

Evaluation of Patients Hospitalized in an Internal Diseases Clinic During the Pandemic Period

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Abstract: Internal medicine clinics offer solutions to important problems of the health system such as the management of chronic diseases and further examination of undiagnosed conditions, besides the acute problems of patients. In addition to treating COVID-19 patients during the pandemic period, they continued their current duties and showed that they are an important part of the health system. In our study, we aimed to evaluate the demographic characteristics, reason and duration of hospitalization, and survival rates of patients hospitalized in the internal medicine clinic of a city hospital during the third wave of the pandemic. The study is a retrospective, descriptive and includes patients between 01.10.2021 and 31.12.2021 cross-sectionally. The files of 262 hospitalized patients in our clinic during this period were analyzed and included in the study. Age, gender, clinical diagnosis, length of hospital stay, comorbid disease status, COVID-19 disease and vaccination history of the patients were recorded. The mean age of the patients was 63.3±6.3, and the number of patients over 65 years was 149 (57%). The number of male and female patients was equal (131/131). Hypertension was the most common disease associated with hospitalization diagnoses. This was followed by diabetes mellitus, ischemic heart disease, chronic kidney disease, malignancies, and chronic liver disease, respectively. The patients with the most common upper gastrointestinal bleeding were hospitalized. Anemia examination and malignancy screening patients followed this up. The rate of history of COVID-19 disease was 18.7% and the vaccination rate was 92%. Internal medicine clinics are a major branch in which the general approach is very important, and which aims to get the most efficient result by working in coordination with other departments in the shortest time with a holistic, multisystemic and analytical way of thinking. The importance of internal medicine clinics has come to the fore once again during the pandemic period.

Keywords: internal diseases, hypertension, gastrointestinal bleeding, diabetes mellitus, malignancy

Pandemi Döneminde Bir İç Hastalıkları Kliniğinde Yatan Hastaların Değerlendirilmesi

Özet: Dahiliye klinikleri, hastaların akut sorunlarının yanı sıra, kronik hastalıklarının yönetimi ve tanı almamış durumların ileri incelenmesi gibi sağlık sisteminin önemli sorunlarına çözüm sunmaktadırlar. Pandemi döneminde de COVID-19 hastalarının tedavisi edilmesinin yanında mevcut görevlerine devam etmişler ve sağlık sisteminin

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önemli bir parçası olduklarını göstermişlerdir. Çalışmamızda pandeminin üçüncü dalgası sırasında bir şehir hastanesinin iç hastalıkları kliniğine yatan hastaların demografik özellikleri, yatış neden ve süreleri ile sağkalım oranlarının değerlendirilmesini amaçladık. Araştırmamız retrospektif tipte, tanımlayıcı bir çalışma olup, kesitsel olarak 01.10.2021 ve 31.12.2021 tarihleri arasındaki hastaları kapsamaktadır. Kliniğimizde bu dönemde yatan 262 hastanın dosyası incelenip, çalışmaya dahil edildi. Hastaların yaş, cinsiyet, klinik tanuları, hastanede yatış süresi, komorbid hastalık durumu, COVID-19 hastalığı ve aşısı öyküsü bilgileri kaydedildi. Hastaların yaş ortalaması 63.3 ± 6.3 ve 65 yaş üzeri hasta sayısı 149 (57%) olarak saptandı. Kadın ve erkek hasta sayısı eşitti (131/131). Yatış tanularına eşlik eden hastalıklarda en sık hipertansiyon görülmekteydi. Bunu sırasıyla, diabetes mellitus, iskemik kalp hastalığı, kronik böbrek hastalığı, maligniteler ve kronik karaciğer hastalığı izlemekteydi. En sık üst gastrointestinal sistem kanaması nedeniyle yatış yapıldı. Anemi tetkik ve malignite tarama hastaları bunu izledi. COVID-19 hastalığı geçirme oranı %18,7 ve aşı yaptırma oranı %92 olarak belirlendi. İç hastalıkları klinikleri genel yaklaşımın çok önemli olduğu; bütüncül, multisistemik ve analitik düşünce tarzıyla en kısa sürede diğer bölümlerle koordine çalışıp en verimli sonucu almayı hedefleyen bir ana daldır. İç hastalıkları kliniklerinin önemi pandemi döneminde bir kez daha ön plana çıkmıştır.

Anahtar kelimeler: iç hastalıkları, hipertansiyon, gastrointestinal sistem kanaması, diyabetes mellitus, malignite

INTRODUCTION

Internal medicine practice is a discipline that requires a general and comprehensive approach to the patient as a branch where the patient density is higher than outpatients and inpatients. Coronavirus disease 2019 (COVID-19) pandemic has once again demonstrated how important internal medicine clinics are. The need for hospital beds has also increased during the pandemic given that both COVID-19 patients and patients with chronic diseases, especially geriatrics, continue to be hospitalized. It is important to plan the necessary examinations and treatments for the current diseases and preliminary diagnosis of inpatients. The leading chronic diseases are diabetes mellitus (DM), hypertension (HT), chronic kidney failure (CKD) and malignancies. While the pandemic continues, these diseases have not disappeared, on the contrary, the control of these diseases has become more difficult with the decrease in routine controls.

Patients are frequently hospitalized from emergency and outpatient clinics to ensure blood sugar regulation (Levetan & Magee, 2000). While some of these hospitalized patients have been diagnosed with diabetes before, some of them are diagnosed during hospitalization (Clement et al., 2004). Diabetes mellitus ranks in top four in frequency among the non-communicable diseases, which are the main cause of death in our country as it is in the world. According to the TURDEP-II study, 42% of the adult population in Turkey is diabetic or prediabetic (Satman et al., 2013). In the study of Umpierrez et al., in which they screened 2030 hospitalized patients, the frequency of hyperglycemia was found to be 38%, and they observed that 26% of the patients had diabetes mellitus (DM), while 12% had no history of DM (Umpierrez et al., 2002). HT is a common disease related with many branches. 30% of the population is unaware that they are hypertensive, and 65% of the diagnosed patients have poor control (Lapidus et al., 2021). The prevalence of age-standardized HT calculated for 2020, based on TURDEP-II data, was 29.6% (Satman et al., 2013). About half (47%, or 116 million) of adults in the United States have HT, defined as systolic blood pressure greater than 130 mmHg or diastolic blood pressure greater than 80 mmHg, and are taking medications for it (Centers for Disease Control and Prevention, 2021).

In a study conducted in the United States between 2015 and 2018, 14.9% of the United States adult population was found to have low eGFR or proteinuria. Although the prevalence of CKD decreased in a few risk groups, including elderly individuals, those with diabetes, hypertension, and cardiovascular disease, the number remained stable due to the increase in these diseases in the population (Bethesda, 2020). Epidemiological studies on CKD from different countries have yielded related results. According to the results of these studies, the rate of CKD in the world varies between 10-16%, and the rate of

microalbuminuria varies between 6-14% (Bello et al., 2015; Hallan et al., 2006). The Chronic Renal Disease in Turkey (CREDIT) study, which included 10,748 individuals over the age of 18 in 23 provinces in Turkey, determined that the prevalence of CKD in the general adult population in Turkey was 15.7%. In adults, the rate of microalbuminuria, which is an indicator of kidney damage, was found to be 10.2%, and the rate of macro albuminuria was 2%. It proves that CKD is an important public health problem in Turkey as it is in the world (Süleymanlar et al., 2011). The number of patients with malignancy is increasing all over the world. Especially the increase in elderly patients and diagnosis opportunities contribute to this increase. Although there are advances in treatment possibilities, the management of side effects of oncological treatments, such as chemotherapy and radiotherapy are also difficult. The Global Cancer Observatory (GLOBOCAN) 2020 provides estimates of incidence and mortality rates for 36 cancer types from 185 countries and for all cancer types for 2020. In the light of these data, it was reported that the global cancer burden increased to 19.3 million new cases and 10.0 million deaths in 2020 (World Health Organization, 2020).

In our study, we aimed to evaluate the demographic data, reasons for hospitalization, hospitalization duration, and survival rate of patients hospitalized in the internal medicine clinic of a city hospital during the third wave of the pandemic.

MATERIALS and METHODS

The study is a retrospective, descriptive and cross-sectional and includes information about the patients hospitalized in the internal medicine clinic between 01.10.2021 and 31.12.2021. Patient information was obtained from the hospital electronic records and the "e-Nabız" of the Ministry of Health. The files of 262 hospitalized patients were analyzed and included in the study. Patients' age, gender, diagnosis, length of hospital stay, comorbid disease, COVID-19 history, and vaccine status were recorded. Diseases previously confirmed by a health institution were considered comorbidities, and inpatient diagnoses were accepted as new diagnoses. The length of stay in the hospital covers the period from the day when the patient is admitted to discharge (death, discharge, or transfer to a different unit). In the evaluation of the length of stay, 1-10 days were noted as ordinary, while cases exceeding 10 days were considered as prolonged hospitalization. Among the patients who were transferred between clinics, the time from the day they were admitted to the time they left the clinic was taken as the basis. COVID-19 and vaccination history were evaluated by patient statement and confirmed via the e-Nabız system.

Patients are accepted from the emergency room, outpatient clinic, and by in-hospital transfer. Patients who applied to the emergency service and who were consulted to our department, are evaluated, and followed up in the internal medicine inpatient clinic. Hospitalization is planned for patients who are in the internal diseases' polyclinic application process, in the case they require further examination. Patients taken from other clinics with inpatient services other than internal diseases are accepted as in-hospital transport when the disease process is completed with the relevant branch because of consultation and evaluation.

Microsoft Excel was used in the analysis of the data. Numerical data were expressed as mean standard deviation, categorical data as percentage. In the analysis of the data, mean age was calculated together with its standard deviations. The reasons for hospitalization were taken from the database and divided in groups. Since some patients had more than one reason for hospitalization, the total rate was not calculated as 100 percent.

Ethics committee approval was obtained from the ethics committee of University of Health Sciences, Kartal Dr. Lütfi Kırdar City Hospital on 28.01.2022 with the decision number 2022/514/218/17.

RESULTS

A total of 262 patients who were hospitalized in our internal medicine clinic between 01.10.2021 and 31.12.2021 were included in the study. The mean age of the patients was 63.3 ± 6.3 , and the number of patients over 65 was 149 (57%). The number of female and male patients was equal (131/131). The conditions accompanying the hospitalization diagnoses of the patients were most frequently hypertension 57% (n: 150) and followed by diabetes mellitus 40% (n: 105), ischemic heart disease 45% (n: 118), chronic renal disease 26% (n: 68), malignancy 14% (n: 37), and chronic liver disease 4% (n: 11) (Table 1).

Table 1. Demographic features and underlying diseases of patients.

Variables	N, %
Age (mean, years, SD)	63.3±6.3
Gender (female)	131 (50)
Length of hospital stay	
0-10 days	223 (85.1)
11-20 days	29 (11)
≥21 days	10 (3.8)
Underlying diseases	
Hypertension	150 (57)
Ischemic heart disease	118 (45)
Diabetes mellitus	105 (40)
Chronic kidney disease	68 (26)
Malignancy	37 (14)
Chronic liver disease	10 (11)

The average length of stay of the patients was 6.63 ± 5.27 days, and when the duration of hospital stay was considered, 223 (85.1%) patients were hospitalized between 0-10 days, 29 patients (11%) were hospitalized between 11-20 days. Prerenal and renal-induced acute exacerbation of patients with chronic renal failure and acute renal failure occurred with the highest rate of 44% (n: 115) in hospitalizations exceeding 10 days. 80.2% (n: 210) of the patients from the emergency service admitted to the clinic. In addition, 10.3% (n: 27) of the patients were transferred from other clinics, and 9.5% (n: 25) referred from our polyclinics. After hospitalization, 11 of 13 patients were transferred to the intensive care unit, and nine (82%) of these patients died. Three patients died in the clinic.

The most frequent hospitalization was for upper gastrointestinal (GI) bleeding. This was followed by anemia and malignancy screening patients, respectively. Methyl alcohol intoxication was followed up as at least one patient. The reasons for hospitalization and distribution of the patients are shown in Table 2.

Table 2. Indications of hospitalization.

Indications	N	%
Gastrointestinal bleeding	48	18.3
Anemia	45	17.1
Malignancy	33	12.5
Acute exacerbation of chronic renal failure	28	10.6
Impairment of oral intake and malnutrition treatment	23	8.7
Malignant palliation treatment	22	8.3
Electrolyte Imbalance	15	5.7
Diabetic emergencies, complications, blood sugar regulation	15	5.7
Acute renal injury	14	5.3
Acute liver enzyme elevation	8	3.05
Heart failure treatment	4	1.9
Diabetic foot	3	1.1
Hypertensive emergency (adrenal pathology)	2	0.7
Methyl alcohol intoxication	1	0.3

In the evaluation of the pathology reports of forty-eight patients hospitalized with the diagnosis of GI bleeding, who underwent endoscopic procedure, chronic active/inactive gastritis was found in 75% (n: 32) and gastric malignancy in 12.5% (n: 6). While 12 (25%) patients with bleeding were using acetylsalicylic acid, it was determined that nine patients were receiving new generation anticoagulant therapy. One patient who was hospitalized due to upper GI bleeding died on admission to the ward. Blood transfusion was performed in all forty-five patients hospitalized due to anemia. Malignancy was detected in 19 of 33 patients who were hospitalized with symptoms such as weight loss, presence of mass and loss of appetite and who were screened for malignancy. GI malignancy was detected in seven of these patients, urogenital system in six patients and hematological malignancy in five patients. Osteosarcoma was detected in one patient. While the number of patients with chronic liver disease was eleven (4%) before hospitalization, we had four (1.5%) newly diagnosed patients. Five patients (1.7%) were discharged with the diagnosis of type 2 DM during hospitalization.

During the pandemic, the proportion of patients with COVID-19 was 18.7% (n: 49). While 92% (n: 241) of our patients were vaccinated, 65.8% (n: 172) of these patients had mRNA vaccine, 22% (n:58) had inactivated vaccine, and all these patients had mRNA vaccine later. The ratio of patients who were not vaccinated for COVID-19 was 7.6% (n: 20).

DISCUSSION

Hospitalization of patients and providing their treatment are the duty of the health system, and an important part of this is composed of patients hospitalized in the internal medicine clinic (Demircan et al., 2005). Internal medicine clinics are not only areas where acute problems of patients are solved, but also centers where the regulation of chronic diseases is provided. In our study, the most common hospitalization diagnosis was gastrointestinal bleeding, followed by anemia and malignancy examination. Hypertension takes the first place among the chronic diseases of the patients, followed by diabetes mellitus and ischemic heart disease.

Gastroscopy was performed on all hospitalized patients due to GI bleeding. In a study in which 403 patients with upper GI bleeding were evaluated. Duodenal ulcer was found at the rate of 39.2%, and 52.6% of them were using nonsteroidal anti-inflammatory and/or acetylsalicylic acid (ASA) (Yalçın et al., 2016). In a study in which patients with upper GI bleeding were screened, duodenal ulcer was found in 31.2% of 198 patients, gastritis was in the second place with 29.2%, and ASA was the leading cause

of bleeding with a rate of 16.2% (Olt et al., 2015). Chronic/active gastritis was detected in 75% of our patients. When the drug use of our patients followed up with upper GI bleeding was evaluated, it was seen that the most common reason was the use of 25% low dose (81-100 mg) ASA. In a meta-analysis study in which 14 randomized controlled and observational studies were evaluated, low-dose ASA use was associated with an increased risk of upper gastrointestinal bleeding, similar to our results (McQuaid & Laine, 2006).

Hyperglycemia in hospitalized patients is not only seen in diabetic patients. Patients are found to have hyperglycemia while they are examined for DM in the hospital. Even though, 40% of the patients were diagnosed with DM before hospitalization, 5 patients (1.7%) were diagnosed with type 2 DM during hospitalization. In hospitalized patients, 36% (n: 94) were hospitalized for the purpose of blood sugar regulation and approximately one-third of these patients were newly diagnosed diabetes. In addition to all these, high blood sugar has been reported as a factor that causes a prolongation of hospitalization (Gogas Yavuz et al., 2013). The length of stay of diabetics exceeding 10 days is 22%.

The overall prevalence of hypertension generalized by age and gender in Turkey is 31.8%, and the rate is higher in women. The proportion of patients who never had their blood pressure measured was 32.2%, and only 40.7% of those with hypertension were aware of their diagnosis. However, 31.1% of the patients were under pharmacological treatment and only 8.1% of them were able to control their blood pressure. The rate of those who were aware and treated and whose blood pressure was under control was 20.7%. these results show that hypertension is a common but poorly managed health problem in Turkey (Altun et al., 2005; T.C. Sağlık Bakanlığı, 2020). In our data, the most common chronic disease was hypertension with 57%, and the least common was chronic liver disease with 4%. All our HT patients were under medical follow-up, but the awareness rate was low at 18%, like Turkey's overall.

In our study, we observed that patients with acute exacerbation of chronic renal failure and acute renal failure had prolonged follow-up periods in hospitalization. The reason for this is to delay the treatment of patients such as hemodialysis and renal transplantation, which may cause poor prognosis and mortality, while being followed up with renal failure treatments in the acute stage. Normalizing renal functions, examining the factors that may cause failure, controlling additional diseases, side effects of long-term medications, infection status that may develop during hospitalization and patient-related factors are effective in this process. In a study in which 19,982 patients with renal failure were evaluated, it was concluded that acute renal failure is associated with significantly increased mortality, long hospitalization and cost, and its prevention and effective treatment should be a priority in terms of public health (Chertow et al., 2005). In a similar study, it was determined that patients with renal failure who were treated in hospital continue to have a serious health problem. Infection, advanced age, use of contrast matter and medication, oral intake disorder, and history of surgery are more common risk factors. In terms of comorbidities, hypertension, diabetes, and ischemic heart disease are more common. Preservation of renal perfusion, treatment of underlying diseases, regular monitoring of fluid-electrolyte monitoring, and avoidance of nephrotoxic agents remain current in treatment (Ayar et al., 2015). In the follow-up of our patients, the decision of permanent hemodialysis was taken by the nephrology department at a rate of 45%, and these patients were accepted as end-stage acute renal failure patients.

GI tumors were most detected in patients hospitalized for malignancy screening. In 2020, the most frequently detected cancers in our country were order lung, breast, colorectal, prostate, and thyroid cancers. Colorectal cancer is the third most common cancer in both men and women (World Health

Organization, 2020). The rate of diagnosed malignancies in our study was 7.2%, and GI malignancies were in the first place with 36.8% new diagnoses. This was followed by urogenital system malignancy with a rate of 26.3%. Nutritional problems, electrolyte imbalance, and low hemoglobin are the most common signs and symptoms in patients with a diagnosis of malignancy and in advanced geriatric age groups. Symptomatic and palliative support treatments are planned for the symptoms and findings of these patients and their follow-up is provided. In our study, we provided palliative care support to 9.9% of our patients.

In a public health study evaluating vaccine hesitancy/rejection in two different periods before and after the COVID-19 pandemic, most of the websites examined had positive content about the vaccine. Social fear and interest in the COVID-19 vaccine during the pandemic may be an opportunity to reduce the general vaccine hesitancy. Vaccine hesitation/rejection was seen at a rate of 7% and patients stated that they were afraid and did not trust the content of the vaccine. As of the end of February 2022, the rate of those who received the second dose of vaccine in the population aged 18 and over was 85.06%, while the rate of those who received the first dose was 92.92% as reported by the Ministry of Health (T. C. Sağlık Bakanlığı, 2022).

Our population is getting older, and the acute problems of comorbid diseases and chronic problems also accept a lot of space in our daily practice. In addition, with the spread of sub-branch clinics, the discipline of internal medicine is changing. However, patients with multiple organ problems need general evaluation, and internal medicine clinics play a crucial role in the diagnosis process, support, and permanent treatment of patients. For inpatient services, which are important in our health system, it may be useful to determine the financial, personnel and resource needs required by larger and multi-center studies.

CONCLUSION

In internal medicine clinics, a wide range of issues such as patients' acute problems, management of chronic diseases, and detailed examination of undiagnosed conditions are dealt with. The duration of hospitalization, especially in acute attacks of chronic diseases and during examination phases, is prolonged. Affirming that the general internal medicine approach still maintains its importance today, it is imperative to aim for the most efficient results by working in coordination with the minor branches in the shortest time with a holistic, multisystemic and analytical way of thinking.

Limitations

The main limitation for our study is that it was conducted in a single center. It should also be noted that different approaches may differ between clinics in terms of patient admission and follow-up.

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