

Assessment of Caregivers' Knowledge about Home Care of Leukemic Adult Patients at Oncology Wards in Baghdad Teaching Hospital

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Background: Leukemia is one of the most common cancers. The caregiver is the main provider of physical and emotional support for the patient. Caregivers frequently assist the patients in the activities of daily living, administering medications, providing transportation, preparing meals, managing finances, advocating for health care, and providing emotional support.

Objectives: To assess caregivers' knowledge regarding general information, healthy nutrition and signs and symptoms of infection.

Subjects and methods: A descriptive design was accomplished in order to assess of caregiver's knowledge about home care of leukemic adult patients. Purposive (non-probability) samples of 100 caregivers visited oncology wards at Baghdad Teaching Hospital were selected. The data were gathered from March 15 to May 30, 2024.

Results: Significant proportion of caregivers, 87%, have a fair overall knowledge about the home care of leukemia patients, with a mean score of 35.64 (SD = 4.439). In specific areas, 82% of caregivers possess fair general knowledge related to leukemia (M = 12.19, SD = 1.721), 79% have fair knowledge about healthy nutrition (M = 11.84, SD = 1.808), and 81% have fair knowledge concerning the signs and symptoms of infection (M = 11.61, SD = 2.428). Notably, no caregivers fall into the poor knowledge category across all assessed areas.

Key words: caregiver, knowledge, leukemic adult patients. Oncology.

INTRODUCTION

Leukemia is a metastatic and malignant sickness for blood-making organs which is resulted due to incomplete evolution and tricky proliferation of white blood cells ⁽¹⁾. It is characterized by an unlimited and irreversible proliferation of immature hematopoietic or lymphatic cells ⁽²⁾. According to Global Cancer Statistics 2018, leukemia is estimated to account for 437,033 new cases and 309,006 deaths in 185 countries, with a mortality

rate of 3.2 %⁽³⁾. The main treatment for leukemic disease is chemotherapy, this can cause a series of side effects including nausea and vomiting, anorexia, alopecia, and myelosuppression, which may further impair quality of life⁽⁴⁾. Patients with leukemia with good nutritional status undergoing induction chemotherapy have shorter hospital stays and longer survival⁽⁵⁾. Patients with leukemia require immediate therapeutic intervention but most patients seek medical attention for symptoms related to anemia, infection, or bleeding⁽⁶⁾. The mortality rate due to infections ranges from 30 to 50%⁽⁷⁾. Caregivers are often responsible for many tasks for the patient at home, including, but not limited to, psychosocial support, symptom management, medication management, and transportation⁽⁸⁾. Family caregivers usually assumed this role under extreme and unexpected circumstances, with minimal guidance, preparation, and support from the healthcare system⁽⁹⁾.

METHODOLOGY

A descriptive design was accomplished in order to assess of caregiver’s knowledge about home care of leukemic adult patients. A purposive (non-probability) sample of 100 caregivers visited oncology wards at Baghdad Teaching Hospital was selected. The data were gathered from March 15 to May 30, 2024. Designed questionnaire was used for data gathering, by direct questioning the caregivers, with information about the socio-demographic data and knowledge concerning home care of leukemic adult patients. The study’s tool was constructed after a thorough review of related literature and questionnaires from previous studies then modification of questionnaire was done to conclude the tool used in this study. The study was conducted in four parts;

Part 1: This was concerned with demographic characteristics and included age, gender, relationship with patient, education, occupation, residence and duration as caregiver.

Part 2: This part was concerned with general caregivers’ knowledge about home care of leukemic adult patients.

Part 3: This part was concerned with caregiver’s knowledge related to healthy nutrition of leukemic adult patients.

Part 4: This part was concerned with caregiver’s knowledge related to signs and symptoms of infection that may happen to leukemic adult patients.

Statistical Analysis: SPSS version 21 was used to evaluate, Frequency, percentage, mean of score, standard deviation, Pearson correlation and probability of variable quantity were determined.

RESULTS

Table 1: Distribution of Caregivers according to their Socio - demographic Variables (SDVs)

Age (Year)	No	%	Kinship with patient	No	%
20 – 30	33	33	Father	9	9
31 – 40	28	28	Mother	13	13
41 – 50	34	34	Brother	51	51
50 ≤	5	5	Sister	27	27
Total	100	100	Total	100	100

Gender	No	%	Residency	No	%
Male	60	60	Urban	69	69
Female	40	40	Rural	31	31
Total	100	100	Total	100	100
Occupation	No	%	Level of education	No	%
Unemployed	14	14	Illiterate	6	6
Governmental employee	24	24	Primary school	20	20
Private employee	33	33	Secondary school	30	30
Student	2	2	Diploma	16	16
Housewife	25	25	Bachelor +	28	28
Retired	2	2	Total	100	100
Total	100	100			
Duration as Caregivers	No	%			
3-6 month	41	41			
6-12 month	43	43			
1-3 years	16	16			
Total	100	100			

No: Number, %: Percentage

Table (1) indicated that the highest percentage of caregivers fall within the age range of 41–50 years (34%), with a nearly equal proportion aged 20–30 years (33%), and a slightly smaller group aged 31–40 years (28%). In terms of gender, males constitute 60% of the caregivers, The kinship relationship shows that more than half of caregivers are brothers (51%), followed by sisters (27%), with mothers and fathers making up 13% and 9% of the sample, respectively. Educationally, caregivers are most commonly at the secondary school level (30%), with 28% having attained a bachelor's degree or higher, 20% having completed primary school, and 16% holding a diploma. Regarding occupation, the highest percentage of caregivers are employed in the private sector (33%) or are housewives (25%), with government employees making up 24%, and smaller percentages being unemployed (14%), students (2%), or retired (2%). 69% of caregivers live in urban areas, while 31% reside in rural areas. The duration of caregiving varies, with 43% of caregivers having provided care for 6–12 months, 41% for 3–6 months, and 16% for 1–3 years.

Table (2): Evaluation of Caregivers’ General Knowledge related to Leukemic Disease (N=100)

General Knowledge related to Leukemic Disease	Me	SD	Ev
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	an		al.
1. eukemia is a disease which is called blood cancer.	1.50	.67 4	Go od
2. he exactly causes of leukemia is still unknown.	.93	.79 5	Fair
3. he definite diagnosis is made a by bone marrow examination.	.91	.76 7	Fair
4. he most common symptom of leukemia is pallor and. Long bone pain	1.05	.78 3	Fair
5. Leukemia can be treated only by chemotherapy.	1.47	.77 1	Go od
6. ommon side effects of chemotherapeutic agents are nausea and vomiting.	.91	.81 8	Fair
7. Alopecia results from chemotherapy treatment.	1.50	.74 5	Go od
8. one marrow transplantation can sometimes save patient's life.	.84	.81 3	Fair
9. atigue is a result of the disease process.	1.67	.68 2	Go od
10. eukemia is a disease which needs repeated hospitalization.	1.41	.80 5	Go od

SD: Standard Deviation, Eval: Evaluation, Poor= 0 – 0.66, Fair= 0.67 – 1.33, Good= 1.34 - 2

Table (2) indicates that caregivers have a good understanding of several key aspects of leukemia, particularly recognizing that leukemia is a type of blood cancer (M = 1.50, SD = .674), that it can be treated with chemotherapy (M = 1.47, SD = .771), and that fatigue is a common result of the disease (M = 1.67, SD = .682). However, their knowledge is only fair in areas such as understanding the causes of leukemia (M = .93, SD = .795), the role of bone marrow.

Table (3): Evaluation of Caregivers’ Knowledge related to Healthy Nutrition (N=100)

General Knowledge related to Healthy Nutrition	Me an	SD	Ev al.
1. oor diet increases fatigue.	1.61	.68 0	Go od
2. and washing and wear gloves before preparing food can reduce the risk of patient	1.01	.75 9	Fair

infection			
3. small meals and snacks when he/she has nausea.	1.49	.74 5	Go od
4. encourage to 5 or 6 small meals and snacks instead 3 large meals.	.76	.97 2	Fair
5. patients' needs large amount of fresh fruit and vegetables.	1.66	.55 5	Go od
6. fruits and vegetables that contain peels are most safety for patients	.89	.72 3	Fair
7. choose foods that are moist, soft and easy to chew and swallow.	1.37	.77 4	Go od
8. avoid fatty diet and fiber when the patient has diarrhea.	1.12	.92 4	Fair
9. patients' needs to drink 8 to 12 cups of clear liquids each day.	.61	.72 3	Poo r
10. patients' needs to clean mouth and teeth, after each meal and at bed time.	1.32	.82 7	Fair

SD: Standard Deviation, Eval: Evaluation, Poor= 0 – 0.66, Fair= 0.67 – 1.33, Good= 1.34 – 2

The findings in Table (3) indicate that caregivers possess good knowledge in key areas of healthy nutrition for leukemic patients, particularly in recognizing that a poor diet increases fatigue (M = 1.61, SD = .680) and that patients require large amounts of fresh fruits and vegetables (M = 1.66, SD = .555). However, their knowledge is fair in areas such as the importance of hand washing and wearing gloves before preparing food to reduce infection risk (M = 1.01, SD = .759) and avoiding fatty diets when the patient has diarrhea (M = 1.12, SD = .924). Notably, caregivers show poor understanding of the need for patients to drink 8 to 12 cups of clear liquids daily (M = .61, SD = .723).

Table (4): Evaluation of Caregivers' Knowledge related to Signs & Symptoms of Infection (N=100)

General Knowledge related to Signs & Symptoms of Infection	Me an	SD	Ev al.
1. increase body temperature	1.54	.70 2	Go od
2. excessive sweating	.88	.79 5	Fair
3. swollen or bleeding gums	1.56	.70 1	Go od

4. throat sore	.88	.868	Fair
5. coughing	1.20	.899	Fair
6. Rapid, shallow breathing	.49	.659	Poor
7. Chest pain that gets worse during deep breathing or coughing	.70	.798	Fair
8. Pain or burning with urination	1.59	.767	Good
9. Urine that's cloudy, foul-smelling or contains blood.	1.20	.853	Fair
10. Frequent diarrhea or loose bowel movements	1.45	.796	Good

SD: Standard Deviation, Eval: Evaluation, Poor= 0 – 0.66, Fair= 0.67 – 1.33, Good= 1.34 - 2

Table (4) shows that caregivers have good knowledge of several key infection symptoms, including an increase in body temperature (M = 1.54, SD = .702), swollen or bleeding gums (M = 1.56, SD = .701), pain or burning with urination (M = 1.59, SD = .767), and frequent diarrhea or loose bowel movements (M = 1.45, SD = .796). However, their knowledge is only fair regarding excessive sweating (M = .88, SD = .795), throat soreness (M = .88, SD = .868), coughing (M = 1.20, SD = .899), and chest pain during deep breathing or coughing (M = .70, SD = .798). Rapid, shallow breathing is particularly poorly understood (M = .49, SD = .659).

Table (5): Association between Overall Caregivers’ Knowledge and their Sociodemographic Variables

Variables	Correlation		
1. Age (year)	<i>Spearman Rank</i>	-.086	N.S
	<i>Significance</i>	.397	
2. Gender	<i>Point biserial</i>	.385	H.S
	<i>Significance</i>	..001	
3. Relationship with patient	<i>Spearman Rank</i>	.181	N.S
	<i>Significance</i>	.072	
4. Level of education	<i>Spearman Rank</i>	-.048	N.S
	<i>Significance</i>	.634	
5. Occupation	<i>Spearman Rank</i>	.370	H.S

	<i>Significance</i>	.001	
6. Residency	<i>Point biserial</i>	-.161	N.S
	<i>Significance</i>	.110	
7. Duration as caregiver	<i>Spearman Rank</i>	.137	N.S
	<i>Significance</i>	.175	

N.S: Not significant, H.S: High significant

Table (5) explores the relationship between caregivers' overall knowledge and their sociodemographic variables. It reveals that gender (Correlation = 0.385, p = 0.001) and occupation (Correlation = 0.370, p = 0.001) are significantly associated with caregivers' knowledge, indicating that these factors notably influence their understanding. In contrast, age, kinship with the patient, level of education, residency, and duration as a caregiver do not show significant correlations with overall knowledge.

Table (6): Overall Caregivers' Knowledge about Home Care of Leukemic Patients (N=100)

Knowledge	Level	No	%	M	SD	Evaluation
1. General knowledge related to leukemic disease*	Poor	0	0	12.19	1.721	Fair
	Fair	82	82			
	Good	18	18			
2. Knowledge related to healthy nutrition*	Poor	0	0	11.84	1.808	Fair
	Fair	79	79			
	Good	21	21			
3. Knowledge related to signs & symptoms of infection*	Poor	0	0	11.61	2.428	Fair
	Fair	81	81			
	Good	19	19			

Overall knowledge**	Poor	0	0	35.64	4.439	Fair
	Fair	8	8			
	Good	1	1			
		7	7			
		3	3			

No: Number, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score

***Poor= 0 – 0.66, Fair= 0.67 – 13.33, Good= 13.34 – 20**

****Poor = 0 – 20, Fair= 20.1 – 40, Good= 40.1 – 60**

Table (6) reveals that a significant proportion of caregivers, 87%, have a fair overall knowledge about the home care of leukemia patients, with a mean score of 35.64 (SD = 4.439). In specific areas, 82% of caregivers possess fair general knowledge related to leukemia (M = 12.19, SD = 1.721), 79% have fair knowledge about healthy nutrition (M = 11.84, SD = 1.808), and 81% have fair knowledge concerning the signs and symptoms of infection (M = 11.61, SD = 2.428). Notably, no caregivers fall into the poor knowledge category across all assessed areas.

Discussion

In the present study the highest percentage of caregivers fall within the age range of 41–50 years. In terms of gender, males constitute 60% of the caregivers. Jin, et al,2024 indicated that the age of samples was <30(38.68),31-40(32.63) and ≥41(28.68). The Male (52.76) while Female (47.24)⁽¹⁰⁾. Our finding result shows that the more than half of caregivers are brothers (51%). Educationally, caregivers are most commonly at the secondary school level (30%). Regarding occupation, the highest percentage of caregivers are employed in the private sector (33%). students (2%), 69% of caregivers live in urban areas. The duration of caregiving varies, with 43% of caregivers having provided care for 6–12 months. That was in agreement with a study in India mentioned that the among 150 caregivers of leukemia patients the education status of the caregivers of leukemia patients 63(42%)was having secondary education, 39(26%). 27(18%)caregivers of leukemia patients were unemployed. Most of the caregivers of leukemia patients in were residence of rural area 84(56%). Majority of caregivers of leukemia patients 60(40%) had duration as caregivers for 6-12months⁽¹¹⁾.

Our finding result shows that caregivers have a good understanding of several key aspects of leukemia, particularly recognizing that leukemia is a type of blood cancer (M = 1.50, SD = .674), that it can be treated with chemotherapy (M = 1.47, SD = .771), and that fatigue is a common result of the disease (M = 1.67, SD = .682). However, their knowledge is only fair in areas such as understanding the causes of leukemia (M = .93, SD = .795), the role of bone marrow. This disagree with Hasan, et al, 2014 that indicated to) 43.75)of caregivers know that leukemia is a type of blood cancer, and (31.25) understanding the leukemia can be treated by chemotherapy, (28.75) of caregivers know that Fatigue is a result of the disease process. Only (10%) understanding the causes of leukemia, and (20%) of caregivers know important of bone marrow to management

leukemia⁽¹²⁾.

Our study indicate that caregivers possess good knowledge in key areas of healthy nutrition for leukemic patients, particularly in recognizing that a poor diet increases fatigue ($M = 1.61$, $SD = .680$) and that patients require large amounts of fresh fruits and vegetables ($M = 1.66$, $SD = .555$). However, their knowledge is fair in areas such as the importance of hand washing and wearing gloves before preparing food to reduce infection risk ($M = 1.01$, $SD = .759$) and avoiding fatty diets when the patient has diarrhea ($M = 1.12$, $SD = .924$). Notably, caregivers show poor understanding of the need for patients to drink 8 to 12 cups of clear liquids daily. This agree with Mohammed, et al,2018 study that indicated (62.0) of caregivers answered that avoid constipation by drinking water, eating food rich with fibers, (88.0%) wash all fresh fruits and vegetables well before eating, (60.0%) Proper diet and avoid junky food, and disagree with use a toothbrush after meals and before going to sleep (70.0%)⁽¹³⁾.

Our study shows that caregivers have good knowledge of several key infection symptoms, including an increase in body temperature ($M = 1.54$, $SD = .702$), swollen or bleeding gums ($M = 1.56$, $SD = .701$), pain or burning with urination ($M = 1.59$, $SD = .767$), and frequent diarrhea or loose bowel movements ($M = 1.45$, $SD = .796$). However, their knowledge is only fair regarding excessive sweating ($M = .88$, $SD = .795$), throat soreness ($M = .88$, $SD = .868$), coughing ($M = 1.20$, $SD = .899$), and chest pain during deep breathing or coughing ($M = .70$, $SD = .798$). Rapid, shallow breathing is particularly poorly understood ($M = .49$, $SD = .659$). The finding agrees with Lamtrakul,2024 that revealed to the mean difference scores of infection prevention behaviors in the experimental group had significantly higher than those in the control group ($p < 0.05$). This result indicated the effectiveness of the Self-Care Deficit theory application's nursing intervention in enhancing infection prevention behaviors in family caregivers of preschool age with all⁽¹⁴⁾.

Our study indicated that significant proportion of caregivers, 87%, have a fair overall knowledge about the home care of leukemia patients, with a mean score of 35.64 ($SD = 4.439$). In specific areas, 82% of caregivers possess fair general knowledge related to leukemia ($M = 12.19$, $SD = 1.721$), 79% have fair knowledge about healthy nutrition ($M = 11.84$, $SD = 1.808$), and 81% have fair knowledge concerning the signs and symptoms of infection ($M = 11.61$, $SD = 2.428$). Notably, no caregivers fall into the poor knowledge category across all assessed areas. These results supported by a study done by Mohammed,etal,2018 in Iraq that who found the caregivers of adolescent leukemia patients had deficit in knowledge and low practices regarding home care management⁽¹³⁾.And disagree with Jin, etal,2024 study which indicated that the mean knowledge (8.30 ± 2.79 vs. 8.72 ± 2.56 , $P = 0.103$; total score: 12), the knowledge dimension, most participants answered correctly on questions about the cause, type, and treatment for leukemia, with a correct rate of $>90\%$ ⁽¹⁰⁾.

Our study indicated that the relationship between caregivers' overall knowledge and their sociodemographic variables. It reveals that gender (Correlation = 0.385, $p = 0.001$) and occupation (Correlation = 0.370, $p = 0.001$) are significantly associated with caregivers' knowledge, indicating that these factors notably influence their understanding. In contrast, age, kinship with the patient, level of education, residency, and duration as a caregiver do not show significant correlations with overall knowledge. This was in disagreement with a study of Tan, etal,2022 that indicated the Parents with tertiary education level had higher caregiving knowledge ($M=12.61$, $SD=3.37$) compared to parents with secondary education and below ($M=10.33$, $SD=3.80$) ($t=3.58$, $p<0.001$)⁽¹⁵⁾. and also disagree with Mohammed, etal,2018 that indicated There were significant relationship between level of education and caregiver knowledge⁽¹³⁾.

CONCLUSION: Our study found that the majority of caregivers were 41-50 group age, male, Private employee, have duration as caregiver 6-12 month, most caregivers were brothers, live in Urban, and Secondary school education. The caregivers of patient at the end of this research appeared fair overall knowledge about the home care of leukemia patients. This study recommends Creating special educational programs in a simplified manner that takes into account the different scientific levels of the companions, presented by nurses, including how to care for a hematology patient.

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