

Unexpected Treatment in a Severe Covid-19 Patient with Essential Thrombocythemia Who Received Oseltamivir and Hydroxychloroquine

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Abstract:

Introduction: Novel coronavirus disease (Covid-19) has been recognized as a new human infectious disease caused by a mutated type of coronavirus that might be associated with thrombocytopenia through different mechanisms. Moreover, the presence of underlying disease is a risk of hospitalization and poor prognosis of Covid-19.

Case report: Here, we describe a 77-year-old male Covid-19 patient with essential thrombocythemia. Although gastrointestinal symptoms (GI) were uncommon in the early stages of the pandemic, he presented to a clinic with GI symptoms and general weakness. He didn't have any respiratory involvement and laboratory tests revealed a hemoglobin and platelet reduction (81000/micL to 174000/micL), leukopenia, and elevated D-dimer. He received oseltamivir (75 mg twice daily) and hydroxychloroquine (200 mg twice daily) for five days.

Discussion & Conclusions: Despite his underlying disease and severity of illness including one-month fever, malaise, and a weight loss of 11 kg in ten days, he was cured without any hospitalization.

Keywords: Covid-19; Essential thrombocythemia; Gastrointestinal symptoms; Platelet

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1. Introduction

Novel Coronavirus Disease 2019 (Covid-19) is a great health public issue that spread all over the world rapidly [1]. Studies conducted at the early stage of the Covid-19 outbreak indicated that respiratory symptoms such as fever and cough, but not gastrointestinal (GI) symptoms, were common at disease onset. Apparently, the symptoms pattern has changed gradually and GI manifestations are more frequent these days [2]. According to the current studies, the elderly and those with chronic underlying diseases are in a high-risk group for adverse outcomes which is a great concern for the treatment process [3-5]. Additionally, hematological changes are common in patients with Covid-19, which include reduced lymphocyte and platelet count, prolonged activated partial thromboplastin time, and elevated D-dimer levels [6]. Therefore, we are

presenting a severe case of Covid-19 with comorbidities that recovered as an outpatient.

2. Case report

Patient permission for identifiable patient description and photographs to publish was granted from the patient.

2.1. Case presentation

A 77-year-old man with essential thrombocytopenia and unknown Covid-19 exposure, presented to a clinic with 5-day history of gastrointestinal disorders, mild fever, fatigue, loss of appetite, chilly sensation, and severe perspiration. He complained that his paraumbilical abdominal discomfort lasted for two days and then presented with nausea/ vomiting and severe watery diarrhea. The initial treatment and supportive care were started with serum therapy. However, after 72 hours his symptoms deteriorated with severe malaise and general

weakness. Lastly, he was treated at emergency department of Masih Daneshvari hospital.

2.2. Case management

According to outpatient care patient's baseline lab tests along with Covid-19 swab and chest computed tomography (CT) were requested. As a result, Covid-19 test was positive on March 17, 2020 (day 10th of illness) which were on the basis of RT-PCR testing that detected SARS-CoV-2. Consequently, following his medical history he received anagrelide 0.5 mg twice daily. Since he had normal CT findings (Figure) and no respiratory symptoms i.e. cough and dyspnea, he was treated as an outpatient and started on oseltamivir (75 mg twice daily) and hydroxychloroquine (200 mg twice daily) for five days.

According to outpatient care after few days he had physician routine checkups and relevant clinical lab tests were performed (Table). During illness, his body temperature was in the range of 37.3 °C to < 38 °C and once increased to 38°C and self-quarantine. Additionally, patient received serum therapy at home due to his severe weakness and dehydration and a severe weight-loss were experienced in the next 10 days of disease onset (baseline weight: 61 kg diminished to 50 kg).

Moreover, patient's platelet count was 878000/micL before infection and on the 17th day of illness dramatically dropped to 174,000/micL and D-dimer raised to 0.7 micg/mL This resulted in withholding anagrelide during treatment.

Interestingly, leukopenia, decrease in hemoglobin levels, elevated levels of C-reactive protein and lactate dehydrogenase were detected. On day 26, the C-reactive protein returned to normal but the platelet count increased to 1,6363,000/micL, so anagrelide was

commenced again. After about one month of disease onset, a nasopharyngeal swab test became negative. Finally, malaise and weakness resolved without any hospitalization and the platelet count increased to 702000/micL. Following patient's care, he was referred to a physiotherapist for recovery and were encouraged to practice his routine mountain climbing exercise on weekly basis.

3. Discussion

According to some studies, thrombocytopenia is a common manifestation in Covid-19 patients [7,8] associated with high mortality [9]. Xe et al., proposed three possible mechanisms by which Covid-19 causes thrombocytopenia [8]: 1) reduced platelet production by bone marrow suppression, 2) increased platelet destruction through anti-platelet antibodies by the formation of immune complexes. 3) increased platelet consumption as a result of platelet aggregation in response to lung injury during the infection process. In this case, the number of platelets decreased during illness. Apparently, bone marrow suppression occurred due to corona virus infection. Besides, bone marrow suppression would happen as a rare side effect of hydroxychloroquine [10]. There is no enough evidence that the thrombocytopenia precipitated as a result of the disease or drug adverse reaction or both. Additionally, the patient exhibited GI symptoms rather than respiratory involvement which was uncommon in early March [11].

Sadr et al, reported an isolated, severe, and transient thrombocytopenia in one case of Covid-19 without any pulmonary symptoms [12]. In another study, three cases of covid-19 were presented. Two cases referred to the emergency department with gum bleeding and generalised petechial rash with normal chest x-ray that were subsequently found to be covid-19 positive [13].

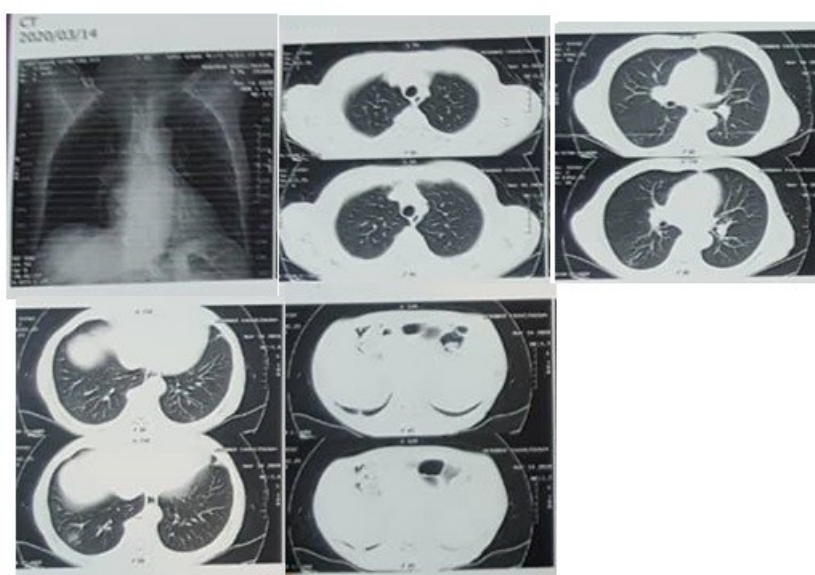


Figure. Chest computed tomography radiograph.

Table. Laboratory findings before, during and after infection treatment.

Laboratory findings	Date	42 days before illness (1.27.20)	Day 7 of illness (3.14.20)	Day 11 of illness (3.18.20)	Day 17 of illness (3.24.20)	Day 26 of illness (4.2.20)	Day 42 of illness (4.18.20)
White-cell count ($\times 10^3/\text{micL}$)		4.4	3.56	5.41	3.15	4.8	3.2
Differential count (%)							
Neutrophils		48	59.2	45.8	42	44	47
Lymphocyte		44	32	45.2	48	51	46
Monocyte		6	7.8	7.2	10	3	5
Eosinophil		2	0.4	1	0	2	2
Basophil		0	0.6	0.8	0	0	0
Red-cell count ($\times 10^6/\text{micL}$)		2.95	3.31	3.19	3.28	3.11	2.91
Hemoglobin (g/dL)		9.3	10.5	10.5	9.9	9.7	9.1
Hematocrit (%)		28.3	30.2	30.8	29.3	28.6	27.2
Mean corpuscular volume (fL)		95.4	91.1	96.7	89.3	92.1	93.4
Platelet count ($\times 10^3/\text{micL}$)		878	519	810	174	1636	702
Erythrocyte sedimentation rate 1hrs (mm/hr)		11			19	47	13
C-reactive protein (mg/L)			13.9		16.2	<2	<3
Prothrombin time (sec)				14.1		12.5	12.5
Partial thromboplastin time (sec)				26		25	29
D-dimer (micg/ml)					0.7		
International normalised ratio INR				1.2		1.0	1.0
Aspartate aminotransferase (U/L)						26	
Alanine aminotransferase (U/L)						32	
Alkaline Phosphatase (U/L)						164	
Lactate dehydrogenase (U/L)		482	501		620	558	
Creatine kinase (U/L)				76	25		
Blood sugar (mg/dL)				100		81	
Urea mg/dL				28		31.4	
Blood urea Nitrogen (mg/dL)						14.7	
Creatinine (mg/dL)				1.08		1.35	
Iron (micg/dL)						199	163
Total Iron Bonding Capacity (micg/dL)							220
Transferin saturation (mg/mL)							74
Serum ferritin (ng/mL)							365
Folic Acid (ng/mL)							18.4
Homocysteine (micmol/L)							11.3
25-hydroxy vitamin D (ng/mL)		68.9				85	89
Calcium (mg/dL)		9.1				10.1	9.5
Corrected serum calcium (mg/dL)		8.7				9.86	9.26
Albumin (g/dL)		4.5				4.3	4.3
Sodium (mEq/L)				140		137	139
Potassium (mmol/L)				4		5.8	5

4. Conclusion

It is remarkable outcome to observe patient's recovery despite his serious underlying disease as an outpatient and his limited medication. It seems that Covid-19 targeted the patient's underlying disease, as so he cured, the platelet count increased explosively and exceeded to pre-disease level. It should also be mentioned that we could not conclude this argument with only one case and further researches are encouraged to evaluate the effect of Covid-19 pathophysiology on underlying disease.

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Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethics

This study was approved by the Ethics Review Committee in Research Deputy Department of Shahid Beheshti University of Medical Sciences, Tehran, Iran (REC code, IR.SBMU.RETECH.REC.1399.052).

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