ISSN 2475-529X

Research Article

Journal of Nursing & Healthcare

Patterns of Cancer Diagnoses Referred to Palliative Medicine in a TertiaryHospital in Dammam - Saudi Arabia

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Submitted: 24 June 2017; **Accepted**: 03 July 2017; **Published**: 06 July 2017

Abstract

Background: *Identification of epidemiological patterns of cancer diagnoses in a health care practice is considered a baseline in assessing needs, planning health services and assess control measures.*

Aim of Study: *To identify epidemiological characteristics and diagnoses of cancer patients referred to palliative care at a tertiary care center.*

Methodology: *Chart review of electronic medical records of patients referred to palliative medicine service at tertiary Hospital in Dammam, between January 2014 and June 2016.*

Results: *Cancer colon, cancer breast & lung canceroccupy the highest proportions among patients referred to palliative care. The proportion of patients with cancer colon referred to palliative care showed a slight decline from 2014 to 2016 (17.3%, 10.4% and 11.5%, respectively), while that for cancer breast showed a slight increase (15.9%, 15.7% and 18.4%, respectively).*

Toxicity among palliative patients admitted to palliative care service decreased from 12.9% in 2014 to 5.3% in 2015.
Most cancer patients admitted to palliative care during 2014 till 2016 could be maintained at no pain levels during their treatment period. However, some patients had exhausting pain, with decreasing proportions from 2014 till 2016 (6.7%, 5.1% and 4.3%, respectively). About half of cancer patients referred to palliative care discharged alive from the unit (45.5%, 43.3% and 38.4%, respectively) compared to those dead in the unit (15.4%, 21.8% and 27.3%, respectively)

Conclusions: *The highest proportions of cancer patients referred to palliative care are related to colon, breast, lung and pancreas.*
Control of pain and treatment toxicity is quite successful, whilemost of the patients included in the study who were referred to palliative care discharged home alive compared to those dead in the unit.

Recommendations: *Exploring the magnitude, pattern and other epidemiological aspects in relation to cancer cases for palliative patient should be extended for the coming years and to investigate the reasons that would explain the high proportions of certain types of cancer among patients referred palliative care unit.*

Keywords: Cancer, Epidemiology, Trend, Pattern, Pain score, palliative.

Introduction

Worldwide, cancer represents a major public health problem, which constitute one of the leading causes for mortality. The rapid socioeconomic and lifestyle changes have affected both prevalence and patterns of cancer. In the developing countries cancer is among the ten commonest causes of mortality. Globally, cause-specific mortality attributed to cancer are expected to continue to rise, with an estimated 11.4 million deaths in 2030 [1].

The burden of cancer is increasing worldwide, with almost 11 million people being diagnosed as new cancer cases and about 7 million die of cancer each year [2].

Since the cancer burden is increasing due to population aging and growth and adoption of cancer-associated lifestyle choices, e.g., smoking, physical inactivity, and "westernized" diets, these incidence rates may increase to 15 million by 2020 [3].

Changing trends in incidence rates of malignancy patterns have been observed. Generally, the incidence rates for malignancies are slowly declining in the developed countries, while growing in the developing countries [4].

Trend and pattern of cancer cases vary in different geographical regions. Globally, the cancers of lung, breast and colorectal region constitute 12.3%, 10.4% and 9.4% of total cancers respectively [5]. Among males, lung, stomach, oro-pharynx and colorectal cancers are the leading cancers, while among females, breast, cervix, lungs and stomach cancer are the top three leading cancers [6].

In Saudi Arabia, Ibrahim et al. (2008) stated that the National Cancer Registry reported that, for Saudis, the total number of newly diagnosed cancer cases was 6969, with an almost equal number for men and women [3]. According to age groups, half of male patients and one third of female patients aged more than 59 years were diagnosed with cancer, while that age group accounts for only 3.5% of the total Saudi population. They emphasized that, although the low incidence rates for cancer in Saudi Arabia, the Kingdom must be always prepared to face the challenge of the probable increase in cancer burden, mainly due to the growth and aging of the population.

The identification of the magnitude and pattern of cancer is the first step in determining clues to the cause (s) of cancer and in having a baseline to plan and assess control measures. Information on overall pattern of cancer is helpful for identifying cancers that have the greatest impact on different age groups. Epidemiological information on cancer including the pattern is an important basis for determining the priorities for cancer control in any population group [1].

Therefore, this retrospective hospital-based study was conducted to identify epidemiological characteristics and diagnoses of cancer patients referred to palliative care at a tertiary care center in Dammam City, Saudi Arabia.

Methodology

This study has been conducted in palliative care unit at a tertiary hospitalin Dammam, Saudi Arabia.

Since 2008, it has served as a tertiary referral hospital offering specialized medical care in several fields, mainly oncology.

Chart review of electronic medical records of patients referred to palliative medicine service at tertiary Hospital in Dammam, between January 2014 and June 2016.

Data collection wasChart review of electronic medical records. The researcher collected patients' data with various cancer cases admitted in palliative care unit during 2014, 2015 and the first half of 2016.

The main variables within collected data comprised year of admission, age, gender, diagnosis, integrated pain score, and discharge condition.

The Integrated Pain Score (IPS) integrates the intensity of pain with its duration. Verbal descriptive scale used here. Such an intensity is expressed by four key words, each corresponding to a score (no pain = 0, Mild = 1, Moderate = 2, Sever = 3).

Collected data were analyzed using the Statistical Package for Social Sciences (SPSS, version 22). Descriptive statistics (frequency and percentage) were calculated. The statistical significance of differences was judged at $p<0.05$.

Results

Table 1: Characteristics of study sample

Characteristics	2014		2015		2016		P Value
	No.	%	No.	%	No.	%	
Gender							
• Females	486	53.9	577	51.0	316	54.9	0.232
• Males	416	46.1	555	49.0	260	45.1	
Age groups							
•Children (<18 years)	67	7.4	88	7.8	35	6.1	0.491
•Adults (19-60 years)	534	59.2	654	57.8	327	56.8	
•Elderly (>60 years)	301	33.4	390	34.5	214	37.2	

Figure 1: shows that patients' characteristics regarding gender.

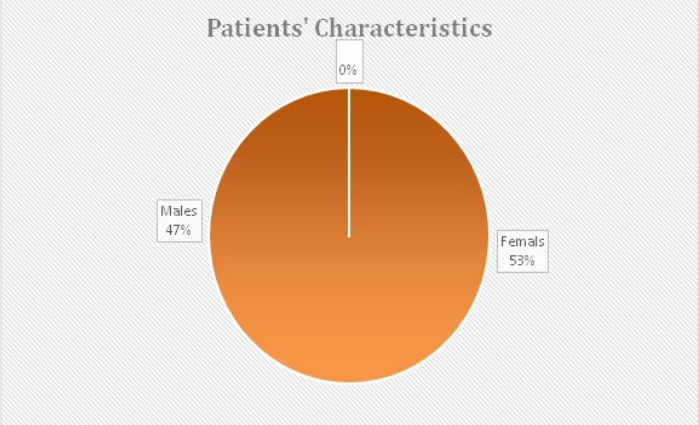


Figure 2: shows that patients' characteristics regarding age group.

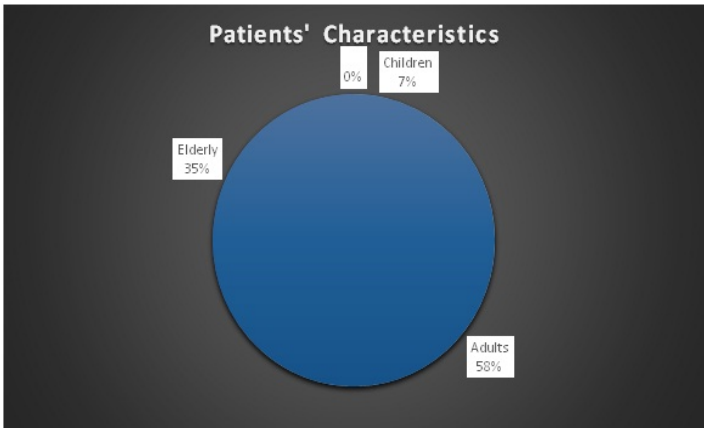


Table 2: Distribution of type of cancer according to the study year

Location/type of neoplasm	2014 (n=902)		2015 (n=1132)		2016 (n=576)	
	No.	%	No.	%	No.	%
Colon	156	17.3	118	10.4	66	11.5
Breast	143	15.9	178	15.7	106	18.4
Lung	62	6.9	133	11.7	47	8.2
Pancreas	51	5.7	108	9.5	45	7.8
Stomach	51	5.7	38	3.4	13	2.3
Leukemia	36	4.0	57	5.0	34	5.9
Gall bladder	30	3.3	30	2.7	16	2.8
Prostate	24	2.7	14	1.2	8	1.4
Liver	22	2.4	30	2.7	19	3.3
Ovary	21	2.3	24	2.1	17	3.0
Uterus	15	1.7	15	1.3	18	3.1
Kidney	13	1.4	9	0.8	2	0.3
Lymphoma	13	1.4	36	3.2	9	1.6
Urinary bladder	12	1.3	36	3.2	22	3.8
Multiple myeloma	10	1.1	15	1.3	10	1.7
Cervix	9	1.0	23	2.0	5	0.9
Brain	9	1.0	4	0.4	3	0.5
Ewing sarcoma	7	0.8	15	1.3	12	2.1
Larynx	6	0.7	7	0.6	2	0.3
Medulloblastoma	6	0.7	1	0.1	2	0.3
Esophagus	5	0.6	16	1.4	5	0.9
Thyroid	4	0.4	6	0.5	4	0.7
Nasopharynx	4	0.4	12	1.1	4	0.7

Figure 3: Types of cancer referred to Palliative Care Services

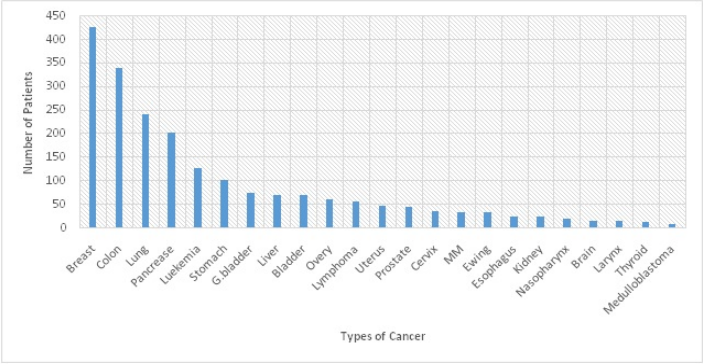


Figure 4: Incidence of medication toxicity during 2014 and 2015

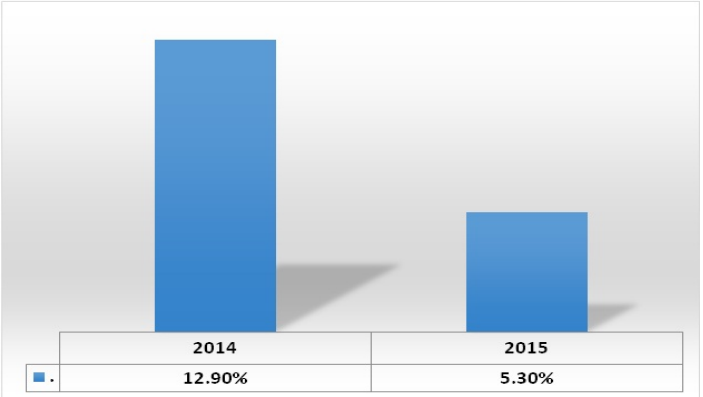


Table 3: Integrated pain scores among palliative care unit patients

Score	2014 (n=902)				2015 (n=1132)				2016 (n=576)			
	IPS (1)		IPS (2)		IPS (1)		IPS (2)		IPS (1)		IPS (2)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0	683	75.7	744	82.5	907	80.1	969	85.6	429	74.5	483	83.9
1	66	7.3	115	12.7	77	6.8	135	11.9	65	11.3	77	13.4
2	93	10.3	39	4.3	90	8.0	27	2.4	57	9.9	16	2.8
3	60	6.7	4	0.4	58	5.1	1	0.1	25	4.3	0	0.0

Figure 5: Pain score before & after referral to palliative care service

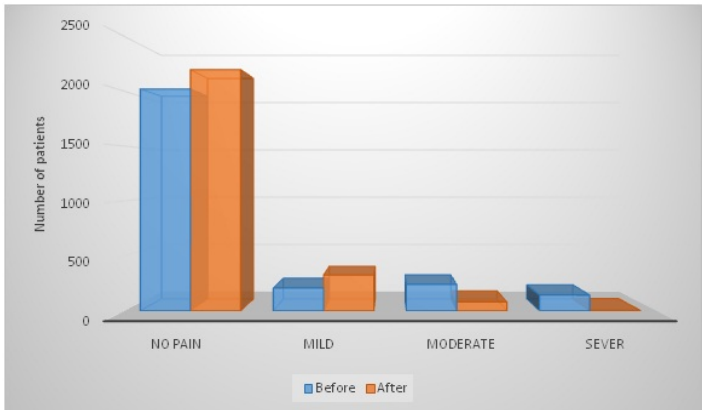
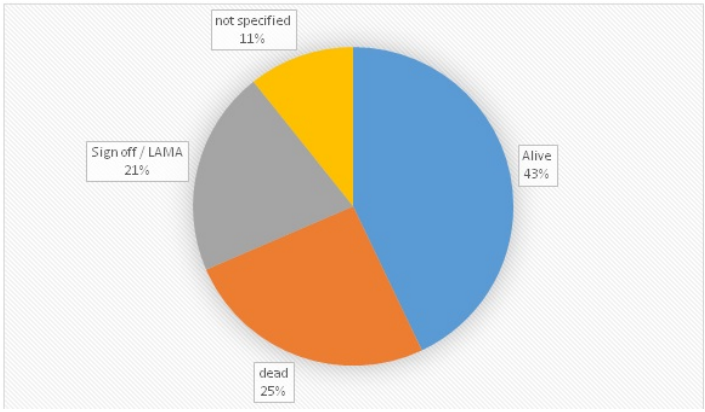


Table 4: Discharge condition of the patients

Discharge condition	2014 (n=902)		2015 (n=1132)		2016 (n=576)	
	No.	%	No.	%	No.	%
Alive	410	45.5	490	4.3	221	38.4
Dead	219	24.3	298	26.3	150	26.0
Sign off/LAMA	139	15.4	247	21.8	157	27.3
Not specified	134	14.9	97	8.6	48	8.3

Figure 6: Discharge condition of the patients



Discussion

The study of epidemiology of cancer (frequencies and pattern of diagnosed cancer cases) is of great importance for creating effective control strategies [2].

Review of hospital records are usually the main source for useful data as has been observed in the present study. This study revealed cancer colon, cancer breast and lung cancer were the highest

proportions of cancer cases admitted to palliative care unit.

This finding is in agreement with that of Ghosh et al. (2015), who reported an increasing trend in overall registered cancer cases and a clear increasing trend regarding some types of cancer, e.g., breast, colon and gall bladder cancer [2].

Exploring the reasons for the increase of certain types of cancer more than others is a further research step. Therefore, several researchers reported various risk factors for cancer.

Serra et al. (2002) incriminated the changing lifestyle patterns, dietary factors, obesity and alcoholism as influencing factors for increased certain types of cancer [7].

Babay et al. (2004) demonstrated a marked increase in age at first pregnancy and at marriage and a decrease in the parity rate, which would minimize the protective effect of these natural reproductive occurrences on the incidence of breast cancer, which is one of the most common cancers among females [8].

Ibrahim et al. (2008) expected that within the coming few decades, incidence of malignancies will continue to increase [3]. They explained that by the fact that the natural growth and aging of the population would be the main attributable factor for such increase. In addition to the demographic changes that would promote a greater cancer incidence, additional social and lifestyle factors would certainly contribute to a future increase.

Results of the current study revealed a marked decrease in the incidence of medication toxicity among cancer patients, which decreased from 12.9% in 2014 to 5.3% in 2015. Moreover, pain control was optimal for most patients during their treatment period.

Winslow et al. (2005) noted that, for cancer patients and their families, pain is perhaps the most frightening for patients and their families [9]. Almost 70% of cancer patients suffer some degree of pain, which usually increases with progress of cancer. Pharo and Zhou (2005) added that the prevalence of experienced pain in advanced stages of invasive cancer approaches 80% while it is 90% in patients with metastases to osseous structures [10]. Nevertheless, less than half of cancer patients get adequate relief of their pain, which negatively affects their quality of life.

Cherny (2000) stated that patients and their families sustain great distress after the diagnosis of cancer [11]. Although cancer can be a terminal disease, there should be no reason to deny a patient the opportunity to live productively and free of pain. Severe pain can interfere with physical rehabilitation, mobility, and proper nutrition. Suboptimal pain control among cancer patients can be very devastating. Prompt and effective pain control usually prevents needless suffering, significantly improves quality of patients' lives, and would greatly spare families the feeling of helplessness and despair. A significant number of cancer patients are subsequently diagnosed with depression. Hence, the main goals of pain control in cancer patients should be to optimize the patient's comfort and function while avoiding unnecessary adverse effects from medications.

Regarding discharge condition of our patients during the period from 2014 to 2016, about half of them discharged alive from the unit compared to about one fourth died in the unit. This high rate of mortality can be explained by the fact that the center is the highest referral center for cancer patients which provides health care for terminal and advance cases.

In conclusion, the highest proportions of cancer patients attending palliative care services are related to breast, colon and lung. Control of pain and treatment toxicity is quite successful. Nevertheless, about one fourth of them were terminal cases and died in the unit.

Therefore, it is recommended that exploring the magnitude, pattern and other epidemiological aspects in relation to cancer cases which referred to palliative care service should be extended for the coming years and to investigate the reasons that would explain the high proportions of certain types of cancer among attending patients [12].

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