

EVALUATION OF HEMATOLOGY CONSULTATIONS IN COVID-19 PANDEMIC

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Abstract

This study aims to evaluate the COVID-19 pandemic consultations requested from the division of hematology in the hospital. We recorded the following features of the patients: demographic information, the status of outpatient or inpatient, the clinic requested consultation, the result of the consultation, having a hematological disease, diagnosis and COVID-19 suspicion. In this study, 82 cases were evaluated. The median age of the patients was 49,5. Females were mild higher (56,1% vs. 43,9%). Eight of the patients was suspected with COVID-19. The frequency of suspicion in patients with the previously diagnosed hematological disorder was higher significantly than patients without previously diagnosed (42,9% vs. 6,7% $p=0,018$). The frequency of suspicion was higher significantly inpatients than outpatients (19,4% vs. 2,2%, $p=0,019$). Only two of the patients who was suspected with COVID-19 were PCR-positive and these patients were diagnosed with concomitant hematologic malignancy; CLL and MCL. The most common clinic and cause of this consultation of this clinic were gynecology and thrombocytopenia, respectively, and most of the patients were diagnosed with pseudothrombocytopenia. After the consultation for all patients, the diagnosis was drug-related cytopenia; however, detailed evaluation for cytopenia was delayed to period which after the pandemic because any patients had no deep levels of cytopenia. Although our study has some limitations, this study is remarkable because this is the first study that has investigated hematology consultation during the pandemic. We think that more significant results will be achieved as new data become available, as long as the pandemic continues.

INTRODUCTION

Some patients with unexplained viral pneumonia were reported in Wuhan, a city in the Hubei Province of China, at the end of 2019. Following its identification as a novel coronavirus pathogen (SARS-CoV-2) and an increasing number of cases in many countries, especially in Europe, World Health Organization (WHO) declared the COVID-19 as a pandemic on March 11, 2020.¹ In this process, many data show that COVID-19 should be considered as a systemic disease, including respiratory, neuromuscular, cardiovascular, dermatological, immune and hematological systems.^{2,3} Therefore, in addition to treatment guidelines of COVID-19, various management guidelines related to specific divisions have been published from diverse societies and centers.⁴⁻⁶

Some studies reported that patients who were diagnosed with cancer and also immunosuppressed have a significantly higher risk of infection with SARS-CoV-2.^{7,8} Although the infection does not have any specific clinical findings, several hematological findings, such as lymphopenia, thrombocytopenia, prolonged coagulation tests, increased fibrin degradation products and increased ferritin levels, were also defined in patients who are virus-infected.⁵

To our knowledge, there was no study evaluated hematology consultation in the COVID-19 era in the literature. Herein, we aimed to present features of patients who consulted the hematology unit in this term.

METHOD

This study was designed as a retrospective study. Patients consulted hematology unit at Necmettin Erbakan University, Meram Medical Faculty, from March 14, 2020 to May 14, 2020 were evaluated in this study. We recorded patients' characteristics, such as demographic (age, gender), the status of outpatient or inpatient, the clinic requested consultation, reason and result of the consultation, having a hematological disease or not, diagnosis and COVID-19 suspicion. Our study was approved by the Ethics Committee of the Commission for Scientific Research of the Ministry of Health of the Republic of Turkey and the Ethics Committee of Meram Medical Faculty.

Statistical Analysis

Data were analyzed using the IBM SPSS program (version 22.0). Distribution for continuous data was evaluated using the Kolmogorov-Smirnov test. Median (minimum and maximum values) and percentage were used for descriptive statistics. The comparison of the categorical variables was performed using Chi-square test. The p-value of less than 0,05 was accepted as statistically significant.

RESULTS

From March 14, 2020 to May 14, 2020, we evaluated 82 cases who consulted the adult hematology unit. The median age of the patients was 49,5 (18-93). Forty-six (56,1%) of the patients were female and 36 of the patients (43,9%) were males. The number of the consultation requested from outpatients was 46 (56,1%), while the inpatients were 36 (43,9%). The clinic that requested the most consultation was gynecology with 17 of patients (20,7%). Distribution of the clinics requested a consultation is listed in Table 1.

Eight patients were suspected with COVID-19 because of clinical signs, such as fever, cough and headache. Only two of these patients had COVID-positive according to PCR results. The frequency of suspicion of the COVID-19 was statistically significantly higher in patients with previously hematological diagnosed and also in consultation requested from inpatients ($p=0,018$ and $p=0,019$, respectively). Table 2 shows distribution associated with suspected COVID-19 patients according to features of the hematological disease and outpatient or inpatient.

Seven of the patients previously hematologic diagnosed were Hodgkin's lymphoma, chronic lymphocytic leukemia (CLL), myelodysplastic syndrome (MDS), idiopathic thrombocytopenic purpura (ITP), multiple myeloma, Bernard- Soulier syndrome and hereditary spherocytosis with one patient in each of them. In the other 75 patients, any clinical pathologic features were not found in 11 patients and diagnostic evaluation had not been finished yet in 12 patients. The most common diagnosis was drug-related cytopenia with 11 patients (20,4%) of the 54 patients. Distribution of diagnoses is presented in Table 3. The less common diagnoses were presented like "the other" with one patient each of the diagnoses. In Table 3, diagnosis of Budd-Chiari syndrome, portal ven thrombosis, retinal ven thrombosis and hereditary thrombophilia were entitled under the upside of "thrombosis".

DISCUSSION

Recently, COVID-19 infection, declared as a pandemic, has been influencing many clinical practising and daily-life. Some hospitals have been begun to serve for only COVID-19 infected patients except for patients who had recourse to emergency service, hematology and oncology clinics and also some elective surgical operations were delayed in our country. In this study, we aimed to evaluate hematology consultation requested in such a pandemic period.

In our study, we reported 82 patients during two months in the pandemic. The mean age was 49,5 (18-83), which was consistent with James's study published in 2015.⁹

The risk of COVID-19 infection is higher in immunocompromised patients and cancer patients who received chemotherapy.⁷ In a retrospective cohort, Fox et al. reported 55 patients with hematological disorders and COVID-19 infection who were tested using PCR or diagnosed with based on radiological findings.¹⁰ Only eight patients was suspected with COVID-19 in our study, and the frequency of suspicion in patients with the previously diagnosed hematological disorder was 42,9%, which was higher significantly compare to patients

without previously diagnosed ($p=0,018$). On the other hand, the frequency of suspicion of COVID-19 in in-patients was also higher than outpatients, 19,4% and 2,2% ($p=0,019$), respectively. However, only two of eight patients had PCR-positive. Interestingly, although a significant difference to the frequency of suspicion of COVID-19 was not found between patients new hematologic diagnosed and others, COVID-19 infection was diagnosed concomitant a new hematologic malignancy, CLL and MCL, in both PCR-positive patients. These data show that the findings of COVID-19 may be similar to findings of hematologic malignancies.

In our study, patients previously diagnosed hematologic disorder were not diagnosed with COVID-19 infection although He et al. reported that as high as 10% of patients with hematologic malignancies were COVID-19 infected in a retrospective cohort.¹¹ We explain this paradox as follows. We evaluated only consultations and only the early period of pandemic in this study. Additionally, in our university hospital, during the pandemic, most of the clinics have been utilized as a COVID-19 clinic and hematologist and some of the assistants in the internal medicine have been worked in these clinics. Thereby, formal consultation from some of the patients may not have requested.

Many clinics request hematology consultation in daily practice. Gynecology is the most common clinic requested consultation in our study. The most cause of these consultations was thrombocytopenia, one of the common problems during pregnancy in 12 patients. In a retrospective series, Parnas et al. reported that gestational thrombocytopenia occurs 59% of the 199 pregnant women.¹² However, the frequency of gestational thrombocytopenia in our study was 41%. The lower ratio may be due to a low number of patients and some ethological tests in some patients having not been completed yet. Causes of other consultations requested from gynecology were anemia, splenomegaly and to discuss for using low molecular weight heparin. Anemia and splenomegaly were found to be associated with pregnancy as a result of the etiological evaluation.

As seen in Table 3, drug-related cytopenia is found as the most common diagnosis. Of the 11 patients with cytopenia, six were neutropenic, three were thrombocytopenic, and two were both. Because any patient had not a deep level of cytopenia, a detailed evaluation was delayed to period which after the pandemic and taking of the suspect drug was discontinued only. These consultations were requested with the following clinics: oncology, psychiatry, rheumatology and neurology. Oncology is one of the clinics; the second common requested consultation in our study. Thrombocytopenia, anemia, lymphadenopathy and leukocytosis were causes of the consultation. Particularly drug related-thrombocytopenia may be a significant reason to discontinue chemotherapy. Ten Berk et al. reported that the frequency of chemotherapy-induced thrombocytopenia is 3% to 4% and patients received platelet transfusion are less than 3%.¹³ Severe thrombocytopenia is not usual in also COVID-19 infection. It was reported that only 5% of patients had thrombocyte lower than 100.000/ μ L, in a case series, in Wuhan, whereas lymphopenia was the most common blood count abnormality in COVID-19 infection. Leukopenia may be determined in 33,7% of patients.¹⁴⁻¹⁶ However, leukopenic and thrombocytopenic patients had no symptoms and signs of COVID-19, so they were not tested by PCR.

COVID-19 infection may lead to a hypercoagulable and dyscoagulable situation, especially in patients with severe infection. Elevated D-dimer levels and fibrinogen can be distinguished and prognostic.^{17,18} Four patients with thromboembolic disorder in our study had not suspicion of COVID-19. Thus, they were researched for only their own disease.

The limitation of our study may be the absence of comparing between the COVID-19 era and the pre-pandemic period and the existence of 12 patients whose evaluation has not been completed yet. However, our study is crucial because, to our knowledge, there is not any study that has investigated hematology consultation during the COVID-19 pandemic in the literature.

Patients are referred to hematologist due to suspicion of hematologic disease for various symptoms and findings in daily practice, although many hematologic disorders are rare. Because of similarities in symptoms and signs, COVID-19 related hematologic complications and applying to hospital by non-COVID-19 causes; we think that hematology consultations will continue, as long as the pandemic continues.

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Table-1: Distrubition of clinics requested consultation from hematology.

Clinic Requested

Gynecology-Obstetric General Surgery Oncology Gastroenterology Cardiology Orthopedics Psychiatry Enfection Disease Ch

Table-2: Distrubition asociated with COVID suspicion of patients to hematological disease and root of patients.	Table-2: Distrubition asociated with COVID suspicion of patients to hematological disease and root of patients.	Table-2: Distrubition asociated with COVID suspicion of patients to hematological disease and root of patients.	Table-2: Distrubition asociated with COVID suspicion of patients to hematological disease and root of patients.
Previously Hematologic Disorder Yes, n:7 (%) No, n:75 (%)	COVID19 Suspicion YES, n (%) 3 (42,9) 5 (6,7)	COVID19 Suspicion NO, n (%) 4 (57,1) 70 (93,3)	P 0,018*
New Hematologic Diagnosed (After Consultation) Yes, n:18 (%) No, n:64 (%)	4 (22,2) 4 (6,3)	14 (77,8) 60 (93,8)	0,06*
Root of Patient Inpatient, n:36 (%) Outpatient, n:46 (%)	7 (19,4) 1 (2,2)	29 (80,6) 46 (97,8)	0,019*
Fisher's Exact qi-square 8 (9,8) 74 (90,2)	*Fisher's Exact qi-square 8 (9,8) 74 (90,2)	*Fisher's Exact qi-square 8 (9,8) 74 (90,2)	*Fisher's Exact qi-square 8 (9,8) 74 (90,2)

Table-3: Distrubition of new diagnosis after consultation

Diagnosis

Drug-related cytopenies Gestationel thrombocytopenia Iron deficiancy anemia Thrombosis Enflamation anemia Secondary p