolidation areas were observed in thorax tomography [13]. Corticosteroids, which have anti-inflammatory and immunosuppressive effects as an immune modulator treatment method in the treatment of SARS-CoV, provide early resolution of fever. Ribavirin, a nucleoside analogue used in the treatment, is the most commonly applied agent with antiviral activity against many DNA and RNA viruses. Ribavirin blocks the viral replicase polyprotein, thereby stopping RNA replication. Another method used in the treatment of SARS-CoV is protease inhibitor [18]. Lopinavir-ritonavir joint formulation, which is also used in the treatment of HIV infection, can be used together with ribavirin in the early stages of the disease to help antiviral treatment [18]. favipiravir; It is a drug effective against many RNA viruses and is a ribonucleic acid (RNA) polymerase inhibitor that blocks viral replication. In in vitro studies, high doses of Favipiravir have been recommended in Covid 19 infection, using it in the treatment of SARS-CoV2. The side effects of favipiravir are flatulence, nausea, vomiting, hyperuricemia, abnormal liver function tests and chest pain [20]. In our study, all our patients were treated with favipiravir. Corticosteroids are potent anti-inflammatory and antifibrotic drugs that downregulate proinflammatory cytokine transcription, preventing a prolonged cytokine response, accelerating the resolution of systemic inflammation and regression of pulmonary symptoms in pneumonia. It has been shown to reduce mortality by 12.1% in COVID-19 patients connected to mechanical ventilation in intensive care units and by 2.9% in patients treated with oxygen support [21]. However, in addition to the use of interferon and general steroids in the treatment of immune-mediated lung injuries, additional research is needed to develop new treatment methods such as additional antiviral therapies, anti-monoclonal antibodies, anti-viral peptides and vaccines [22]. It was also stated that there is a consensus on the use of antibiotics and the use of antibiotics [23]. In our study, cortisteroid treatment was started in 27 patients with severe lung involvement and clinical symptoms on tomography. While the symptoms of 3 of our patients regressed and were treated in the ward, 24 of our patients were admitted to the intensive care unit considering the need for mechanical ventilators. 13 of these patients had mortality.

In conclusion, Covid 19 is a disease that needs to be treated in a multidisciplinary way. It is important that patient groups

with comorbidities that increase morbidity and mortality are hospitalized and followed closely. We believe that early diagnosis and initiation of the treatment process will reduce morbidity and mortality.

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