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Research Article

Clinical Characteristics and Outcomes of Cancer Patients Intensive Care Unit Admission

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ABSTRACT

Background: Cancer patients are admitted to the ICU due to their poor clinical condition, and patients admitted to these units suffer. Given the prevalence of cancer, the aim of this study was to determine the clinical characteristics of cancer patients admitted to the ICU.

Methods: In this study, 90 patients admitted to the ICU due to underlying cancer were included in the study; and patients who were discharged, died, or discharged within the first 24 hours of admission were excluded from the study. The researchers collected information and completed a researcher-made checklist form by visiting the ICU and studying the patient's clinical record, interviewing the patient, and performing a clinical examination. For data analysis and reporting in the findings section, all extracted information was reviewed, and if the patient's data were completely completed and there was no incomplete information in this regard, it was entered into SPSS software. Then, data analysis was performed with descriptive and analytical statistical tests.

Results: The findings showed that the rate of delirium in patients who died, had a history of smoking, had pressure ulcers, were older, and had a longer duration of stay in the ICU was higher than in other patients, and this difference was statistically significant (P value < 0.05). Also, the result showed the prevalence of pressure ulcers was higher in patients with a history of smoking, lung cancer, older age, and longer duration of stay in the ICU than in other patients, and this difference was statistically significant.

Conclusion: Identifying the clinical characteristics of cancer patients can help health policymakers and medical staff to improve the health status of patients. Also, the prevalence of delirium and pressure ulcers was high in this study, which requires necessary interventions in this field.

Introduction

Life expectancy, in addition to being a long-standing desire and concern of humanity, is also one of the most basic needs and priorities of humans. Life expectancy includes awareness of one's abilities and opportunities, having a purpose and motivation in life, planning, and striving to achieve one's goals [1-2]. In fact, life expectancy has made humans hopeful for the future and strive to have a healthy life. However, sometimes, a person may contract a disease

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due to a lack of lifestyle. One type of chronic disease is cancer [3-4].

In the present era, cancer is one of the serious threats to public health and mental health, being the leading cause of death and an important obstacle to reducing life expectancy in all countries of the world. In fact, according to estimates, if the prevalence of cancer increases at the same rate, one in five people will be diagnosed with cancer in the coming years [5-7]. Cancer occurs in all age groups and in both sexes. However, in industrialized societies, it is more common in people over 65 years of age, men, and smokers [8-10].

Cancer diagnosis and treatment is a traumatic event that can have many negative effects on individuals' fundamental beliefs about themselves, the world around them, and their life situation. In fact, cancer, in addition to causing physical suffering and problems related to the disease, causes negative consequences such as intense fear of death, disease recurrence, changes in body appearance, and side effects of surgical procedures and treatment [11-13].

In patients with cancer, it is essential and important to monitor the patient's treatment process from admission to discharge or even the level of patient compliance with treatment. These studies require a long time, and in order to draw the right conclusion, factors including demographic factors, clinical status of the patient, diagnosis, and treatment must be correctly identified. Although the increase in cancer survival is good news for the patient and his family, the disease has many negative effects on the life course and general health of patients [14-15].

Cancer patients are admitted to the ICU due to their poor clinical condition, and patients admitted to these units suffer from various complications, including pressure ulcers, delirium, infection, and other complications. Delirium and pressure ulcers are two common complications of special wards that occur for various reasons, including the patient's long stay in the unit. Delirium is a neuropsychiatric syndrome characterized by impaired alertness and attention. Delirium is one of the main causes of confusion in hospitalized patients, which can be present in the form of hypoactivity, hyperactivity, or a combination of both [16-17].

Pressure ulcers (PU) are another complication of ICU admission that has a significant prevalence in cancer patients. Pressure ulcers are a major problem in hospitalized patients and are costly to the patient, family, hospital, and society. These ulcers can involve the skin, muscle, soft tissue, and cartilage. These patients experience various complications such as pain, disability, and dependence on others, which lead to a decrease in their quality of life [18-20].

Given the prevalence of cancer, the aim of this study was to determine the clinical characteristics of cancer patients admitted to the ICU.

Methods

In this study, 90 patients admitted to the ICU due to underlying cancer were included in the study; and patients who were discharged, died, or discharged within the first 24 hours of admission were excluded from the study.

The researchers collected information and completed a researcher-made checklist form by visiting the ICU and studying the patient's clinical record, interviewing the patient, and performing a clinical examination. The questions on this checklist included the patient's demographic characteristics (ICU outcome, gender, smoking history, type of malignancy, metastasis, pressure ulcer, delirium, age, and length of stay in ICU) and the patient's clinical status, including examining the patient's delirium and bed sores. The patient's diagnosis of delirium and bedsores was made by conducting a clinical examination, interviewing, and studying the patient's clinical record.

For data analysis and reporting in the findings section, all extracted information was reviewed, and if the patient's data were completely completed and there was no incomplete information in this regard, it was entered into SPSS software. Then, data analysis was performed with descriptive and analytical statistical tests.

Results

The findings in (Table 1) showed the results related to the demographic characteristics of the death and discharge group patients. According to the findings, the M(SD) age of all patients was 62.3 (12.09) years, the death group patients were 68.42 (13.78) years, and the discharge group patients were 57.82 (8.31) years. Also, regarding the length of stay in ICU, it was shown that the mean (SD) of all patients in ICU was 18.76 (14.33) days, the death group patients was 34.34 (6.53) days, and the discharge group patients was 7.38 (3.84) days (Table 1).

Table 1- Demographic characteristics of Death and Discharge group patients

Variable		Total	Death N (%)	Discharge N (%)	P value
Gender	Male	40(44.4)	20(52.6)	20(38.5)	0.18
	Female	50(55.6)	18(47.4)	32(61.5)	
ICU Outcome	Death	38(42.2)	-	-	-
	Discharge	52(57.8)	-	-	

Smoking history	Yes	49(54.4)	25(65.8)	24(46.2)	0.06
	No	41(45.6)	13(34.2)	28(53.8)	
Type of malignancy	Breast	19(21.1)	4(10.5)	15(28.8)	0.15
	Lung	22(24.4)	15(39.5)	7(13.5)	
	Head and neck	24(26.7)	5(13.2)	19(36.5)	
	Colorectal	17(18.9)	8(21.1)	9(17.3)	
	Others	8(8.9)	6(15.8)	2(3.8)	
Metastasis	Yes	32(35.6)	16(42.1)	16(30.8)	0.27
	No	58(64.4)	22(57.9)	36(69.2)	
Pressure ulcer	Yes	21(23.3)	12(31.6)	9(17.3)	0.11
	No	69(76.7)	26(68.4)	43(82.7)	
Delirium	Yes	48(53.3)	26(68.4)	22(42.3)	0.01
	No	42(46.7)	12(31.6)	30(57.7)	
Age, M(SD)		62.3(12.09)	68.42(13.78)	57.82(8.31)	
Length of stay in ICU, M(SD)		18.76(14.33)	34.34(6.53)	7.38(3.84)	0.000

The findings in (Table 2) showed that the rate of delirium in patients who died, had a history of smoking, had pressure ulcers, were older, and had a longer duration of stay in the ICU was higher than in other patients, and this difference was statistically significant (P value < 0.05). Also, the results showed the prevalence of pressure ulcers was higher in patients with a history of smoking, lung cancer, older age, and longer duration of stay in the ICU than in other patients, and this difference was statistically significant (Table 3).

Table 2- Comparison of investigated variables in patients with and without Delirium

Variable		With Delirium, N (%)	Without Delirium, N (%)	P value
Gender	Male	25(52.1)	15(35.7)	0.12
	Female	23(47.9)	27(64.3)	
ICU Outcome	Death	26(54.2)	12(28.6)	0.04
	Discharge	22(45.8)	30(71.4)	
Smoking history	Yes	32(66.7)	17(40.5)	0.01
	No	16(33.3)	25(59.5)	
Type of malignancy	Breast	10(20.8)	9(21.4)	0.66
	Lung	16(33.3)	6(14.3)	
	Head and neck	8(16.7)	16(38.1)	
	Breast	9(18.8)	8(19)	
	Others	5(10.4)	3(7.1)	
Metastasis	Yes	16(33.3)	16(38.1)	0.64
	No	32(66.7)	26(61.9)	
Pressure ulcer	Yes	18(37.5)	3(7.1)	0.001
	No	30(62.5)	39(92.9)	
Age, M(SD)		65.64(12.98)	58.47(9.82)	0.004
Length of stay in ICU, M(SD)		23.18(14.67)	13.71(12.25)	0.001

Table 3- Comparison of investigated variables in patients with and without Pressure ulcer

Variable		With Pressure ulcer, N (%)	Without Pressure ulcer, N (%)	P value
Gender	Male	12(57.1)	28(40.6)	0.18
	Female	9(42.9)	41(59.4)	
ICU Outcome	Death	17(81)	26(37.7)	0.11
	Discharge	4(19)	43(62.3)	
Smoking history	Yes	17(81)	32(46.4)	0.005
	No	4(19)	37(53.6)	
Type of malignancy	Breast	6(28.6)	13(18.8)	0.01
	Lung	9(42.9)	13(18.8)	
	Head and neck	4(19)	20(29)	
	Breast	1(4.8)	16(23.2)	
	Others	1(4.8)	7(10.1)	
Metastasis	Yes	5(23.8)	27(39.1)	0.20
	No	16(76.2)	42(60.9)	
Delirium	Yes	18(85.7)	30(43.5)	0.001
	No	3(14.3)	39(56.5)	

Age, M(SD)	73.52(13.79)	58.88(9.21)	0.000
Length of stay in ICU, M(SD)	24.57(13.36)	17(14.24)	0.03

Discussion

Identifying the clinical status of hospitalized patients plays an important role in the health status of patients and can provide appropriate information to the medical staff [21-23]. For this reason, this study was conducted to determine the clinical characteristics of cancer patients in the ICU.

According to the findings, the prevalence of delirium in cancer patients admitted to the ICU was 53.3%. Uchida et al. in Japan examined patients with lung and gastrointestinal cancer in terms of delirium status. According to the findings, 43% of patients had delirium at admission, and 33.61% of patients had delirium at some point during the study [24]. De La Cruz et al. in the USA showed that the prevalence of delirium in cancer patients was 58%. Also, 71% of people with delirium were diagnosed with delirium at admission and 29% at admission. Also, patients who had delirium and developed delirium after admission to the special ward had a worse clinical condition and a higher mortality rate compared to other patients [25]. In a meta-analysis by Yang et al., which included 4472 patients with colorectal cancer, the rate of delirium after surgery was reported to be 14% [26]. Also, factors such as age, gender, history of psychiatric diseases, alcohol abuse, and cognitive status were associated with the prevalence of delirium [26], which is consistent with the findings of this study that the prevalence of delirium was high in people with a history of smoking and pressure ulcers.

According to the findings, the prevalence of PU in cancer patients hospitalized in the ICU was 23.3%. Also, the risk factors for PU included a history of smoking, lung cancer, older age, and a longer duration of stay in the ICU than in other patients. In the study of Jakobsen et al. in Italy, the prevalence of PU in cancer patients was 17.3%. The risk factors for PU included age, length of stay in the hospital, and proximity to death [27]. In the study of Hendrichova et al. in cancer patients in Italy, the prevalence of delirium was 22.9%, and the incidence of delirium was 6.7%. Also, the age and duration of stay of the patient were associated with PU status [28].

In this study, the mortality rate for breast cancer was 10.5%, lung cancer was 39.5%, head and neck cancer was 13.2%, and colorectal cancer was 21.1%. In the study by Liu et al., which examined the clinical characteristics of 1455 cancer patients in China, the 90-day mortality rate for patients admitted to the ICU was 45.4% for lung cancer, 12.2% for colorectal cancer, 22.7% for esophageal cancer, 27.4% for gastric cancer, and 27.4% for other cancers [29]. Also, in the study by Vigneron et al. in France, which studied 319 patients between 2017 and 2018, it was shown that ICU survival was 75.2%, hospital survival was 55.7%, and one-year survival was 31.5%. Also, factors such as cancer type, stage, surgery, SOFA score, and organ failure supports were associated with patient mortality [30]. The disease process causes extensive changes in the health status of individuals and causes changes in health status [31-35].

Conclusion

Identifying the clinical characteristics of cancer patients can help health policymakers and medical staff to improve the health status of patients. Also, the prevalence of delirium and pressure ulcers was high in this study, which requires necessary interventions in this field.

Data Reproducibility

The dataset presented in the study is available on request from the corresponding author during submission or after its publication. The data are not publicly available due to [confidentiality].

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