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Research Article

Multidisciplinary management of cancer patients: hospitalisation and consultation characteristics

Kanser hastalarının multidisipliner yönetimi: hastaneye yatış ve konsültasyon özellikleri

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Abstract

Aim: Cancer is one of the leading causes of death. Cancer patients have long-term hospitalisations for a wide variety of reasons. This study aims to emphasize the importance of a multidisciplinary approach in cancer treatment by evaluating the hospitalisation and consultation characteristics of patients hospitalised in the Medical Oncology Service of Etlik City Hospital.

Material and Methods: The demographic, clinical, biochemical, hospitalisation, discharge status, and consultation characteristics of a total of 376 patients hospitalised in the Medical Oncology Service between May and June 2024 were evaluated. Patients for whom consultation was requested and those for whom consultation was not requested were analysed comparatively. Patient data were retrieved retrospectively from the hospital's archive and automation system.

Results: The median length of hospitalisation was five days (range: 1-43), and 17.3% of patients had a hospital stay exceeding 21 days. A total of 15.2% of patients were transferred to the intensive care unit, while 3.7% were referred to the palliative care ward. The data indicates that consultations were requested for 72.6% of patients, most frequently from infectious diseases (38.3%), cardiology (26.3%), and radiology (22.1%) departments. Compared to patients without consultation requests, those for whom consultations were requested exhibited significantly lower albumin/globulin ratios ($p < 0.001$), more advanced disease stages ($p < 0.01$), and prolonged hospitalisation durations ($p < 0.001$)

Conclusions: Challenges in the management of oncology patients require the coordinated efforts of multiple specialities. A multidisciplinary approach is essential to prevent complications, increase treatment efficacy and improve clinical outcomes.

Keywords: cancer, hospitalisation characteristics, consultation, multidisciplinary approach

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Öz

Amaç: Kanser önde gelen ölüm nedenlerinden biridir. Kanser hastalarının çok çeşitli nedenlerle uzun süreli hastane yatışları vardır. Bu çalışma Etlik Şehir Hastanesi Tıbbi Onkoloji Servisinde yatan hastaların yatış ve konsültasyon özelliklerini değerlendirerek kanser tedavisinde multidisipliner yaklaşımın önemini vurgulamayı amaçlamaktadır.

Gereç ve Yöntemler: Mayıs-Haziran 2024 tarihleri arasında Tıbbi Onkoloji Servisinde yatan toplam 376 hastanın demografik, klinik, biyokimyasal, yatış, taburculuk ve konsültasyon özellikleri değerlendirildi. Konsültasyon talep edilen hastalar ile konsültasyon talep edilmeyen hastalar karşılaştırmalı olarak analiz edilmiştir. Hasta verileri hastanenin arşiv ve otomasyon sisteminden retrospektif olarak elde edilmiştir.

Bulgular: Ortanca hastanede yatış süresi beş gündü (1-43) ve hastaların %17,3'ünün hastanede kalış süresi 21 günden uzundu. Hastaların %15,2'si yoğun bakım ünitesine, %3,7'si de palyatif servisine nakledilmiştir. En sık konsültasyon istenen 3 klinik enfeksiyon hastalıkları (%72,6), kardiyoloji (%38,3) ve radyoloji (%22,1) idi. Konsültasyon istenen hastalarda, albümin/globulin oranı anlamlı düzeyde daha düşük ($p < 0,001$), hastalık evresi daha ileri ($p < 0,01$) ve hastanede yatış süresi daha uzun ($p < 0,001$) bulundu.

Sonuçlar: Onkoloji hastalarının tedavisinde karşılaşılan zorluklar, birden fazla uzmanlık alanının koordineli çabalarını gerektirmektedir. Komplikasyonları önlemek, tedavi etkinliğini artırmak ve klinik sonuçları iyileştirmek için multidisipliner bir yaklaşım şarttır.

Anahtar Kelimeler: kanser, hastaneye yatış özellikleri, konsültasyon, multidisipliner yaklaşım

Introduction

Cancer is an increasingly significant health problem on a global scale. Despite considerable progress in the management and treatment of cancers, they continue to be among the leading causes of death. Within our own nation, cancers rank as the second most prevalent cause of mortality, surpassed only by cardiovascular diseases [1,2]. The increase in life expectancy, due in part to earlier diagnosis and novel therapies, has led to a concomitant increase in the number of cancer outpatients and emergency department visits [3]. The management of cancer patients requires the collaboration of several medical disciplines, namely medical oncology, surgery, pathology, radiation oncology and other relevant specialties. This underscores the imperative for a multidisciplinary approach to cancer treatment [4].

The aim of our study was to evaluate the reasons for hospitalisation, length of stay, discharge status and consultation processes of patients hospitalised in the oncology ward, to reveal the difficulties in treatment processes and to emphasise the necessity of evaluating oncology patients not only by oncologists but also by other medical branch physicians. In this direction, we aimed to show the importance of a multidisciplinary approach.

Material and Methods

The present retrospective study was designed to evaluate the admission and consultation characteristics of patients admitted to the medical oncology service of Etlik City Hospital between May and June 2024. The study was conducted in accordance with the Declaration of Helsinki and approved by the Scientific Research Evaluation and Ethics Committee of Etlik City Hospital with the approval number BADEK-2024-1243 on 18 December 2024.

Hospitalisation characteristics were evaluated by location, reason, duration and discharge status. The number of consultations and the most frequently requested clinics were determined as consultation characteristics. Subsequently, a comparative analysis was conducted of the sociodemographic, clinical, hospitalisation and laboratory parameters of patients who requested consultation and those who did not. All the data relating to the patients were obtained from the hospital's automation system and patient records retrospectively. The records were anonymised in such a way that patient identity information was kept confidential and collected in a database.

Statistical Analysis

The collected data were analysed using SPSS 22.0 software. Continuous variables were characterised by median (minimum-maximum) and interquartile range (IQR) values, while categorical variables were presented as frequency and percentage. Pearson Chi-Square test was used to evaluate the differences between patients with and without consultation, and $p < 0.05$ was considered statistically significant. The objective of this method was to conduct a detailed analysis of the hospitalisation and consultation processes of patients hospitalised in the ward.

Results

The median age of the 376 patients hospitalised in the medical oncology service in May-June 2024 was 63 years (20-90 years), with a male-to-female ratio of 55.1% to 44.9%. The most prevalent primary diagnosis was lung cancer (28.2%), followed by gastric cancer (12.8%), colorectal cancer (11.7%) and breast cancer (10.1%). The majority of patients were found to be in a metastatic stage (66.8%), and 53.2% had at least one comorbidity, with hypertension (31.4%) and diabetes (22.3%) being the most prevalent. Patients' demographic and clinical characteristics are shown in table 1.

Table 1. Sociodemographic and clinical characteristics.	
Age median (range) year	63.0 (20.0-90.0)
Sex	No (%)
Male	207 (55.1)
Female	169 (44.9)
Primary	No (%)
Lung	106 (28.2)
Breast	38 (10.1)
Pancreas	22 (5.9)
Gastric	48 (12.8)
Colorectal	44 (11.7)
Sarcoma	13 (3.4)
Bladder	6 (1.6)
Colangiocarcinoma	12 (3.2)
Jinecological	31 (8.2)
Testis	10 (2.7)
Head & neck	19 (5.1)
Kidney	6(1.6)
Primary unknown	6 (1.6)
Other	15 (3.9)
Stage	No (%)
Metastatic	251 (66.8)
Non-metastatic	125 (33.2)
Comorbidity	No (%)
Yes	200 (53.2)
No	176 (46.8)
Comorbidity	No (%)
Hypertension	118 (31.4)
Diabetes Mellitus	84 (22.3)
Coronary artery disease	64 (17.0)
Cerebrovascular disease	27 (7.2)
Asthma/COPD	38 (10.1)
Thyroid (hypo/hyper) disease	22 (5.9)
Other	36 (9,6)
Abb: COPD: Chronic Obstructive Pulmonary Disease	

When the admission and discharge features of the patients were evaluated, it was found that the majority were admitted from the oncology outpatient clinic (64.1%) and the emergency department (21.5%), while transfers from the intensive care unit (4.5%) and other clinics to the oncology service were less common. The most common reason for hospitalisation was maintenance of oncological treatment (44.4%), followed by infectious causes (13.6%), palliative care (16.5%) and interventional procedures (12.8%). The median length of stay was five days (range: 1-43 days) and 15.3% of patients required hospitalisation for more than 21 days. In terms of discharge status, the majority of patients (79.5%) were discharged home, while 15.2% were referred to the intensive care unit and 3.7% to palliative care. The mortality rate was 0.8%. The admission and discharge characteristics of the patients are detailed in table 2.

Table 2. Hospitalisation- discharge futures of the hospitalisation.	
Referred department	N (%)
Oncology outpatient clinic	241 (64.1)
Emergency	81 (21.5)
Transfer from intensive care	17 (4.5)
Transfer from thoracic medicine/surgery	10 (2.7)
Transfer from general surgery/surgical oncology	7 (1.9)
Transfer from gynecooncology	6 (1.6)
Transfer from other clinics	14 (3.8)
Cause for hospitalisation	No (%)
Infection	51 (13.6)
Maintenance of oncologial treatment	167 (44.4)
Electrolyte imbalace	24 (6.4)
Blood transfusion	20 (5.3)
Palliative Care	62 (16.5)
Interventional procedures	48 (12.8)
Other	4 (1.1)
Duration of hospitalisation median (range) days	5.0 (1.0-43.0)
Duration of hospitalisation	No (%)
1-7 days	202 (53.7)
8-21 days	109 (29.0)
>21 days	65 (17.3)
Discharge status	No (%)
Discharged	299 (79.5)
Transfer to intensive care ward	57 (15.2)
Transfer to palliative service	14 (3.7)
Transfer to other clinics	3 (0.8)
Exitus	3 (0.8)

The median haemoglobin (Hgb) value was 10.9 g/dL (9.2-12.3), while the total protein and albumin levels were 62 g/L (56.0-68.0) and 35 g/L (30.0-39.9), respectively. The median albumin/globulin ratio was 1.30 (1.07-1.59). Patients' enrolled laboratory parameters are shown in table 3.

Table 3. Biochemical parameters at the time of hospitalisation.	
	Median (IQR)
Hgb (g/dL)	10.9 (9.2-12.3)
Lenfosit (109/L)	1.03 (0.60-1.63)
Platelet (109/L)	220.0 (140.0-318.0)
Total protein (g/L)	62.0 (56.0-68.0)
Albümin (g/L)	35.0 (30.0-39.9)
Globulin (g/L)	27.0 (23.0-31.0)
Albumin/globulin	1.30 (1.07-1.59)

When analysing the consultation status of the patients, it was found that 72.6% of the patients requested a consultation in at least one department and the median of the number of consultations was 2 (range: 0-7). The most commonly requested specialties were infectious diseases (38.3%), cardiology (26.3%), radiology (22.1%) and radiation oncology (14.7%). Supporting specialties such as palliative care (16.5%), intensive care (16.2%) and anaesthesia/analgesia (7.2%) were also included in significant proportions. The departments for which consultation was requested are summarised in table 4.

Table 4. Clinics for consultation.	
Consultation	N (%)
Yes	273 (72.6)
No	103 (27.4)
Number of clinics consulted median (IQR)	2.0 (0-7.0)
Consultant clinics	No (%)
Radiation oncology	55 (14.7)
Infectious diseases	144 (38.3)
Anaesthesia/algology	27 (7.2)
General surgery/surgical oncology	37 (9.8)
Nutrition	29 (7.7)
Gynecooncology	3 (0.8)
Cardiology	99 (26.3)
Thoracic diseases/surgery	55 (14.7)
Radiology	83 (22.1)
Physiotherapy and rehabilitation	13 (3.5)
Psychiatry	62 (16.5)
Palliative clinic	18 (4.8)
Intensive care	61 (16.2)
Urology	19 (5.1)
Ophthalmic diseases	9 (2.4)
Ear-nose-throat	16 (4.3)
Neurosurgery	12 (3.2)
Neurology	26 (6.9)
Nephrology	20 (5.3)
Other	81 (21.6)

When the relationship between consultation status and clinical characteristics of the patients was examined, consultation rates were more common in hospitalisations due to infectious conditions, palliative care and interventional procedures ($p < 0.001$). Albumin/globulin ratio was lower in the consultation group ($p < 0.001$). In addition, patients who were consulted were found to be at a more advanced stage ($p < 0.01$) and had a longer hospital stay (61.9%; 8 days or more) compared to patients who were not consulted ($p < 0.001$). The relationships between consultation status and clinical characteristics of the patients are summarized in table 5.

Discussion

The most common cancers in men worldwide are lung, prostate and colorectal, while the most widespread cancers in women are breast, colorectal and lung [5]. The incidence of cancer increases with age and the presence of comorbidities [6-8]. Studies in the published literature show that the incidence of cancer is more in men [9-11]. In our study as well, the results were consistent with the literature indicating that cancer incidence is associated with factors such as age, gender, and comorbidities [8,9].

Güneysu et al. found that 43.5% of the total hospitalisations in the medical oncology service were outpatient (outpatient clinic or appointment system), 48.8% were from the emergency unit and 7.7% were from other units [5]. In a study by Sadik et al. titled "Characteristics of cancer patients admitted to the emergency department within one year", it was reported that approximately 60% of oncology patients admitted to the emergency department were hospitalised [8]. In our study as well, the majority of patients were admitted from medical oncology outpatient clinics, while a portion were admitted through emergency services. This finding highlights the need for oncology wards to be structured in a way that accommodates both scheduled treatment processes and urgent admissions, indicating that both sources play a significant role in patient flow.

In studies in the literature, the principle cause for admission of cancer patients to emergency departments or oncology outpatient clinics were dyspnoea, pain, general condition disorder and gastrointestinal symptoms [12-14]. In our study, hospital admissions were predominantly due to the continuation of oncological treatments. This finding underscores the critical role of oncology wards not only in managing complications but also in maintaining continuity of planned treatment protocols. The frequent occurrence of infectious conditions, palliative care needs, and interventional procedures among the causes of admission further highlights the clinical diversity of oncology inpatients and the necessity for multidisciplinary management. The fact that our hospital is a large metropolitan referral center serving patients from surrounding provinces significantly contributes to this heterogeneity.

In our study, it was observed that the length of hospital stay varied considerably, with a subset of patients experiencing prolonged admissions. Additionally, a notable proportion of patients were transferred to intensive care or palliative care units, indicating that many of them had advanced-stage disease and complex clinical conditions. Variations in hospital stay duration and discharge status reported in the literature [15–17] may be influenced by the clinical characteristics of the patient population, the availability of palliative care services, and differences in institutional capacity. In particular, the effectiveness and accessibility of palliative care services appear to be key factors that directly impact the length of hospital stay and discharge planning.

Studies in the literature show that cancer patients are mostly anaemic in laboratory parameters and are at risk of malnutrition [18]. In our study, it was found that the patients were anaemic and albumin levels were low. Low albumin/globulin ratio, longer hospital stay and higher proportion of metastatic patients in the consulted group suggest that these patients have more severe clinical conditions and are more prone to malnutrition.

Table 5. Correlation of consultations with patients' clinical characteristics and parameters.

	No Consultation n (%) (103)	Consultation n (%) (273)	P
Sex			
Male	52 (50.5)	155 (56.8)	0.30
Female	51 (49.5)	118 (43.2)	
Primary			
Lung	29 (28.2)	77 (28.2)	
Breast	17 (16.5)	21 (7.7)	
Pancreas	6 (5.8)	16 (5.9)	
Gastric	8 (7.7)	40 (14.7)	
Colorectal	12 (11.6)	32 (11.7)	
Sarcoma	7 (6.8)	6 (2.2)	
Bladder	0 (0.0)	6 (2.2)	
Colangiocarcinoma	0 (0.0)	12 (4.4)	
Jinecological	12 (11.7)	19 (7.0)	0.003
Testis	6 (5.8)	4 (1.5)	
Head & neck	2 (2.0)	17 (6.2)	
Kidney	1 (1.0)	5 (1.8)	
Primary unknown	0 (0.0)	6 (2.2)	
Other	3 (2.9)	12 (4.3)	
Stage			
Metastatic	53 (51.5)	198 (72.5)	<0.001
Non-metastatic	50 (48.5)	75 (27.5)	
Cause for hospitalisation			
Infection	6 (5.8)	45 (16.5)	
Maintenance of oncologial treatment	84 (81.6)	83 (30.4)	
Electrolyte imbalace	3 (2.9)	21 (7.7)	
Blood transfusion	6 (5.8)	14 (5.1)	<0.001
Palliative care	1 (1.0)	61 (22.3)	
Interventional procedures	3 (2.9)	45 (16.5)	
Other	0 (0.0)	4 (1.5)	
Comorbidity			
Yes	55 (53.4)	121 (44.3)	0.13
No	48 (46.6)	152 (55.7)	
Comorbidity			
Hypertension	31 (30.1)	87 (31.9)	0.79
Diabetes Mellitus	20 (19.4)	64 (23.4)	0.39
Coronary artery disease	18 (17.5)	46 (16.8)	0.26
Cerebrovascular disease	5 (4.9)	22 (8.1)	0.36
Asthma/COPD	7 (6.8)	31 (11.4)	0.26
Thyroid (hypo/Hyper) Disease	9 (8.7)	13 (4.8)	0.75
Other	13 (12.6)	10 (3.6)	0.41
Duration of hospitalisation			
1-7 days	95 (92.2)	107 (39.2)	
8-21 days	5 (4.9)	104 (38.1)	<0.001
>21 days	3 (2.9)	62 (22.7)	
Albumin/globulin			
Low	21 (20.4)	167 (61.2)	<0.001
High	82 (79.6)	106 (38.8)	

Abb: COPD: Chronic Obstructive Pulmonary Disease, Pearson's Chi-Square Test

In a study by Aytekin et al (2014), an analysis of consultations for patients hospitalised in a medical oncology ward revealed that 43.5% of patients required consultation from at least one specialty, with radiology, infectious diseases, and general surgery being the most frequently consulted departments [19]. Conversely, our study identified infectious diseases, cardiology, and radiology as the most commonly consulted specialties. Furthermore, substantial consultation rates were observed from other specialties, including intensive care, palliative care, anesthesiology and pain management, radiation oncology, and general surgery. These findings underscore the essential role of coordinated, team-based care in treating individuals with cancer, stressing the importance of integrated efforts beyond oncology alone.

The necessity of multidisciplinary evaluation in oncology care is well-supported by numerous studies in the literature [20–22]. In our study, patients who required consultations were more to be at advanced disease stages, experienced longer hospital stays, and exhibited more severe clinical and laboratory profiles. These results emphasize the critical importance of inter-specialty collaboration and the multidisciplinary approach in addressing the complex management needs of cancer patients. Specifically, the contributions of supportive care specialties are vital in improving treatment efficacy and managing complications, particularly in patients with advanced disease.

Limitations of the study

This study has several limitations. Firstly, the retrospective and single-center design may limit the generalizability of the findings to broader populations. Secondly, the study period was limited to only two months, which may not reflect potential seasonal variations or institutional fluctuations in admission and consultation patterns. Additionally, due to the retrospective design, some clinical or laboratory variables that may have impacted outcomes could not be comprehensively evaluated. Future prospective and multi-center studies with longer follow-up periods are needed to validate these findings.

In conclusions, it has been observed that cancer patients have long hospitalisations for a wide variety of reasons. The treatment of these patients is a challenging process that requires the collaboration of multiple clinical specialties. The high rate of referral to intensive care units underlines the management challenges and highlights the critical need for specialized care. A multidisciplinary approach is essential in the management of cancer patients to prevent complications, increase treatment efficacy and improve patient outcomes.

Conflict of interest

The authors declare that they have no institutional associations or financial support that could be perceived as a potential conflict of interest related to the content of this manuscript.

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Ethical Statement

Approval was obtained from the Etlik City Hospital 'Scientific Research Evaluation and Ethics Committee' before the commencement of the study. The ethics committee approval date is 18/12/2024, and the approval number is 2024-1243.

Author Contributions

All authors confirm their substantial contributions to the conception and design of the study, data acquisition, analysis, and interpretation equally. They have all critically revised the content, approved the final version of the manuscript, and agreed to be accountable for all aspects of the work.

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