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Pattern, Outcome, and Associated Factors of Oncologic Emergencies Among Patients Visiting Saint Paul's Hospital Millennium Medical College Adult Emergency Department from March 1/2021 to April 30/2022: Retrospective Cross-Sectional Study

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ABSTRACT

Introduction: *Cancer patients are at high risk of developing a wide range of medical emergencies. An oncology emergency is an acute condition caused by cancer or its treatment, requiring rapid intervention to avoid death or severe permanent disability. Patients with cancer face unique disease and treatment-related complications that prompt frequent visits to the emergency department (ED), constituting a significant patient and health care burden resulting in more utilization of resources and ED overcrowding, which may hamper the administration of quality and focused care.*

Objective: *The study aimed to assess the patterns, outcomes, and associated factors of oncologic emergencies among patients visiting Saint Paul's Hospital Millennium Medical College adult emergency department from March 1/2021, to April 30/2022.*

Methods: A *retrospective institutional-based cross-sectional study was used. Data was collected using a standardized data extraction tool by trained data collectors from patient medical records and health management information system registry books using a systematic sampling method. A total of 173 cancer patients were included. Data was analyzed using SPSS version 25.0.*

Results: *A total of 173 cancer patients were included in the study. The mean age of the study participants was 53.05 ± 14.801 years. 56.6% were females and 43.4% were males. The most prevalent primary tumors were those of the gastrointestinal tract (49.7%) and genitourinary system (19.1%). About 39.9% of the cases had metastasis. Only 39.3% of cases started cancer treatment. Oncologic Emergencies account for 68.8% of the cases. The most frequently observed oncologic emergencies were structural (Mass effect) in 64.7% of cases and hematologic emergencies in 34.45%. About 19.3% of patients with oncologic emergencies have died. The commonest cause of death was due to Gastrointestinal malignancies, seen in 34.6% of the cases. Those with Hematologic Emergencies had a 4.2 times risk of death as compared to patients with local mass effects (P value < 0.006).*

Conclusion: *Oncologic emergencies comprised 68.8% of the cases, of which 19.3% resulted in mortality. There should be a well-organized system with chemotherapy, radiotherapy, and palliative care facility service for patients with oncologic emergencies to reduce patient mortality.*

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1. Introduction

Cancer is one of the leading causes of morbidity and mortality all over the world. Globally, cancer is the second leading cause of death.[1] Cancer patients visit the Emergency Department (ED) when they are near the end of life with late stages of cancer due to overcrowding, long waiting times, and lack of access to specialized care.[1] Advances in oncology treatments present challenges of new adverse effects and an expanding spectrum of cancer-treatment-related emergencies. [2]

Cancer patients are at high risk of developing a wide range of medical emergencies. An oncologic emergency can be broadly classified into Metabolic (biochemical derangements), Hematologic, Structural (local tumor effects), and Treatment-Related Emergency.[3-5]

An oncology emergency is an acute condition caused by cancer or its treatment, requiring rapid intervention to avoid death or severe permanent disability. They are commonly seen in metastatic and locally advanced diseases and can occur at any time during the course of a malignancy. Indications for emergency care in cancer patients include complications arising from advanced disease and side effects of the treatment, and the outcomes depend on early diagnosis and timely implementation of appropriate therapy. Patients with oncological pathology may present with various types of complications, medical or surgical emergencies related to their primary tumor, metastases, or systemic effects of the tumor. In the same way, antitumor treatments can lead to consultation for toxicity related to the drug.[6-8]

Oncologic emergencies are managed with chemotherapy, radiotherapy, or surgery. Palliative radiation therapy is vital in the management of many oncologic emergencies like Malignant Spinal Cord Compression (MSCC), raised intracranial pressure (ICP), superior vena cava obstruction (SVCO), and life-threatening tumor hemorrhage. Management aims to relieve the clinical symptoms and improve the quality of life.[6] The care of oncologic emergencies has a key role in preventing cases that lead to death. It would also help to improve the quality of life and decrease complications.[8]

Due to the rising incidence of cancer globally, there is also an expected increase in the incidence of oncology emergencies in developing countries. Delay in diagnosis and treatment of cancer patients results in increased length of stay in the emergency department, which has a major impact on the emergency service provision and patient quality of life. Therefore, assessing the patterns, outcomes, and associated factors of oncologic emergencies handled in the Emergency department is crucial.

The study aimed to assess the pattern, outcome, and associated factors of oncologic emergencies among patients visiting the SPHMMC adult emergency department from March 1/2021, to April 30/2022

2. Methodology

Study Setting and Study Period

The study was conducted among cancer patients visiting Saint Paul's Hospital Millennium Medical College's adult emergency department from March 1/2021 to April 30/2022.

Study Design

A retrospective institutional-based cross-sectional study design was used among cancer patients visiting Saint Paul's Hospital Millennium Medical College Adult Emergency Department from March 1/2021 to April 30/2022.

Source Population

The source population includes all patients visiting Saint Paul's Hospital Millennium Medical College adult emergency department during the study period.

Study Population

The study population includes all cancer patients visiting Saint Paul's Hospital Millennium Medical College's adult emergency department during the study period.

Eligibility Criteria

Inclusion Criteria

All cancer patients visiting Adult Emergency during study period were included in the study. All cancer patients with a fully settled diagnosis of their Primary malignancy origin with imaging and or Biopsy with a treating physician plan for specific cancer treatment options and those who have follow-up at an oncology clinic were included in the study.

Exclusion Criteria

All Patients with incomplete medical records and patients with lost medical records were not included in the study

Sample Size and Sampling Procedure

A one-year data of Cancer Patient records who visited the ED from March 1/2021, to April 30/2022, was reviewed using a systematic random sampling method.

Sample Size Calculation

$n = Z^2 p (1-p) / d^2$, where n =sample size, Z=1.96 at 95% confidence level, P=proportion level (magnitude), d =margin of error/degree of accuracy/ allowed deviation**: Hence, $n = (1.96)^2 p (1-p)/d^2$** .Taking p=11.5 %, d=5%, n=157 and, non-response rate=10%, n=173. (Where p=11.5% was the outcome of a study done in Black Lion Specialized Hospital).[1]

Final sample size= n/ (1+n/N), where N=7800 (these are the total ED visit of all patients during the study period.)

A final sample size of 173 cancer patients' charts was included in the study.

Dependent Variable

- The outcome of oncologic emergencies (Disposed from ED alive or death)

Independent Variables

- Socio-demographic variables: Age, sex
- Mode of arrival, comorbidity, triage category
- Duration of diagnosis
- Previous admission
- Type of oncologic emergency
- Type of primary cancer, presence of metastasis
- Treatment of underlying primary malignancy
- Primary complaints
- Length of stay in ED

Data Collection and Procedures

The data collection tool was prepared by reviewing different literature to explore the objectives of the study. A standardized data extraction tool, which was developed in the English language, was used. The data collection instrument was pre-tested with a pilot study and was modified accordingly. Data was collected by trained data collectors from patients' medical records and the HMIS registry book at the Emergency Department.

Data Quality Control and Management

All data were checked for clarity, completeness, and correct recording of all the necessary

information by the Principal Investigator. The quality of data was also ascertained during the data entry and cleaning process.

Data Analysis

The collected data was coded and entered into a computer by Microsoft Excel. Then data was exported into SPSS version 25.0 for analysis. Descriptive analysis was used for analysis. Continuous Variables were described as Mean, standard deviation, minimum, and maximum values. Categorical variables were reported as number or frequency and percentages. The effect of the independent variable on the dependent variable was analyzed by using bivariate and multivariable logistic regression. Variables with P-value <0.05 were taken as significantly associated with the outcome variable.

Operational definitions

ED: is defined as a "highly effective setting for urgent and lifesaving care of patients ".[29]

Oncologic Emergency: an acute condition caused by cancer or its treatment, requiring rapid intervention to avoid death or severe permanent disability.[6]

Outcome: Patient disposition from the emergency department either died or survived or alive (includes admission to the ward, admission to ICU, and discharge).

ED length of stay: is defined as a time interval from patient arrival to leaving EDs.[29]

Ethical consideration

The study was conducted after obtaining an ethical approval letter from the Institutional Review Board (IRB) of SPHMMC and from the Emergency Department. To ensure confidentiality, patient's names were not used during data collection.

3. Results

Socio-Demographic Characteristics

A total of 173 cancer patients were included in the study. The mean age of the study participants was 53.05 ± 14.801 years, ranging from 18 to 100 years, and the median age was 55 years. In terms of sex distribution, 56.6% (98) were females, and 43.4% (75) were males.

Clinical Presentation

About 8.1% (14) of respondents arrived by ambulance, and the rest, as shown in Table 1, used various modes of transportation.

17.9% (31) of the study participants had comorbidities. HTN, Diabetes Mellitus, and Cardiac Illness accounted for 54%, 16%, and 9.6% of all comorbidities, respectively. The remaining 20.4% were HIV, CLD, and bronchial asthma.

In terms of primary complaints, SOB (20.8%), pain (14.5%), and vomiting (11.6%) were the most frequently reported complaints. Abdominal pain makes up the majority of presentations among individuals who reported pain (10.4%), which is followed by chest pain in 2.9% of cases. Bleeding accounted for 9.8% of the cases. The most frequent types of bleeding among individuals who initially experienced it were rectal bleeding (3.5%), hematemesis (2.3%), and hematuria (2.3%), whereas the remaining are shown in Table 2 below. Others include patients who presented with stridor, failure to communicate, fever, diarrhea, anorexia, leg weakness, and discharge from the wound.

Table 1: shows the mode of arrival, triage category, and a number of ED admissions of oncology patients visiting the SPHMMC adult emergency department from March 1/2021, to April 30/2022.

Parameter		Number	Percent (%)
Mode of Arrival	Ambulance	14	8.1
	Public transport	96	**55.5**
	walking	62	35.8
	Wheelchair	1	.6
	Total	173	100.0
Triage Category	Yellow Green	158	**91.3**
	Orange	6	3.5
	Red	9	**5.2**
	Total	173	100.0
No of ED admissions	once	143	82.7
	Twice or more	30	**17.3**
	Total	173	100.0

Table 2: The primary complainants of oncology patients visiting SPHMMC's adult emergency department from March 1, 2021, to April 30, 2022.

Primary complaints of respondents	Number	Percentage
Shortness of breath	36	**20.8**
Pain	32	**18.5**
cough	11	6.4
easy Fatigability	4	2.3
Bleeding	17	**9.8**
vomiting	20	**11.6**
Urinary symptoms	10	5.8
difficulty of swallowing	16	9.2
Jaundice	5	2.9
abdominal distension	5	2.9
leg swelling	5	2.9
hoarseness of voice	3	1.7
Others	9	5.4
Total	173	100.0

Primary Malignancy

The most prevalent primary tumors were those of the gastrointestinal tract (49.7%), genitourinary system (19.1%), Lung, and Hematologic malignancies, each comprising 8.7% of the cases, and the remaining primary tumors are shown in Table 3. Among the gastrointestinal tumors, gastric cancer accounts for 12.1% of cases, esophageal cancer for 11.6%, colorectal cancer for 9.2%, pancreatic cancer for 5.8%, cholangiocarcinoma for 4%, gall bladder cancer for 2.3%, HCC for 2.3%, duodenal cancer for 1.7%, and anal cancer for 0.6% of the cases.

Prostatic cancer and ovarian cancers account for 4.6% each, followed by cervical cancer (3.5%), bladder cancer (3.5%), endometrial (1.7%), renal cell carcinoma, and vulvar cancer each account for 0.6% of genitourinary tumors. Head and neck

tumors include laryngeal cancer (1.7%) and nasopharyngeal cancer (1.2%) of cases. Among hematologic malignancies, lymphoma accounts for 3.5% of cases, followed by AML (1.7%), ALL, and CLL, each accounting for 1.2%, and multiple myeloma, and CML, each accounting for 0.6% of the cases. The rest includes breast cancer (7.5%), thyroid cancer (2.3%), and osteosarcomas (1.2%.)

Table 3: shows the type of primary Malignancies of oncology patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Type of Primary malignancy	Number	Percent (%)
Hematologic malignancies	15	8.7
Lung	20	8.7
Breast Cancer	13	7.5
Thyroid cancer	4	2.3
Gastrointestinal tumors	86	49.7
Musculoskeletal tumors	2	1.2
Genitourinary tumors	33	19.1
Head and neck Tumors	5	2.9
Total	173	100

Among the total respondents, 39.9% (69) of the cases had metastasis to other organs. The most common sites of metastasis include the lung 36.2% (25), bone 15.9% (11), Liver 13% (9), both liver and lung 8.6% (6), and the rest are displayed in Table 4 below. Others include bladder, vascular, adrenal, breast, and metastasis of more than two organs.

Table 4: sites of metastasis of oncology patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Site of metastasis	Number	Percent (%)
Lung	25	36.2%
Bone	11	15.9%
Liver	9	13%
Both Lung and liver	6	8.6%
Breast	2	2.8%
Lymph node	5	7.2%
Peritoneum	4	5.7%
Others	9	12.6%
Total	69	100%

Of the 173 oncology patients, only 39.3% (68) of the cases started treatment, and the rest, 60.7% (105), were not on any treatment options. The following pie chart shows the different modalities of treatment given during patients' follow-ups.

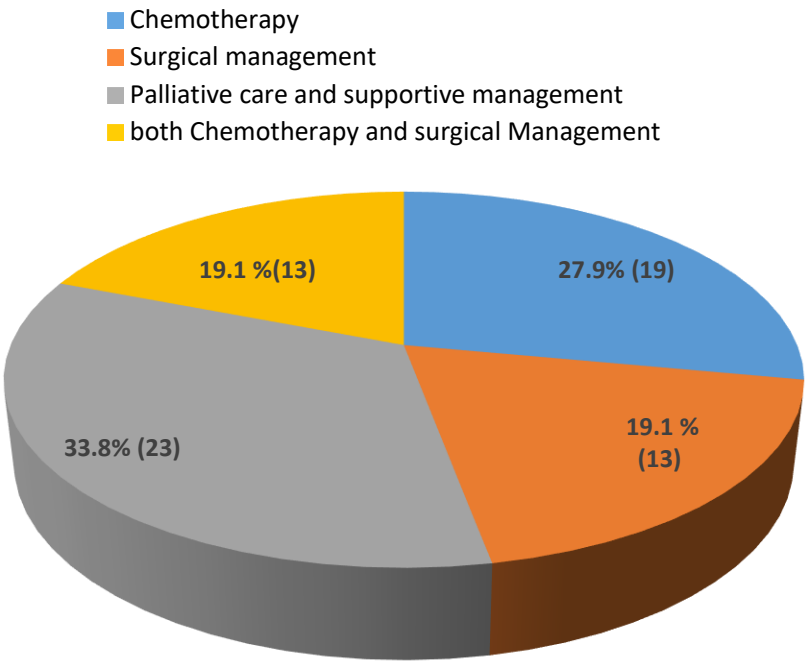

Figure 1: Treatment of underlying malignancy during Follow-up of oncology patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Regarding the duration of cancer since diagnosis, the mean duration of cancer diagnosis was 10.54 months, with a minimum of 2 months and a maximum of 60 months.

Type of Oncologic Emergency and ED management

Oncologic Emergencies account for 68.8% (119) of the cases. The most frequently observed emergencies include structural (Mass Effect) in 64.7% of cases, Hematologic accounts in 34.45% (41) of cases, and metabolic accounts in 0.85 % (1) of the cases. From Hematologic emergencies, Anemia and thromboembolic complications each account for 14.3 % of the cases, and local or structural mass effects include malignant pleural effusion accounts for 14.3% of cases, dysphagia (12.6%), obstructive uropathy (9.2%), obstructive Jaundice (6.7%) and UAO and GOO each 5.9% of cases. Details of oncologic emergencies are displayed in Table 5.

Table 5: shows types of oncologic emergencies among oncology patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Type of oncologic emergency	Number	Percentage
Neutropenic Fever	4	3.4
Anemia	17	14.3
Obstructive Uropathy	11	9.2
Malignant Pleural Effusion	17	14.3
Pulmonary Embolism	9	7.6
Obstructive Jaundice	8	6.7
Thrombocytopenia	1	.8
Large Bowel Obstruction	5	4.2
DVT	8	6.7
Dysphagia	15	12.6
UAO	7	5.9
GOO	7	5.9
Increased ICP	1	.8
Anemia and DVT	1	.8
UGIB	1	.8
Hyponatremia	1	.8
Superior Vena Cava syndrome	2	1.7
Pericardial Tamponade	2	1.7
Spinal Cord Compression syndrome	2	1.7
Total	119	100.0

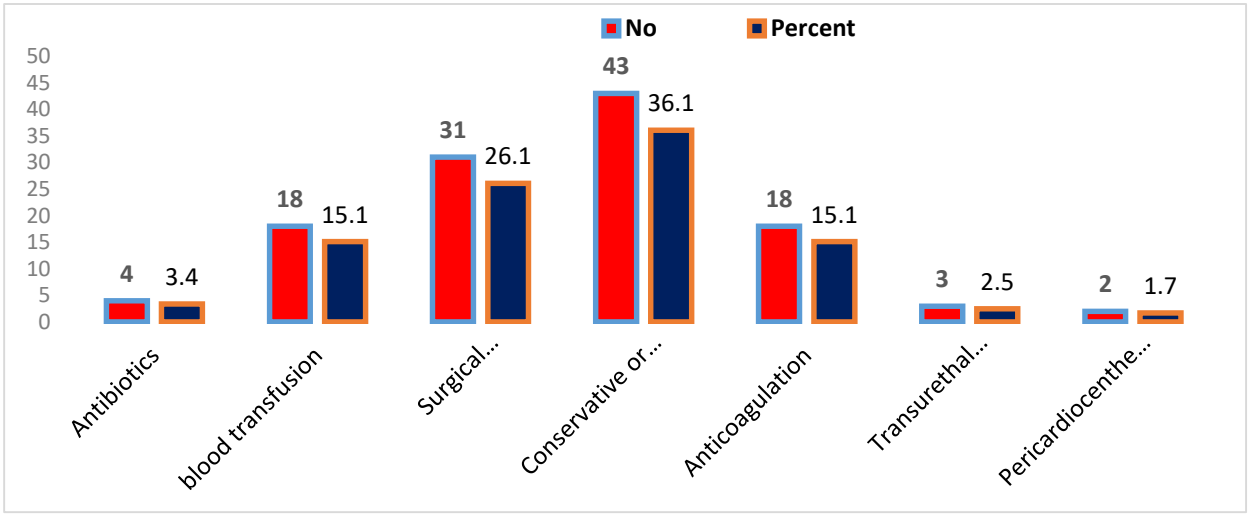

Figure 2: ED management of oncologic emergencies among patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Outcome of oncologic Emergencies and Risk factors

The mean length of stay in the ED was 2.81 days, ranging from a minimum of 1 day to Maximum length of stay of 13 days.

In regard to the Outcome of oncology patients visiting the ED, 54.9% (95) of patients were admitted to the ward, 28.3% (49) of the cases were discharged home, 1.7% (3) were admitted to the ICU, and the rest **15% (**26) have died. From the deaths, hypoxia secondary to Type 1 respiratory failure was the most common cause of death. The remaining causes are displayed in Figure 3 below.

One hundred nineteen (68.8%) of the cases had oncologic Emergencies, of which 19.3% (23) had died, and the rest, 80.7 % (96), were disposed of alive from the ED. The commonest cause of death is due to Gastrointestinal malignancies (34.6%) of the cases, followed by head and neck and Lung cancer, both accounting for 26.9% of the cases.

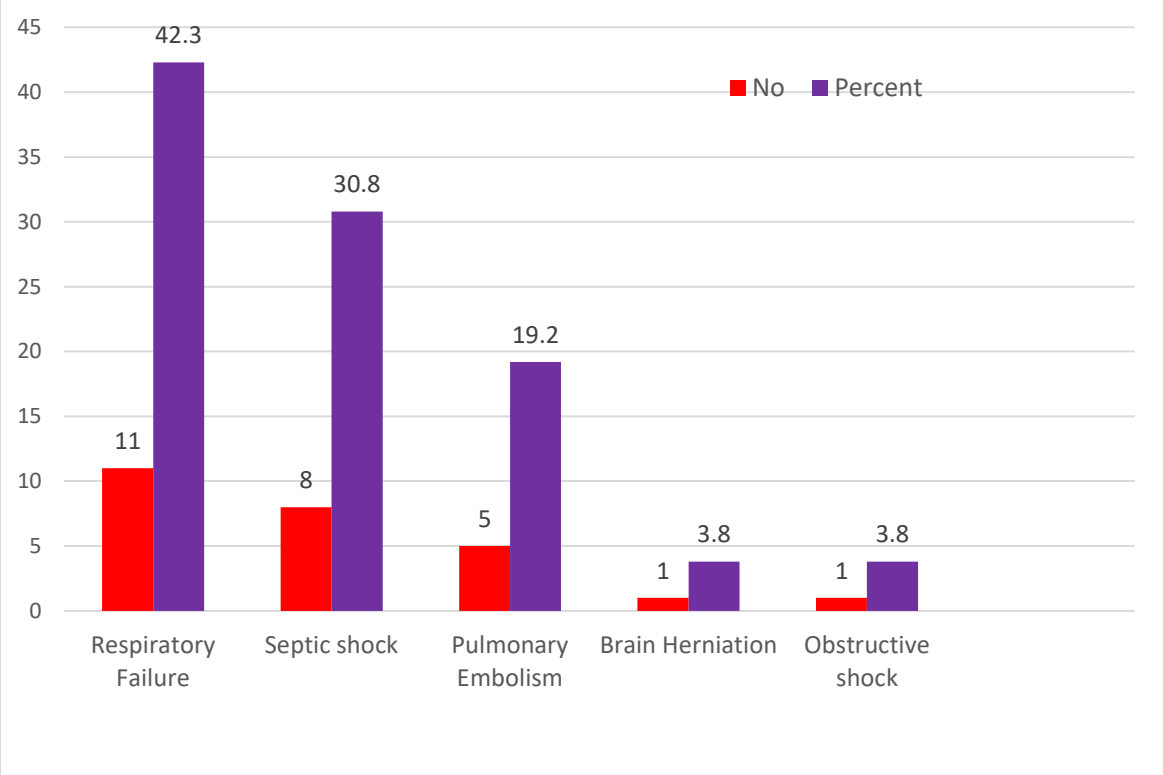

Figure 3: causes of death of oncology patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Table 6: Cross-tabulation of occurrence of a pattern of outcome oncologic emergencies and risk factors among patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

Risk factors		Outcome of Oncologic Emergencies in Number		
		Alive	Died	Total
Sex	Female	83	15	98
	Male	64	11	75
	Total	147	26	173

type of oncologic emergencies categorized	Metabolic complications	1	0	1
	Hematologic complications	28	13	41
	Structural or Mass effects	67	10	77
	Total	96	23	119
Treatment of primary malignancy	yes	52	16	68
	No	95	10	105
	Total	147	26	173
Mode of arrival	Ambulance	11	3	14
	Other means of transport	136	23	159
	Total	147	26	173
Triage category	Yellow green	134	24	158
	Orange	5	1	6
	Red	8	1	9
	Total	147	26	173
No of ED admissions	once	126	17	143
	Twice or more	21	9	30
	Total	147	26	173
Metastasis	yes	55	14	69
	No	92	12	104
	Total	147	26	173
Comorbidity	yes	25	6	31
	No	122	20	142
	Total	147	26	173
Treatment of primary malignancy	Yes	52	16	68
	No	95	10	105
	Total	147	26	173

To see the effect of independent variables on the dependent variable (outcome of alive until discharge or death), each of the variables was analyzed with bivariate logistic regression, and then those variables shown below in Table 7 (Duration of cancer diagnosis, metastasis, number of ED admissions, type of oncologic emergency and treatment of primary cancer) were significant using P values as cut off (P<0.25) and taken into multivariable binary logistic regression. Given the set of independent variables, the full model explains about 26.7% to 42.7% variability (Cox & Snell R square and Negelkerke R square values, respectively), and the model is fit as displayed by omnibus test (P=0.04) and Hosmer and Lemeshow test (P=0.899 which is >0.05). The performance of the full model is about 84% of the observed respondents whom the model correctly predicted. Only significant values of COR and AOR are displayed in the table.

Bivariate and multivariate logistic regression shows that oncologic emergencies are significantly associated with patient outcomes. Hematologic Emergencies had a 4.2 times risk of death as compared to patients with local mass effects (structural effects) (AOR: 4.266, CI: 1.528-11.908, P value < 0.006).

Table 7: Bivariate and Multivariate logistic regression of risk factors for Outcome of oncologic Emergencies among patients visiting SPHMMC adult emergency department from March 1/2021 to April 30/2022

	Bivariate analysis			Multivariate analysis		
Variables	**COR**	**95% CI**	**P-Value**	**AOR**	**95% CI**	**P-Value**
Number of ED admissions (no vs yes)	0.315	0.124-0.798	.015			
Duration of cancer since diagnosis in months	1.073	0.964-1.194	.199			
Type of oncologic emergencies (hematologic vs structural)	3.111	1.221—7.923	.017	4.266	1.528-11.908	**0.006**
Metastasis to organs (No vs yes)	0.512	0.221-1.187	.119			
Treatment of primary cancer (No vs yes)	0.342	0.145-0.808	.014			

P- value <0.05 is significant.

4. Discussion

About 8.1% (14) of respondents arrived by ambulance, and the rest used other means of transport, but the study done in Singapore shows that 72 (23.4%) arrived by ambulance, and the rest were self-referrals.[27] The higher percentage of ambulance use in Singapore could be due to well-organized EMS services.

This study shows that 82.7% (143) visited the ED for the first time, whereas 17.3% (30) of cases have more than one ED Visit. The study done in Turkey shows that 222 (54.5%) were admitted to the ED once, whereas 186 (45.5%) were admitted twice or more.[23] The findings in our study show higher first-time ED visits and fewer visits more than one-time visits. This can be because of the low number of oncology centers in our country and the delay in the diagnosis of primary tumors in our country.

In terms of primary complaints, SOB (20.8%), pain (14.5%), and vomiting (11.6%) were the most frequently reported complaints. Abdominal pain makes up the majority of presentations among individuals who reported pain (10.4%), which is followed by chest pain in 2.9% of cases. In this finding, pain is the second most common complaint and also consistent with studies done in the USA, Bogotá (Colombia), Singapore, and Black Lion Hospitals, in which the most common primary complaint is pain, with abdominal pain being the most common.[1,7,21,27]

Our study finding shows that in relation to the site of primary tumors, the most prevalent primary tumors were those of the gastrointestinal tract (49.7%) and genitourinary system (19.1%). Studies done in Brazil, Bogotá (Colombia), and Black Lion Hospital Ethiopia [1,7,8] show that in relation to the location of the tumor, intestine cancer was commonest seen in 60.8%, 24.7%, and 30% of cases, respectively, which are similar to our study findings. However, in studies done in the USA, Turkey, and Singapore [21,23,27], the most common cancer diagnoses were lung seen in 13%,32.5%, and 20% of cases, respectively. The differences in numbers and types of tumors could be due to the smaller sample size in our setup and the nature of the study design.

Our study shows that Oncologic Emergencies account for 68.8% (119) of the cases. The most frequently observed emergencies include structural (Mass Effect) in 64.7% of cases,

Hematologic accounts in 34.45% (41) of cases, and metabolic accounts in 0.85 % (1) of the cases. Hematologic emergencies, anemia, and thromboembolic complications account for 14.3 % of the cases. Our finding is similar to study done in Brazil in which the most common oncologic emergencies were structural or local effects in about 60.7% of cases.[8] In a study done in Turkey, the most common hematologic emergency was anemia, seen in 19.5% of cases, which is consistent with our study findings.[24]

In our study, the mean length of stay in the ED was 2.81 days, ranging from a minimum of 1 day to a Maximum length of stay of 13 days, but a Study done in Singapore shows the mean emergency department length of stay was 4.25h. [27] This high length of stay in the ED could be because of disposition problems in our ED due to the lack of beds in the wards.

Regarding the Outcome of oncology patients visiting our ED, 54.9% (95) of patients were admitted to the ward, 28.3% (49) of the cases were discharged home, 1.7% (3) were admitted to the ICU, and the rest, 15% (26), have died. This finding also goes in agreement with a study done in Black Lion in which 11.5% of patients have died [1], but a study done in Singapore shows that 32.6% of patients have died.[27] This could be due to the high sample size used in their study.

Our study findings show that 5.2% of cases were triaged to RED (priority 1), 3.5 % to orange (Priority 2), 91.3% to the yellow or green area (priority 3), and mortalities were 11% among Priority 1, 16.7% in priority 2 and 15.2 % in priority 3. Whereas a study in Singapore shows that mortality rates were 55.0% for Priority 1, 22.2% for Priority 2, and 23.3% for Priority 3 patients ($p < 0.001$).[27] Our study is not significant for mortality based on triage category (priority) (P=0.940) and is not consistent with the above study. This could be due to the triaging of oncology patients to low-priority areas in our setup and the low sample size.

About 68.8% (119) of our study findings shows oncologic Emergencies, of which 19.3% (23) have died, and the rest 80.7% (96) were disposed of alive from the ED. The commonest cause of death is due to gastrointestinal malignancies, seen in 34.6% of the cases. This finding is similar to a study done in Black Lion Hospital [1] and Bogotá (Colombia)[7], in which Gastrointestinal cancer was the leading cause of death. Our study finding shows that oncologic emergencies are significantly associated with patient outcomes. Hematologic Emergencies had a 4.2 times risk of death as compared to patients with local mass effects (AOR: 4.266, CI: 1.528-11.908, P value < 0.006).

Limitations of the study

The study included only oncology patients visiting adult ED (pediatric and gynecology patients who visited their respective departments were not included). The information is secondary data, and it is difficult to include patient-related risk factors. Other limitations include a smaller sample size, single-center study, and cross-sectional nature of the study

5. Conclusion

A total of 173 oncology patients Visiting SPHMMC Adult Emergency Department from March 1/2021 to April 30/2022, were included to determine the pattern, outcomes, and associated factors of oncologic emergencies. Oncologic emergencies comprised 68.8% of the cases, of which 19.3% resulted in mortality.

One of the frequent reasons cancer patients visit our Emergency Room is for cancer related problems. There should be a well-organized system with chemotherapy, radiotherapy, and

palliative care facility service for patients with oncologic emergencies to reduce patient mortality.

To fully comprehend the community burden and find further unidentified risk factors determining the course of treatment of oncologic emergencies, further research with larger sample size involving pediatric and gynecology patients should be conducted in the future.

Abbreviation

AaBET-Addis Ababa Burn Emergency and Trauma Hospital
ALL-Acute Lymphoblastic Leukemia
AML-Acute Myeloid Leukemia
AOR-Adjusted Odds Ratio
C LD-Chronic Liver Disease
CI-Confidence Interval
CLL-Chronic Lymphoid Leukemia
CML-Chronic Myeloid Leukemia
COR-Crude Odds Ratio
Dr.-Doctor
ED-Emergency Department
EMCC-Emergency Medicine and Critical Care
GLOBOCAN-Global Cancer Registry
GOO-Gastric Outlet Obstruction
HCC-Hepatocellular Carcinoma
HIV-Human Immune Deficiency Virus
HMIS- Health Management Information System
HTN-Hypertension
ICP- Intracranial Pressure
ICU-Intensive Care Unit
IQR-Interquartile Range
MD-Medical Doctor
MPH-Master of Public Health
MSCC-Malignant Spinal Cord Compression
MSC-Master Sciences
S.NO/NO-Serial Number/Number
SIADH-Syndrome of Inappropriate Anti Diuretic Hormone
SMC-Syndrome of Medullary Compression
SOB-Shortness of Breath
SPHMMC-Saint Paul Hospital Millennium Medical College
SPSS- Statistical Package for the Social Sciences
SVCO/S-Superior Vena Cava Obstruction/Syndrome
UAO-Upper Airway Obstruction

Author Contributions

All authors contributed equally.

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Conflict of Interest

Authors declare no conflict of interest.

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