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COVID-19 in a Patient Newly Diagnosed with Chronic Lymphocytic Leukemia

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Abstract

Coronavirus disease (COVID-19) pandemic continues to pose challenges.Patients with Chronic Lymphocytic Leukemia (CLL) have many risk factors that predispose them to a severe course of COVID-19–related illness, including co-morbidities, older age, and higher prevalence of immunodeficiency from leukemia.

Case presentation: A 70-year-old man had a 2-day history of nonproductive cough, dysnoea and shortness of breath, myalgias/arthralgias, and headache. He explained that had 6-7 day that not felt well: fatigue, fever over 38.0°C, renching and night sweats. He has been healthy till now. His finger oxygen saturation on air room was 80%. Chest tomography showed bilateral ground glass opacities with basal pulmonary consolidation and bilateral pleural effusions. The complete blood count showed a high leucocytosis and a rise of absolute lymphocyte count. TR-PCR of swab nasopharyngeal for Sars-Cov-2 resulted negative. Antibody anti-Sars-CoV-2 IgM and IgG resulted negative on admission and positive on discharged day.

Conclusions: There are limited cases available regarding the presentation of COVID-19 in CLL patients. For these reasons this patient group is of particular concern. Our aim is to describe a patient diagnosed with COVID-19 induced hyperleucocytosisand newly diagnosed CLL.

Keywords: COVID-19; Chronic lymphocytic leukemia; Leucocytosis; Lymphocytosis

Introduction

COVID-19 infection has a broad spectrum of severity ranging from an asymptomatic, flu like syndrome to a severe acute respiratory syndrome. In the symptomatic subjects, the constitutional symptoms are: sore throat, fever, muscle or bone aches, chills, headache, nasal congestion, and cough, respiratory symptoms such as dyspnea or short breathiness. The biochemical data in these patients like, leuco-lymphopenia, thrombocytopenia, hypoalbuminemia, elevated of Lactate Dehydrogenase (LDH), C - reactive protein and D-dimer were observed. On the other hand, patients with cancer are at risk to carry an excess again infection [1-3].Given advanced age, comorbidities, and immune dysfunction, CLL-patients may be at particularly high risk of infection and poor outcomes [4,5]. Patients with CLL may be at high risk for COVID-19 and its complications, because CLL is a disease of older people. These patients are known to carry an excess risk of infection and death due to infection. Small, heterogeneous case series of patients with hematologic malignancies and Sars-CoV-2 infection have been reported [6-8] For these reasons this patient group is of particular concern. Our aim is to describe a patient diagnosed with COVID-19 and newly diagnosed CLL. The patient recovered and was discharged on 15thdays of admission.

Case Report

A 70-year-old man had presented to the emergency room with a 2-day history of non-productive cough, dyspnoea, shortness of breath, myalgias/arthralgias, and headache. He explained that had 6-7 day that not felt well: fatigue, fever over 38.0°C, weakness, ranching and night sweats. He was admitted to an isolation room due to COVID-19 suspicion. His medical history didn't include any chronic disease. He has been healthy till now. The patient was hospitalized and placed on a nasal cannula. His $SatO_2$ finger was 80% on oxygen room and about 93-95 % with 10L oxygen/min. Other parameters were as below: blood pressure 135/80mmHg, heart rate 85-90/min, and respiratory rate 23-25/min. Arterial blood gas showed pH at 7.48, PCO_2 at 34.4mmHg, HCO_3 at 26,2 mmol/L, PO_2 at 68mmHg, lactates 1.71 mmol/L. Chest tomography showed bilateral ground glass opacities with basal pulmonary consolidation and bilateral pleural effusions.

The complete blood count showed a WBC count of 65.7 × 103/μL (4,5-11 × 103/μL) and absolute lymphocyte count of 59.8 × 103/μL (1.08-4,84 × 103/μL), erythrocyte sedimentation rate 64 mm/h (0-20), ferritinemia 663 ng/dl (30-400), fibrinogen 611 (200-400 ng/dl) and calcemia 8.06 mg/dl (8,4-10,2). Others blood parameters were in normal ranges. TR-PCR of

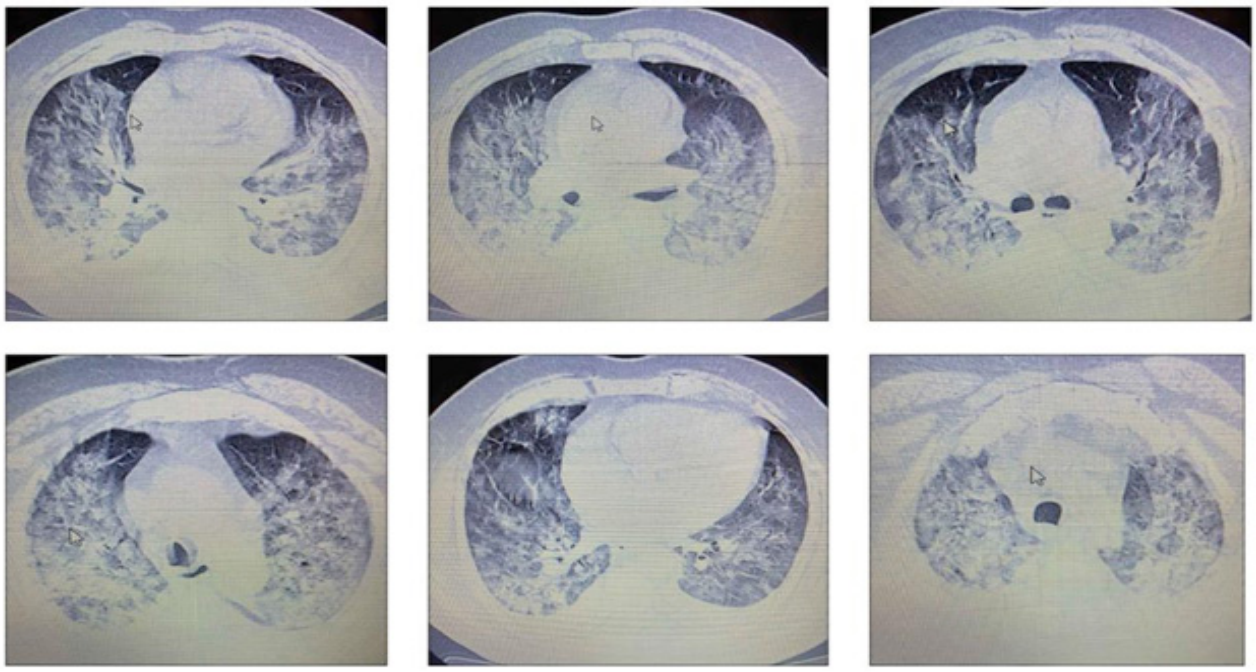

Figure 1: Ct scan on admission day.

swab nasopharyngeal for Sars-CoV-2 infection resulted negative. Antibody again Sars-CoV-2 infection, IgM and IgG resulted negative on admission. Transthoracic echocardiography was normal. Based on clinical presentation, laboratory and radiologic data, the patient was classified as interstitial pneumonia caused by Sars-CoV-2 infection. The treatment consists on: piperacillin/tazobactam 4g/0.5g every 8 hours, levofloxacin 500 mg/100ml/day, methylprednisolone at dose of 60 mg every 8 hours, low-molecular-weight heparins (LMWHs) and supportive therapy. After the initiation of steroids, his WBC count had decreased. Day by day changes in WBCc, lymphocytes count and D-dimmer are shown in (Figure 1).

Microscopic examinations of the peripheral blood smear confirm lymphocytosis and the presence of smudge cells. Bone marrow aspirations confirm a hypercellular bone marrow, with high percentage of lymphocytes (48%), and the presence of smudge cells. Based on clinical presentation and laboratory data the patient was diagnosed with CLL, low risk (revised RAI staging system). The patient was tested for: Mycoplasma pneumonia, Legionella pneumophila, Streptococcus pneumonia, respiratory syncytial virus, influenza A+B that all of them resulted negative. On 4th day the patient was complicated by an increased of D-dimmer at value of 8206 ng/ml (see Figure 2). At that time the patient started with continues intravenous perfusion with LMWHs. After that we performed a total body angio-CT and didn't see any embolism.

The trend of WBCc continues to go down. The patient's respiratory status continued to improve and hi was discharged at home on the 15thday after admission (Figure 3). On discharged day hi resulted IgM positive again Sars-CoV-2 infection. The patient was advice to follow up in watchful waiting, every 2 months. The last WBC count was 12,5 × 103/μL and lymphocytes 11,41 × 103/μL, (2 months later).

Discussion

In contrast with this case presented with leucocytes, lymphopenia is a common laboratory finding and it has been found to be a poor prognostic factor in COVID-19 patient [9].In this case, we have noted an increase of lymphocyte population as firs laboratory data. This increase has been previously reported by a British study, however the mechanisms are still unknown [10].Patients with CLL and COVID-19 presented with fever and respiratory symptoms, including cough and dyspnea. Less frequent are other manifestations included fatigue, diarrhea, myalgias/arthralgias, and headache [2]. CLL is a malign disease associated with impaired immune responses to common pathogens. These patients often have cellular and humoral immune defects, with a strong predisposition for over infections, especially bacterial infections. Furthermore, there is increased susceptibility to viral infections due to T-cell dysfunction in CLL patients [6,9,11]. Hyperleucocytosis is a medical emergency and results from

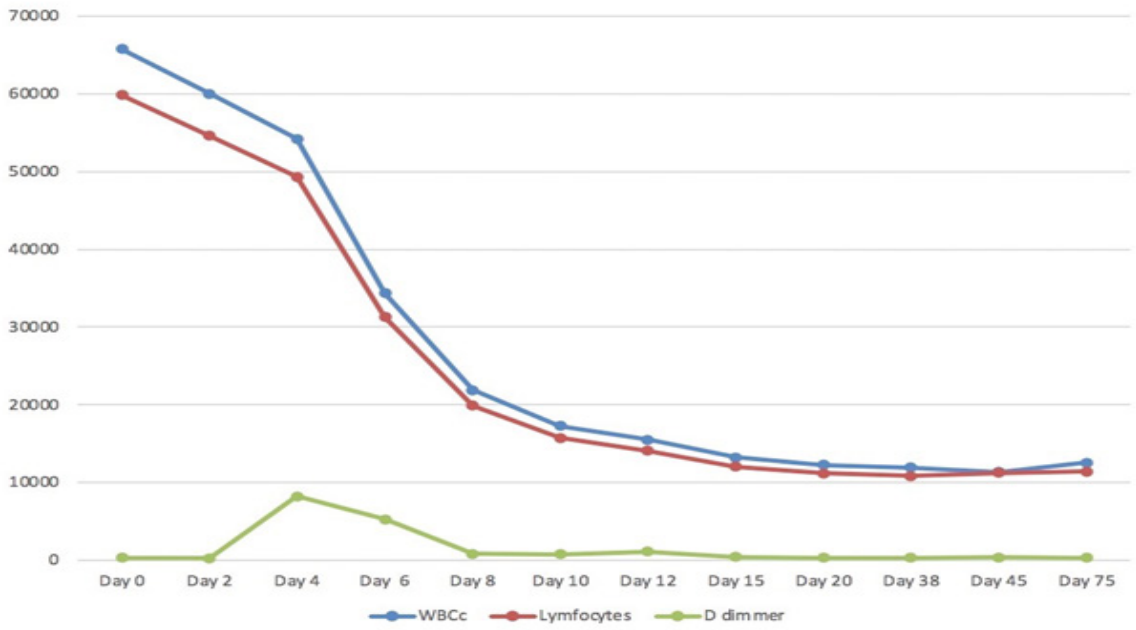

Figure 2: Changes in WBCc, a lymphocytes count and D-dimmer.

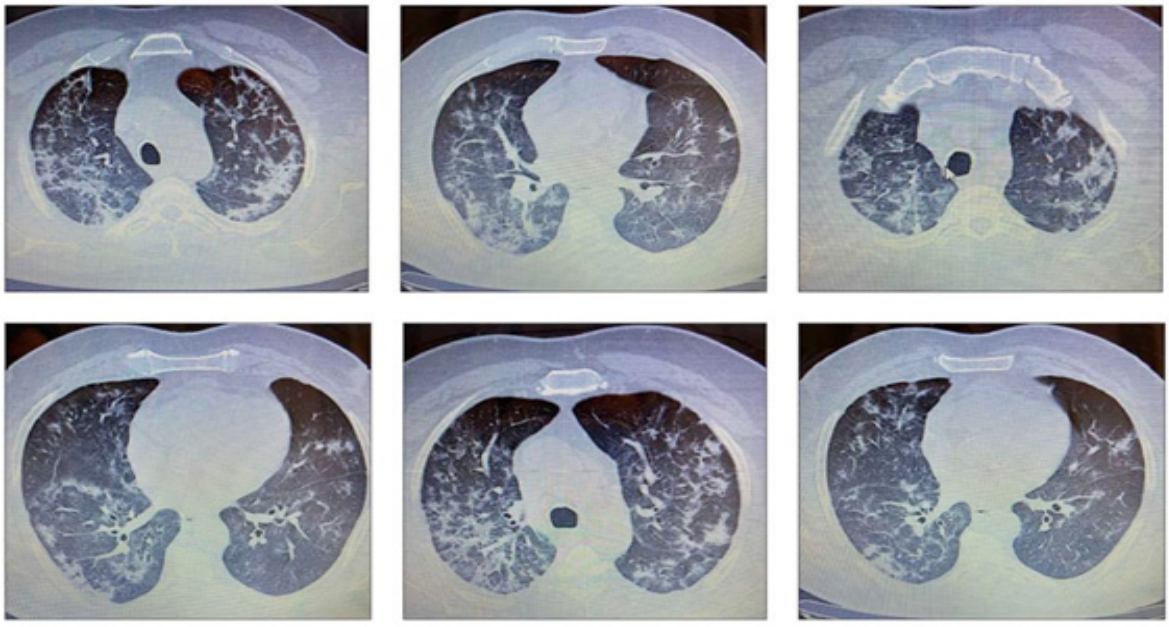

Figure 3: Angio Ct scan of total body.

Conclusions

Leucopenia and limfopenia are commune presentation in COVID-19 patients. The association of SARS-COV-2 infection and CLL is a real challenge for physicians. Because clinical and biological symptoms of COVID-19 patients can be concealed in chronic lymphocytic leukemia patient.

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