

# Application of risk management for nursing patients with hematologic malignancies

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## Abstract

**Background:** Minimal data is available for the critical care of the hematological malignant patients. In this study quality of care was compared for the hematological and the solid tumor patients. The malignant patients are more prone to death due to decreased nursing care. They require more careful treatment than any other disease.

**Methods:** Patients with cancer during September 2019 and February 2021, who had undergone critical care were included in this study. Data was obtained from the hospitals databases.

**Results:** Out of the 814 patients, only 114 patients were included in this study. 30-day life hematological malignant patients are 55% as compared to other cancer types which amount to 2.8% P value is 0.03, a similar observation has been found in the admission at the hospital (78.9%) as compared to the other patients 46.9% p value less than 0.001, less than 2 days of hospitalization is 24% in the case of the malignant cancers as compared to the other patients (P value less than 0.001). The aggressive care composite score is higher among the malignant patients relatively as compared to other patients. In the multivariate analysis it has been found that malignancy is associated with aggressive life care (P<0.001).

**Conclusion:** It has been concluded that malignant cancer patients have received more care as compared to other patients at the hospital. [*Ethiop. J. Health Dev.* 2022; 36(3) 00-00]

**Keywords:** Palliative care; Intensive care unit; Hematological malignant cancer; solid tumour; Chemotherapy

## Introduction

Patients with hematological malignancies often have a lot of physical problems, like insomnia, fatigue, pain, drowsiness, neuropathy, and dyspnea due to their cancer and treatment (1,2). Cytopenias, infections, and coagulopathies are very common among patients, which means they have increased hospital stays, invasive tests, and receive a lot of treatments (3-5). In addition, people with haematological cancers are often treated with very strong anti-cancer drugs that are taken throughout the duration of their treatments (6,7). As a result, patients and nurses often have psychological problems (8,9).

The hematological lymphoma has been named after Thomas Hodgkin's in 1832. The hematological lymphoma has been characterized earlier using the incorporate phenotype, genetic morphology, with different clinical features. This disease amounts to 30% of the total malignant tumor diseases among the other diseases. Some examples of the hematologic cancer are the lymphoma leukemia, and the multiple myeloma.

Lymphoma in AIDS patients is biologically aggressive, which feature high grade types and are present in the advanced stage. This is a prediction for the extra nodal areas.

Research conducted in the western and the African contexts has found that chronic leukemia is a very common leukemia among patients. According to the reports western studies, ovarian disease in patients is at a maximum in the lymphoma.

Although the symptom has been evaluated a lot in the hematologic patients, end-of-life has not been thoroughly assessed. Two reports were identified

with regards to hematological malignancy in relation to cancer care. To date no research has been conducted with regards to the emergency visit rate by doctors. This research reviewed the cancer patient's quality of care, with regards to the hematologic malignancies and tumour manifestations.

## Material and methods

A secondary analysis of an inclusive institutional cohort was utilized to assess referral patterns for palliative care in this retrospective cohort research (12). There were 815 patients who died between September 1, 2019, and February 28, 2020, from advanced cancer treated at the Jalpaiguri medical college (JMC) who had a postal address within the seven-county Siliguri metropolitan area, which was defined as Harris County in the center and the seven counties surrounding it (Falakata, Coochbehar, Mainaguri, Dhupguri, Matigara). Solid tumour patients were characterized as having locally progressed or metastatic illnesses, whereas hematologic malignancies were defined as having incurable disease at the time of presentation or the first recurrence (i.e., leukemia, lymphoma, and myeloma). A subset of the participants comprised of those who declined all curative therapies, were referred to the phase 1 programme, and were diagnosed with an incurable (or refractory) form of cancer or were otherwise ineligible for curative therapy, as documented by their oncologists. The statistics on patients who had more than one kind of cancer were based on the cancer that was most responsible for their death. JMC excluded patients under the age of 18, whose deaths were unrelated to advanced cancer, or whose last contact with JMC was more than three months prior to their death from participating in the study. JMC's Institutional Review Board authorized this retrospective study.

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This research utilized information like gender and the marital status, cancer reports from the previous databases and the other information from the hospital records. The indicators from the well-established published papers were also included. These databases were supported by the different national authorities and were rechecked by the authors. This research also reviewed the last chemotherapy administration date and the also calculated the patient's proportion of patients who received therapy in the last month. In this work targeted agents are addressed as the medications or other materials which interfere with the specific biochemical paths related to the growth or development of the tumour.

### Statistical analysis

Descriptive statistical analysis was used to describe the data. Which includes the means, ranges frequencies. Patients' characters were compared with patients' quality of care. Patients with solid tumours were considered as hematological malignant patients. The t test, Mann-Whitney U test was used for the different kind of variables. Previously a composite score was published, with the six indicators assigned to one point. The regression model was used to find the parameters.

The variables were age, sex, malignancy, and race. A P value of 0.05 was considered as statistically significant. For statistical analysis, R (version 3.1.2) software was used.

### Result

Hematological malignancies were found in 114 (13.8%) of the 815 patients. 33 patients had acute myelogenous leukaemia (29.5%), 26 had multiple myeloma (24.8%), 29 had B-cell non-Hodgkin lymphoma (26%) and 9 had T-cell non-Hodgkin lymphoma (6.9%), 8 had acute lymphocytic leukaemia (6.9%), 6 had chronic lymphocytic leukaemia (3.8%), 4 had chronic myelogenous

leukaemia (2.9%), and 3 had Hodge (1.8 %). The baseline demographics of individuals with hematologic malignancies and those with solid tumours did not vary significantly. The patients were on average  $62 \pm 2$  years old. Approximately 49% of the participants were female, and 63% were white (Table 1). There were significant differences in the end-of-life care quality between people who had hematologic malignancies and those who had solid tumors (Table 2) (10). 56% of patients with haematological malignancies went to an emergency room in the last 30 days of their lives compared to 43% of patients with solid tumors (P value 0.03). 80.8% of patients with haematological malignancies went to the hospital, as compared to 46% of patients with solid tumour cancer. They also had more hospital stays, ICU visits, more than 14 days in the hospital, and died in the hospital (47% vs 16%, P value .001). Hematological malignancies were also more common in patients who died in the last 30 days of their lives (44%) than in patients who died in the last 14 days of their lives (15%).

$P=.02$  indicates that malignant patients were less likely to be admitted to a care unit (16% as opposed to 7.9%), or to receive consultation from a care unit (46% as opposed to 32% P value .06) as compared to those with non-hematological malignancies, or to those who receive outpatient palliative care consults (49% as opposed to 22.1% P value .003) in the last (1 month) 30 days of life.

Patients with haematological malignancies received a substantially higher composite score for aggressive end-of-life treatment than those with solid tumours (1.8 vs 0; P value .001). The existence of a haematological malignancy ([OR] odds ratio, 6.64; P value .001) and age (OR, 0.95 per year increase; P value .001) were independent predictors of aggressive end-of-life care in multivariate regression analysis (Table 3).

**Table 1: Characters of the studied cancer patients**

Patients Characters	ST	HT	Probability	Total patients
Age	63	65	0.3	63
Female	321	46	0.28	391
Race	425	54	0.32	500
Black	80	23	0.7	174
White	28	43		153
Asian	13	5		152
Hispanic	434	7		10
Married	563	12		503
Christian	234	4		207
High educated	226	31		204
PG	57	6		126
College	176	4		71
Breast cancer	74	21	<0.001	21
GI cancer	176	0		43
Gynecological cancer	87	1		123
Neck and head cancer	65	1		132
Respiratory cancer	49	0		14
Time between cancer identification and death	11.6	12.6	0.28	11

ST=Solid tumours; HT= Hematologic tumours

Table 2: care related indicators characters

Patients Characters	ST	HT	Probability
> 2 emergency room visits	163	16	0.3
>2 hospitalization	21	61	0.28
>14 day hospitalization	42	35	0.32
Hospital death	180	32	0.7
Admission in the care unit	281	43	
Death after icu admission	313	50	
Chemo used	43	71	
Targeted medicine used	63	12	
Care unit admission	23	40	
1 score for care	126	31	
2 score for care	157	16	
3 score for care	176	42	
4 score for care	75	21	<0.001
5 score for care	276	10	
6 score for care	17	31	
PC consultation	35	34	
Respiratory cancer	249	10	
Time between cancer treatment and PC	10.6	14.6	0.003
Time between death and PC	1.6	0.3	

PC =Palliative care; ST=Solid tumours; HT= Hematologic tumours

Table 3: multiple regression analysis

Character of patients	Odd ratio	P value
Age	0.95	0.0001
HT	6.59	0.0001

HT= Hematologic tumours

### Discussion

Patients with haematological malignancies were prone to going to the ER, staying in the ICU, passing away, and receiving cancer treatment in the last weeks of their lives as compared to people with solid tumours. It was also found that there was a palliative care involvement lacking in hematologic malignant patients. The study results indicated that programmed are designed for the quality of care for malignant patients. There are two different methods used for managing the results of the cancer patients care, both are important for the national authorities. For all cancer patients' symptoms distress during longitudinal observation is very critical. Though this is not done regularly for all cancer patients. More efforts are required to identify the associated characteristics. Hematological cancer patients are more prone to solid tumours in the final 1 month of the life.

They also found that haematological malignant patients were 84% more likely to require hospital stays in the last month of life as compared to those with prostate cancer (11). In the last weeks of life, patients with hematologic malignant diseases often need to be treated in acute care facilities. This is because they often have hematologic problems, such as anemia and thrombocytopenia, which require blood transfusions and neutropenia, which needs antibiotics, an/ord thromboembolic bleeding events,

which need to be treated right away (3-5). These are made worse by the fact that hematologic malignant patients often get systemic medicines in their last days, which adds an extra layer of treatment-related side effects and requires them to stay in the hospital for therapy administration and monitoring.

People with hematologic malignancies are more likely to die in a hospital. This is because they are more likely to be hospitalized. Most of these people died in a hospital, however most people with solid tumours died outside of a hospital. These results back up a meta-analysis of sixteen studies from different countries that found that people with hematologic malignancies were more likely to die in a hospital setting (OR, 2.23; P value .0001). Apart from death in the hospital, people with hematologic malignancies died a lot more often in the ICU than people with solid tumours (32% vs 3.8%). Patients with haematological malignancies often come to the intensive care unit with severe sepsis that requires vasopressor support, respiratory failure that needs mechanical ventilation, and multiple organ failure that needs hemodialysis. 20 Patients who died in a hospital or intensive care unit were more physically and mentally uncomfortable and had a lower quality of life than those who died at home with hospice care. Their caregivers also had a high risk of long-term grief. So, proactive steps need to be taken to make it easier for people with hematologic

malignancies to receive palliative care closer the end of their lives.

Previous research has found that patients with hematologic malignancies have less access to palliative care than patients with solid tumors (12). This is because they receive a smaller percentage of palliative care referrals and are more likely to receive in-patient consultations rather than outpatient visits (12). Additionally, patients with hematologic malignancies were admitted to the institution's acute palliative care unit at a lower rate than patients with solid tumours at the same time.

According to the observation by the researcher's hematological malignant patients had comparatively higher aggressive end-of-life care ratings. In the multivariate regression, hematological malignancy diagnosis was associated with intensive therapy. The outcomes of this research were confirmed by a study conducted in China. These results indicate that hematologic malignant patients received end-to-end care. This research did not consider the stage of the cancer, patients with curable cancer were also included in the study. This study is unique due to including people without Medicare coverage and because it also focused patients with cancer that was incurable.

### Conclusion

This study's findings highlight the importance of end-of-life care for patients with haematological malignancies. Patients with advanced haematological malignancies must be informed that their illnesses are incurable. Care related conversations should be undertaken to prepare the patient and the family. The early treatment of patients should be included along with the decisions that need to be taken for the patient's wellbeing and improved quality of life. The treatment team can offer proper screening, monitoring, treatment, and education for the different types of symptoms, reducing the need for visits and hospital admissions. Palliative care referrals can be very different, so clinical pathways that focus on integrating palliative care early in the process may be beneficial. National Comprehensive Cancer Network guidelines for people with hematologic malignancies don't talk enough about palliative care. This is different from recommendations for people with solid tumours. If you have multiple myeloma or non-Hodgkin lymphoma, the term "palliative care" came up twice in the most recent guidelines. It didn't appear in the guidelines for Hodgkin lymphoma, acute lymphoblastic leukaemia, or acute myeloid leukaemia. Payment policy changes could help haematologists and oncologists cut down on the amount of systemic treatment they give to patients with a poor prognosis. Finally, more research is needed to find out how different medicines affect the way people die at the end of their lives.

The current study has several shortcomings. This study was a cohort study undertaken at a single cancer treatment institution. Patients and health care

staff in this setting may exhibit characteristics not observed in a community setting. Therefore, it is probable that the findings of this study will be inapplicable in different circumstances. The second constraint was that this study only included patients who were treated during a six-month period between 2019 and 2020. Since that time, the quality of therapy may have improved. Although these findings should be interpreted cautiously, however, this research conducted a series of hypothesis-driven statistical analyses. If these individuals received acute care services at a facility other than the current facility, they may have been omitted from the database.

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