

Physical problems among leukemic adolescent patients undergoing chemotherapy in Erbil city

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Abstract

Background and objective: : Leukemia is a significant public health and life-threatening problem for pediatric cancer patients. Adolescents leukemic may face long periods of treatment; may describe the irritability, fatigue, bone pain, mouth ulcer, alopecia, and loss of appetite. The aim of the study was to assess the common physical problems among leukemic adolescent patients undergoing chemotherapy, and identify the association between their socio-demographic characteristics with physical problem.

Methods: A descriptive study was carried out in Nanakali Hospital for Blood Diseases / Erbil city from the period of /1st Nov. /2010 to/ 1st of Feb. /2011/. Eighty adolescent who are receiving chemotherapy in face to face interview, were selected regarding the study.

Results: The study shows that there were highly significant associations between socio-demographic characteristics with some of physical problems such as pain, fatigue, loss of appetite, and oral ulcer (mucositis).

Conclusion: The study shows that there were significant association between adolescent patient and some physical problems. The study recommends giving more support and attention by medical and nursing staff manage to reduce their physical problems.

Keywords: Physical Problems, Leukemic Adolescent, Chemotherapy.

Introduction

Leukemia is defined as a disease of the cells in which the normal mechanisms of control of growth and proliferation of white blood cells are disturbed ¹. In the United States, the number of newly-diagnosed cases of leukemia increased from 35,070 to 44,240 from 2006 to 2007 and In the United Kingdom, the incidence of acute lymphoblastic leukemia in children ages was 2,500 - 3,000 cases per year ². Leukemia in Iraq is accounting 6.35/100,000 of Iraqi population ³. Nanakali Hospital for Blood Diseases/ Erbil registered about 180 leukemic adolescent patients in 2010. The most common types of leukemia among adolescent are acute lymphoblastic leukemia (ALL), which accounts for 75–80% of childhood leukemia and acute myeloid

leukemia (AML), which accounts for 20–25% of childhood leukemia ⁴. Methods of treatment include chemotherapy, radiotherapy, and bone marrow transplantation ⁵. Chemotherapy is the most frequently used treatment modality in pediatric oncology ⁶, and has been proven to be the most effective treatment method for pediatric patients. Patients suffer grievously from side effects of treatment and disease ⁷. The majority of leukemic patients suffer from side effects of treatment and the disease ⁸. Annually one million patients with cancer receive chemotherapy each year, and 70%-80% of those patients experience adverse affects ⁹. The chemotherapy has serious impacts on physical, mental, emotional, and social changes. The chemotherapy

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results in patient's physical complications; i.e. neutropenia, anemia, thrombocytopenia, nausea, vomiting, fatigue, alopecia, stomatitis, and constipation^{10,11}. Diarrhea, constipation, anorexia, weakness, hair loss, and depression¹². Oral mucositis has long been an ignored toxicity in those patients who undergo anticancer therapies¹³. The side effects of chemotherapy are affects on all aspects of leukemic patient's life, such as; physical, social, and psychological domains¹⁴. Fatigue is a common and distressing symptom reported by adolescents at various stages of the cancer trajectory¹⁵. Studies show that cancer-related fatigue severity and distress in adolescents are higher in the early weeks of cancer treatment and gradually decline during and after therapy, and are affected by a number of factors including diagnosis, type of treatment, and treatment tolerance¹⁶. Fatigue can be a continuous symptom for some adolescent cancer survivors as they mature into adults, affecting social and career outcomes¹⁷.

Most leukemic adolescents' patients experience unpleasant physical side-effects; including reduced linear growth, compromised endocrine sensory functions, and damage to cardiac and reproductive system¹⁵. Leukemia influences adolescents emotionally, mentally, and physically. Fatigue and restlessness are common in leukemia patients¹⁶. The adolescent with cancer represents a major challenge to health-care professionals in that as well as having a serious illness. This period of life is an important period of growth and development that involves significant psychological, social, and maturational adjustments as adolescents move toward adulthood¹⁸. Unfortunately there is no other nursing study in the same filed in Erbil-Iraqi Kurdistan. The study aims to assess the common physical problems among adolescent leukemic patient undergoing chemotherapy, and to identify the association between socio-demographic characteristics and their physical problems.

Methods

A descriptive study was conducted in Nanakali Hospital for Blood Diseases in Erbil City, from /1st /Nov. / 2010 to /1st / Feb. /2011/. Eighty leukemic adolescent was selected to participate in the study. To achieve the aim of the study, a questionnaire format was designed related to extensive review of related literatures and studies which are the concept of physical problems, and translated to Kurdish language. Administrative permission was obtained from Nanakali Hospital for Blood Diseases and ethical consent was obtained from participants and their parents. The investigator used the direct interview (face to face) to fill out the questionnaire through a series meeting. The physical problems consist of 5 domains regarding the common physical complication among leukemic patients such as pain and discomfort, fatigue, oral ulcer, loss of appetite and infection. The intensity of the problems depends on the total scores, the (3) rating likert scale was used in the study. 1 = (15) for never, 2 = (30) for sometimes, and 3 = (45) for always. (Data was collected through direct interview with leukemic adolescent). The statistical package for social science (SPSS version 17) was used to determine the frequency, percentage and mean score, standard deviation and Chi-square test to measure the significant association between different variables p-value measured from ≤ 0.05 to 0.01.

Results

The result of the study shows that less than half (36.3%) were middle adolescent (14-16), (65%) were male, (66.3%) were living in urban areas, (72.5%) having low socio economic status (SES) , and (77.5%) . having ALL subtype . The study shows highly significantly association between pain, and discomfort and age (p-value 0.018), residency areas (p-value 0.001) respectively, the result shows that there is a significant association between adolescent age with fatigue (p-value

0.034), and also the study shows that there were a highly significant association between low SES with: oral ulcer, and loss of appetite (p-value 0.000) respectively.

Table 1: Socio-demographic characteristic of the study sample

Items	No.	%
Adolescent period		
Pre-adolescent (10 -13)	24	30
Middle adolescent (14 -16)	29	36.3
Late adolescent (17 -19)	27	33.7
Sex of patients		
Male	52	65
Female	28	35
Residency areas		
Urban	27	33.7
Rural	53	66.3
Socioeconomic status		
Low SES	58	72.5
Middle SES	20	25
High SES	2	2.5
Subtypes of leukemia		
ALL	62	77.5
AML	18	22.5
Total	80	100

Table 2: Association between adolescent age and pain and discomfort.

Score Adolescent age	Pain and discomfort								
	Never		Sometimes		Always		Total		
	N	%	N	%	N	%	N	%	
Preadolescent (10 – 13)	1	1.25	9	11.25	14	17.5	24	30	
Middle adolescent (14 -16)	2	2.5	13	16.25	14	17.5	<u>29</u>	36.25	
Late adolescent (17 -19)	2	2.5	9	11.25	16	20	27	33.75	
Total	5	6.25	31	38.75	44	55	80	100	
$X^2 = 32.759^a$		df = 4		p value = 0.018					

Table 3: Association between pain and residency areas

Score Residency areas	Pain and discomfort								
	Never		Sometimes		Always		Total		
	N	%	N	%	N	%	N	%	
Urban	1	1.25	6	7.5	20	27	27	33.75	
Rural	1	1.25	11	13.75	41	51.25	<u>53</u>	66.25	
Total	2	2.5	17	21.25	61	76.25	80	100	
$X^2 = 17.280^a$		df = 2		p-value = 0.05					

Table 4: Association between fatigue with adolescent age.

Score Adolescent period	Fatigue								
	Never		Sometimes		Always		Total		
	N	%	N	%	N	%	N	%	
Preadolescent (10 -13)	14	17.5	23	28.75	22	27.5	<u>59</u>	73.75	
Middle adolescent (14 -16)	3	3.75	10	12.5	0	0	13	16.25	
Late adolescent (17 -19)	0	0	5	6.25	3	3.75	8	10	
Total	17	21.25	38	47.5	25	31.25	80	100	
$x^2 = 10.391^a$		df = 4		p-value = 0.034					

Table5: Association between oral ulcer and Socio-Economic Status.

Score SES	Oral ulcer								
	Never		Sometimes		Always		Total		
	N	%	N	%	N	%	N	%	
Low SES	4	5	22	27.5	32	40	58	72.5	
Middle SES	1	125	8	10	11	1.75	20	25	
High SES	0	0	1	1.25	1	1.25	2	2.5	
Total	5	6.25	31	38.75	44	55	80	100	
$X^2 = 26.721^a$		df= 4		p-value= 0.000					

Table 6: Association between loss of appetite and Socio-Economic Status.

Score (SES)	Loss of appetite								
	Never		Sometimes		Always		Total		
	N	%	N	%	N	%	N	%	
Low SES	2	2.5	29	36.25	27	33.75	58	72.5	
Middle SES	2	2.5	7	8.75	11	13.75	20	25	
High SES	1	1.25	1	1.25	0	0	2	2.5	
Total	5	6.25	37	46.25	38	47.5	80	100	
$X^2 = 40.866^a$		df=4		p-value=				0.000	

Discussion

Our study shows that there were only one third of leukemic adolescent located in side the middle adolescent age. This in contrast with a study was done in Singapore showed that the median age of adolescent cancer patient was 11 years old¹⁶. The study found that there were more than half were male, this result in agreement with a study indicate that the (64.3%) were male¹⁷, other study which found that the total score for patients with leukemia in male were highest than female¹⁸, and with study

that found there was association between age of patients and leukemia disease and found 57% were male and 43% were female¹⁹. This study found the majority of adolescent were coming from rural areas they were far away at least 200 kilometer for Nanakali Hospital for blood Disease, this was in agreement with Al-Jauissy which found that the distance between participants' home and hospital ranged from 20 to 60 miles, and it is time required to travel from home to hospital. There is a significant association between cancer adolescents and their rural living²⁰.

Our study found that most of patients were coming from Low SES. In a study conducted in Brazil found that most of adolescents were in intermediate SES¹⁷. The distribution of social class groups shows that the majority (76.7%) of cancer families belonged to poor SES⁸. The study revealed that the majority of leukemic patient in our study affected by ALL sub types were more than AML subtype, this was in agreement with others stated 75% to 80% leukemia among children is ALL subtype¹⁷. (77.5%) with ALL subtype²¹. The study showed that there was a significant association between adolescent patients and their pains, (p-value 0.018). Brazilian researchers found that there were significant association between 'pain and hurt', 'nausea', anxiety' and 'treatment anxiety' and cancer child at (p < 0.05)¹⁸. The study revealed that there was a significant association between residency status of patients and their pain (p-value 0.05), another study stated that those with lower household income patient had worse physical problems such as pain²². Our study showed that there was a significant association between adolescent period and fatigue (p-value 0.037). Up to 75% of adolescents reported that "feeling tired"¹⁹. Fatigue is a common and distressing symptom reported by adolescents at various stages of the cancer trajectory¹⁵. Cancer-related fatigue severity and distress in adolescents were higher in the early weeks of cancer treatment and gradually declined during and after therapy, and were affected by a number of factors including diagnosis, type of treatment, and treatment tolerance¹⁶. Fatigue could be a significant symptom for some adolescent cancer survivors^{17,23}. This study showed that there is a highly significant association between SES and oral ulcer at p-value 0.000. Myelosuppression, mucositis, nausea, and vomiting were the most common side effects following administration of antimetabolites^{24,25}. Oral health influenced both the development and the severity of treatment related mucositis²⁶. About 40% of patients who receiving standard dose

chemotherapy such as Methotrexat and Lecovorin complains from mucositis. Other risk factors include patient's age, poor health, and nutrition, which can allow bacterial and fungal to grow²⁷. Our study shows that there is a highly significant association between SES and loss of appetite at p-value 0.000. This was in agreement with study indicated that patients from low SES backgrounds showed more problems with physical and mobility, energy, and physical function²⁸. Malnutrition and the socio-economic and cultural background of the family seem to be very important even in regions where facilities are substantially adequate²⁹. Researchers suggest that some non-occupational aspects of poverty lead to lower survival, independently of the stage of disease at diagnosis and they found an association between cancers²⁸.

Conclusion

This study found the majority of adolescent leukemic patient were male, most of them suffering from ALL, coming from rural areas, and living with low socio-economic status, and indicated with physical problems such as pain, fatigue, loss of appetite and oral ulcer have significant association with adolescent leukemic.

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