Effectiveness of Teaching Program on Management of Anemia Among Cancer Patients Receiving Chemotherapy in Elmak Nimir University Hospital

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Abstract:

Background: Chemotherapy is the use of drugs or medications for cancer treatment. The medicationsenter the body and circulate, seeking to destroy cancer cells, but it can be harmful to the healthy cell and causes side effect . It is understandable that you may be anxious about starting chemotherapy. There are several goals when using chemotherapy; cure, gaining control of cancer, and palliation. **Objectives**: The aims of this study to assess the effectiveness of planned education program given to patients receiving chemotherapy about anemia and fatigue ability follow chemotherapy and to evaluate of nursing interventions on self care practice of patients on chemotherapy. **Methodology**: This quasi-experimental study designed was conducted in oncology unit in Elmak Nimer University Hospital from December 2012 to June 2015 ,. A total convenient sample of 60 patients were included. It was designed in three steps: pre-program, program intervention and post program . Data was collected by interviewing the patients using structured questionnaire about self care practice regarding anemia and fatigue ability after receiving chemotherapy. **Results** :The duration of sleeping among studied group was restricted into 4-8 hours during the day in (53,3%) pre intervention versus (13.3%) in post intervention which increased (85 %) in post vs (45%) in pre were sleeping more than 8 hours with P.value (0.000), symptoms of anemia like sense of dizziness or faint, about (33.3%) of group in pre program sometimes feel it while (63.3%) of them had no feeling compared to (8.3%) in post had sometimes feeling and (90%) had no feeling .P.value (0.001).**Conclusion :**Females were predominant among study group and third of studied patients were illiterate. Symptoms of anemia and fatigability were decreased after the program. Knowledge of the group before the program was poor regarding management of anemia and fatigue ability with significant improvement in post program.

Keywords: Anemia ; Cancer ; Chemotherapy ;Patients ; Sudan

Introduction

Cancer is one of the leading causes of morbidity and mortality in developed and developing countries. More than 11 million new cases of cancer are diagnosed each year and that number is expected to rise to 16 million by 2020. Cancer is responsible for 7 million or 12.5% of all deaths worldwide. The global burden of diseases is shifting from communicable diseases to non communicable diseases [(1)]. The non communicable diseases are increasingly recognized as a major cause of morbidity and mortality i.e. accounts for about 60% of deaths worldwide. In the developed countries the cancer is the second leading cause and in developed countries cancer ranks third as a cause of death [(2)].

The most important effect of chemotherapy is that it kills cancer cells. However, chemotherapy can also affect normal cells and this may cause side effects which vary greatly. Some people will have no side effects, others will experience a few. Reactions vary from person to person, according to the type of drugs used, and from one treatment period to the next. Side effects usually start during the first few weeks of treatment. Fortunately, most are temporary and can be managed during treatment [(3)]. In chemotherapy, anti neoplastic agents are used in an attempt to destroy tumor cells by interfering with cellular functions and reproduction [(4)]. The chemotherapy leads to side effects which generally depend on the type of therapy being offered. Most chemotherapy side effects cease after treatment. Although uncommon, some treatments may produce long-term effects [(5)]. The most common side effects of chemotherapy are anemia , diarrhea , constipation, fatigue, fertility issues, hair changes, infection, memory loss, menopause and menopausal symptoms, mouth and throat sores, nail changes, neuropathy, bleeding, pain, nausea and vomiting, weight changes, osteoporosis, heart problems, vision problems, flu-like symptoms and fluid retention[(6)]

Materials and methods

This is a quasi experimental, hospital based study , carried in the period from October 2012 to June 2015 . It was designed in three steps: pre-program, program intervention and post program . Data was collected by interviewing the patients using structured questionnaire about self care practice regarding anemia and fatigue ability after receiving chemotherapy. They were asked about Frequency of signs and symptoms of fatigability and anemia, knowledge of patients about causes of fatigability, time of fatigability, action done after feeling tired and knowledge of patients regarding fluid intake and dietary plane.

A health educational program was developed to increase patients' knowledge and encourage self care by changing patient attitude regarding anemia and fatigability following chemotherapy .The evaluation was done with the same questionnaire in pre and post program.

A total convenient sample of sixty patients in the study period. Patients included were 18 years or older , who received at least one cycle of chemotherapy. Patient receiving concomitant chemo-radiotherapy were excluded

Score system:

Knowledge: For the knowledge items, a correct response was scored (1) and the incorrect (zero). For each area of knowledge, the scores of the items were sum med-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score. Knowledge was considered good if the percent score was 75% or more, satisfy if the percentage score between 40%-75% and poor if the percentage less than 40%.

Data collection technique:

Three tools were used to collect data: a socio demographic characteristics data form, knowledge about common chemotherapy side effect and attitude of patients regarding management of developing side effect.

Pretest: This was done on the day of dose administration to assess the knowledge and attitude of patient regarding chemotherapy side effects.

Posttest: The same questionnaire was done in post test to evaluate the effect of the program.

- Periods of pre and post test took 1year and 3months.The evaluation was done every 3 weeks depending on availability of patients.

Health educational program:-

An educational program intervention was developed in small book in simple Arabic language included image to facilitate learning to the patients, increase patients' knowledge and changing patient attitude regarding anemia and fatigue ability management .The time of meeting with study group was weekly in the hot day (the day of administration of doses) in the oncology department, the program was introduced as lecture after pre test which filled by researcher .

Results:

A total of 60 patients were enrolled in the study , (76.7%) of them were female . The commonest age distribution was 46-55 years .Level of education of studied patients was in

(28.3%) primary level ,(26.7%) were secondary , and (33.3%)were illiterate . Regarding marital status (76.7 %) were married .

Table (1): Personal Characteristic (Gender, Age, Tribe, Residence, Occupation Marital Status and Education))

Gender	**Frequency**				**Percent %**	
Male	14				23.3	
Female	46				76.7	
Total	60				100	
Age	**Frequency**				**Percent %**	
18-25 years	8				13.3	
26-35 years	2				3.3	
36-45years	12				20.0	
46-55 years	20				33.3	
56-65 years	12				20.0	
above 65 years	6				10.0	
Total	60				100.0	
Employments	**Male**		**Female**		**Frequency**	**Total %**
	F	**%**	**F**	**%**		
Un employed	3	5	38	63.3	41	68.3
Employed	4	6.6	4	6.7	8	13.3
Laborer	1	1.7	0	0	1	1.7
Professional	0	0	1	1.7	1	1.7
Free worker	6	10	3	5	9	15.0
Total	14	23.4	46	76.7	60	100.0
Marital Status	**Male**		**Female**		**Frequency**	**Total %**
	F	**%**	**F**	**%**		
Married	12	20	34	56.7	46	76.7
Single	1	1.7	12	20	13	21.7
Divorced	0	0	1	1.7	1	1.7
Total	13	21.7	47	78.3	60	100.0
Educational level	**Male**		**Female**		**Frequency**	**Total %**
	F	**%**	**F**	**%**		
Illiterate	5	8.3	15	25	20	33.3
Khalwa	1	1.7	1	1.7	2	3.3
Primary	4	6.7	13	21.7	17	28.3
Secondary	4	6.7	12	20	16	26.7
University	1	1.7	4	6.7	5	8.3
Total	15	25	45	75	6o	100.0

Table (2) showed symptoms of anemia .Regarding sense of dizziness or faint, about (33.3%) of group in pre program sometimes feel it while (63.3%) of them had no feeling compared to (8.3%) in post had sometimes feeling and (90%) had no feeling .P.value (0.001).

Fatigability occurrence was reported always by (18.3%) in pre test versus (5%) in post test with P.value (0.000).About (81,7%) of group had no shortness of breathing compared to (93.3%) in post test .P .value (0.019).

Patient knowledge about causes of fatigability and time of occurrence it was shown in table (3) .The knowledge of the group about causes of fatigue was good in (45%) pre intervention versus (86%), with P.value 0.000.Times of feeling fatigability at rest was in (25%)in pre intervention versus (11.7%) in post intervention while there having fatigability with mild exertion were (43.3%) in pre test compare to (6.7%) in post test .P.value (0.000).

Duration of sleeping among studied group was restricted into 4-8 hours during the day in (53,3%) pre intervention versus (13.3%) in post intervention which increased (85 %) in post vs (45%) in pre were sleeping more than 8 hours with P.value (0.000) Action done before getting up in (31.7%) in pre, and (88.3%) in post is sitting for moment before standing and (63.3%) in pre versus (11.7%) in post were standing directly= (0.000).This is shown in table (4).

Table (5) showed anemia nutritional patterns. Regarding amount of fluids taking during day, (23.3%) took less than 1liter in pre versus (5%) in post while (43.3%) took 3litrs and above in pre and (78.3%) in post with P.value (0.001). Regarding meal frequent (26.7%) have 2meals, (46.7%) have 3 meals ,and (26.7%) 4-6 meals in pre .In post (13.3%) have 2meals,(28.3%) have 3meals and (58.3%) have 4-6 meals P.value 0.000.Compilance to iron pills was adequate (51.7%) and (18.3%) not take it in pre, in post (55%) were takening regularly and (8.3%) not taken P.value is (0.775).

Table (2): Presence of symptoms of anemia (dizziness- fatigability-shortness of breathing)

Feeling of dizziness or faint	Before intervention		After intervention		P-value
	F	%	F	%	
Always	2	3.3	1	1.7	0.001
Some times	20	33.3	5	8.3	
No feeling	38	63.3	54	90.0	
Total	60	100.0	60	100.0	
Feeling of fatigability					
Always	11	18.3	3	5.0	0.000
Sometimes	40	66.7	23	38.3	
No feeling	9	15.0	34	56.7	
Total	60	100.0	60	100.0	
Sense of shortness of breathing					
Always	2	3.3	0	0	0.019
Some times	9	15.0	4	6.7	
No shortness of breathing	49	81.7	56	93.3	
Total	60	100.0	60	100.0	

Table (3): Fatigability (causes and time of occurrence)

knowledge of patient about causes of fatigability	Before intervention		After intervention		P-value
	F	%	F	%	
Good	27	45.0	52	86.7	0.000
Satisfy	7	11.7	1	1.7	
Poor	26	43.3	7	11.7	
Total	60	100.0	60	100.0	
Time of feeling fatigue					
At rest	15	25.0	7	11.7	0.000
At mild activities	26	43.3	15	25.0	
At moderate activities	5	8.3	4	6.7	
At severe activates	9	15.0	9	15.0	
No feeling	5	8.3	25	41.7	
Total	60	100.0	60	100.0	

Table (4): Self care practice for fatigability

Action done after feeling fatigue	Before intervention		After intervention		P-value
	F	%	F	%	
Good	6	10.0	44	73.3	0.000
Satisfy	10	16.7	7	11.7	
Poor	44	73.3	9	15.0	
Total	60	100.0	60	1000	
Duration of sleeping in the day					
2-3houres	1	1.7	1	1.7	0.000
4-8houres	32	53.3	8	13.3	
More than 8houres	27	45.0	51	85.0	
Total	60	100.0	60	100.0	
Action taken when getting up					
Sit for a moment before standing	19	31.7	53	88.3	0.000
Stand up directly	41	68.3	7	11.7	
Total	60	100.0	60	100.0	

Table (5): Anemia nutritional patterns

Number of meals during the day	Before intervention		After intervention		P-value
	F	%	F	%	
2meals	16	26.7	8	13.3	0.000
3meals	28	46.7	17	28.3	
4-6 meals	16	26.7	35	58.3	
Total	60	100.0	60	100.0	
Amount of fluids taken during day					
Less than 1liters	14	23.3	3	5.0	0.001
1- < 3litrs	20	33.3	10	16.7	
3litrs &above	26	43.3	47	78.3	
Total	60	100.0	60	100.0	
Compliance to iron pills					
Regular	31	51.7	33	55.0	0.755
Irregular	6	10.0	4	6.7	
not taken	11	18.3	5	8.3	
not prescribed	12	20.0	18	30.0	
Total	60	100.0	60	100.0	

4. Discussion

The role of nursing intervention is to improve health and to increase self care practice. All persons require self-care in some manner in order to maintain an optimal level of health and well being. In relation to oncology patients receiving outpatient chemotherapy

treatments, side effect management is the self-care process that patients perform in order to maintain well being . Nursing research has documented that patient's benefit from education about their disease, treatment and specific chemotherapy instruction [7].

The characteristic of the study group showed that females were (76.3%). This correlates with the first National Population-based Cancer Registry in Sudan, 6771 new cancer cases were registered. Of those, (53.8%) were women and (46.2%) were men [8].The commonest (33.3%) age range was (46-55) years which are the midlife age [9]. This was compatible with White MC1.et al. who reported that midlife is a period of life when the prevalence of multiple cancer risk factors is high and incidence rates begin to increase for many types of cancer. Because the number of adults reaching older ages is increasing rapidly, the number of new cancer cases will also increase if current incidence rates remain unchanged [10].

Education was ranged from illiterate to university graduation and most of them were unemployed (68 %).This correlated with Eid. M .et al who found that most of the patients had no work, this may be due to many factors, among them age, disabilities caused by the disease itself, its treatment schedule or the side -effects of the drugs [11].

Anemia can lead to numerous health problems including chronic fatigue, tachycardia, cognitive impairment, shortness of breath, depression and dizziness. Cancer patients who develop anemia have a 65 percent increased risk of death compared with cancer patients without anemia [12].

Symptoms of anemia and fatigability were decreased after the program with P.value 0.000 .Henry D etal studied cancer patient's experience of fatigue and found it the most common side effect of cancer therapy, reported by 79% of respondents. Almost two out of three patients rated their fatigue to be debilitating, and one in three patients considered a reduction in fatigue to be very important [13].

Knowledge about causes of fatigability was poor in (45.3%) of patients in pretest reduced to only (11.7%) after the program .Fatigability has multiple causes, including anemia, tumor burden, antitumor treatment, and depression. Fatigue was mostly related by Henry DH, to treatment, as significantly worse levels of fatigue were

reported by those undergoing current therapy [13] In this regard Ibrahim R ,stated that fatigue and lethargy were noted to be the two most frequent and significant problems associated with chemotherapy. This could be due to anemia, pain, trouble sleeping, trouble breathing, appetite changes and infection [14].

Self care practice after feeling fatigue was good in (10%)of patients in pre versus (73,3%) in post by getting rest , scheduled work , sleeping for more than eight hours and letting others to help with P=0.000 .this goes with the practice found by(Dean D and Ferrel B) for fatigue that the majority of patients were limited their daily home activities and routine work consequently for few days after chemotherapy[15].

Cancer-related anemia adversely affects quality of life and is associated with reduced overall survival. The correction of anemia in cancer patients has the potential to improve treatment efficacy and increase survival [16] .The attitude of patients regarding nutritional pattern was changed in post test that the proper amount of fluids during the day which is≥ 3 liters was increased from (43.3%) to (78.3%) with P.value 0.001.The patients accepted to change their number of meals to 4-6 /day (P = 0.000) and their compliance to iron pills was improved.

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