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Study on the Quality of Life Among the Cancer Patients at the Sari Comprehensive Cancer Center in 2017

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ABSTRACT

Background: Cancer is a disease caused by abnormal cells shape change and loss of cell variation. Cancer patients suffer from mental and physical problems, which affect their social quality of life (QOL). A cancer diagnosis and its treatment can be expensive. **Methods:** In this descriptive-analytical and cross-sectional study, 183 patients referring to the Sari Comprehensive Cancer Center were enrolled. The data on QOL of patients and the cost of diagnosis and treatment were collected in QLQ questionnaire-C30. The obtained Data were analyzed using the Kruskal-Wallis test of the correlation coefficient, the Mann–Whitney U-test, ANOVA and T-test. **Results:** The average cost of treating patients in a comprehensive cancer center was \$20161801 and the average QOL was 2.43 (5 points). Therefore, the patients achieved, 2.41% of the QOL per one million rials. **Conclusions:** Considering the average QOL for cancer patients at Sari Comprehensive Cancer Center and the hospital cost, the evaluation of the patients from the view point of the hospital equipment was positive. **Keywords: Cancer Patients, Quality of Life, Hospital Treatment Cost.**

1. INTRODUCTION

The pattern of mortality in the world and Iran has been changed and causes of mortality in the world from infectious diseases such as, AIDS and malaria, transferred to the heart disease and cancer. The incidence of cancer and heart diseases is more observed in the elderlies (1). At global scale It is also foreseen that, the death of 4.7 million in 2004, will increase to 7.9 million in 2030 (2). Cancer rate in Iran is about one-fifth to one-sixth of the Western countries, more than the African countries and same as the neighboring countries. Among the region countries, and many other countries

Iran has the highest cancer rate (3). Furthermore, to mortality, leading to disability and mental condition for the patients and similar problems for their relatives too (4). Progress of treatment led to the long-term survival and a better control of the disease and the treatment complications. Some cancer patients are treated with chemotherapy or chemotherapy in combination with radiotherapy and surgery. Despite majority of patients face with a wide range of symptoms and side effects such as, nausea, vomiting, pain, insomnia, anorexia, and fatigue (5, 6). In addition, mental and social problems are followed with the diagnosis of cancer (7). For some patients, the diagnosis and treatment of cancer, is followed with a sedentary everyday life (8). Therefore, with the loss of muscle strength and tonicity (9, 10). Cancer is a very unpleasant and unbelievable experience for anyone. Cancer affects the economic, social, and family life of the patient from the psychological, and sexual aspects (11). Studies in cancer patients showed that the severity of symptoms and stresses affects the QOL (12). Cancer constitutes a threat to the individuals' independence and ability to participate effectively in the family and community, and leads him to a sense of lack of competence and uncertainty (13). The factors affecting QOL of cancer patients are not only the physiological changes, but also the psychological state, the reaction of the patient to the results of diagnostic tests, the stages of sadness, grief and anger, and all of them effects on QOL the patient (14). Selection of a hospital for cancer patients has an effect on the QOL and the satisfaction of these patients.

Cancer affects the QOL of the patient and his or her family (15). The changes in the QOL of patients prior to and 8 weeks after the completion of treatment indicated the effect of treatment in the QOL of cancer patients (16). Early diagnosis of this disease, increases the possibility of success-

ful treatment, chance of long-term survival and the QOL and patient satisfaction. The World Health Organization defines health as physical, psychological, and social health (17). In 1986, the European Organization of Research on Treatment of Cancer (EORTC) launched a research program to create an integrated approach to assessing the QOL of patients participating in international trials that reviewed the application and reliability of the EORTC QLQ-C30 questionnaire.

The QLQ-C30 has nine multifunctional scales: five functional scale (physical, role playing, cognitive, emotional and social); Three signs (fatigue, pain and nausea and vomiting); and the health scale and the QOL. Validity and durability of the questionnaire were evaluated in three groups with different cultures. Patients from the European countries were studied. The results showed that the EORTC QLQ-C30 questionnaire can be used as a valid criterion for the QOL of cancer patients in clinical trials (18). Changes in QOL are usually measured using some types of scales. Scales could be based on specific or general conditions, and include a wide range of dimensions of QOL associated with health. Most of the scales have many dimensions that measure changes could be done through them. In addition, some scales have dependent algorithms that can be used to calculate overall scores or measure changes in health-related QOL (19).

This study was conducted to determine the QOL of patients at the Sari Comprehensive Cancer Center in 2016. It is hoped that the obtained data study help improve the QOL of cancer patients. Assessment of the QOL of cancer patients is to estimate the effectiveness of treatment and by dividing it to the average cost, it is possible to calculate the effectiveness of their treatment.

2. MATERIALS AND METHODS

This descriptive and cross sectional study was carried out in 2016 using a questionnaire divided into three sections. The first section on the demographic information, such as age, sex, marital status, insurance status, educational status, place of residence, occupation, income level, which is about general evaluation of health status and QOL.

The second section consists of QLQ-C30 questionnaire with has 28 questions and 4 functional areas (physical, role playing, emotional, social) and 11 areas of pain symptoms (fatigue, nausea, vomiting, pain, shortness of breath, sleep deprivation, weakness, loss of appetite, constipation, Diarrhea and need to rest). The questionnaire belongs to the European Cancer Research and Treatment Organization, which is used in general to assess the QOL in cancer patients.

The answers to these questions are categorized in Likert scale (in any way–low–moderate–high and very high). Validity of the questionnaire has been used in many scientific texts (15). To measure its reliability, it was done through pilot and Cronbach's alpha, calculation, and it was stated in Table 1. For the third section, the cost data of the cancer patients were used. After obtaining the consent, this section was completed by the financial offices of the hospital. This questionnaire includes the hospital cost of cancer patients, which are charges of the bed, physician visit, counseling, surgery, endoscopy, chemotherapy, disposable materials, cost of the operating room, Endoscopic, Chemotherapy, Nosography, Pathology, Laboratory, Radiology, Nuclear Medicine, CT Scan, Anesthe-

Variable	Dimension	N. of Questions	Questions	Cronbach's alpha
QOL	Physical	5	1-5	0.845
	Role playing	5	6,7,19,20,25	0.824
	Pain	11	8-18	0.869
	Emotional	4	21-24	0.904
	Social	3	26-28	0.880
	Total	28	1-28	0.945

Table 1. QOL variables, dimensions, number of questions and Cronbach's alpha

sia, operation Room Service, Nursing Costs, Physiotherapy, etc. This study was conducted based on the variables under investigation (QOL and medical expenses), of the patients admitted to the Sari comprehensive cancer center.

The total number of registered patients with the C50 code number in the medical records file was 3750. Of these, 440 monthly referred for chemotherapy or other medical services. Morgan table was used to determine the sample size. According to the society under study and using Morgan table, 205 samples were enrolled. The data were analyzed using SPSS-18 software, Kruskal–Wallis, the Mann–Whitney U-test, T-test and ANOVA tests.

3. FINDINGS

The obtained data were presented in descriptive and analytical sections. In the descriptive section, the demographic variables in the study subjects and the QOL dimensions in the medical center have been expressed, and in the analytical section, the relationships between different dimensions were examined. Most, 58 (31.7%) of the referring patients were with the mean age of (51-60 yr.) and the lowest number with the mean age less than 20 yr. (0.5%). The highest number of cases were employed, 22 (12.10%) and the lowest number 12(6.6%) were drivers. The education in highest number of patients 51 (27.9%). was high secondary school and above. Most of the patients 52 (27.9%) had income of about 375 US dollar, .9%) and the lowest income in 37 (20.2%), (Table 2). Majority of the study subjects (28.3%) assessed their health well (Table 3). The dimensions of health assessment of the subjects under study were as follow: good (51 (28.3%), bad in 49(26.3%), average 43 (23.5%) and very bad 40(21.9%). The highest charge of cancer patients in the Sari comprehensive cancer center is 243 to 30588040 US dollar with average and standard deviation of 504± 3491 US dollar.

QOL assessment

The mean of QOL in physical aspect 2.51, role play 2.34, pain dimension 2.35, emotional dimension 2.62, social dimension 2.50 and the total 2.43 was achieved.

The relationship between QOL of patients with demographic variables

* Based on the Kruskal-Wallis test, QOL is significant in terms of income among the patients ($P < 0.05$). As shown by the two by two comparison, this significant difference is only observed in the patients' earnings less than 250 US dollar.

* Based on the Kruskal-Wallis test, QOL is significant in terms of educational level ($P < 0.05$). By tow by tow comparison, it was shown that this difference was observed in the pa-

Variable	Frequency	%	
Age	Less 20	1	0.5
	21-30	6	3.3
	31-40	31	16.9
	41-50	37	20.2
	51-60	58	31.7
	61+	50	27.4
	total	100	183
Profession	Housewife	20	10.92
	Employed	22	12.10
	Unemployed	16	8.74
	Business man	14	7.70
	Retired	14	7.70
	Disable	20	10.92
	Farmer	13	7.11
	Teacher	18	9.84
	Student	15	8.20
	Driver	12	6.60
	Worker	19	10.17
	Total	183	100
	Education	Illiterate	39
Elementary		43	23.5
High school		50	27.3
12 standard and higher		51	27.9
Total		183	100
Income	Less than 222 US dollar	43	23.5
	222 to 375 US dollar	52	28.4
	375 to 444	37	20.2
	More than 375 US \$	51	27.9
	Total	183	100
Gender	Male	83	45.35
	Female	100	54.65
Insurance	Health	63	34.4
	Life insurance	63	34.4
	Etc.	57	31.2
	Total	183	100
Living place	City	114	62.3
	Village	69	37.7
	Total	183	100
Marital status	Bachelor	40	21.86
	Married	143	78.14
	Total	183	100

Table 2. Demographic table of cancer patients at the Sari Comprehensive Cancer Center

SD	Mean	QOL
1.13	2.51	Physical aspect
1.12	2.34	Role playing aspect
1.09	2.35	Pain aspect
1.12	2.62	Emotional aspect
1.16	2.50	Social aspect
1.13	2.43	Quality aspect

Table 3. QOL for cancer patients in the Sari comprehensive cancer center

tients with PhD education. This means that with an increase in the level of education of patients, their QOL increases.

* Based on the results of the Kruskal-Wallis test, QOL has a positive and significant relationship with the health status ($P < 0.01$), to that extent that by the two by two comparison, the statistical difference is significant in the medium and high

scales. This means that QOL increases with the increases of health status.

The relationship between costs of patients with demographic variables

In this study, among the demographic variables, only educational status and income were significantly correlated with hospital charges of the patient ($p < 0.05$).

* According to the Kruskal-Wallis test, there is a negative and significant relationship between health status and hospital expenses of the patient ($P < 0/01$). The highest cost was for patients who rated their health and their QOL badly.

As a result, the health status of patients has reverse relationship with the cost that is the more they spend, the lower the health status.

* Based on to the Kruskal-Wallis test, there is a negative and significant relationship between QOL and patient costs ($P < 0.01$). The highest cost was for patients who rated their health and their QOL badly. As a result, the QOL of patients is analyzed, like their health status.

Determining of the cost-effectiveness of patient treatment

As shown in the Table 2, the average cost of the QOL's effectiveness in the comprehensive cancer center is 58.4%. In other words, the patients per spending 222 US dollar achieve about 5% of their QOL.

4. DISCUSSION

The main objective of this study was to evaluate the QOL of patients admitted in the Sari comprehensive cancer center in 2016. The calculation of effectiveness was performed with the QOL indicator and from the total cost of the patients' bills, the cost was obtained. To achieve this goal, the QLQ-C30 questionnaire was used to assess the QOL of cancer patients and to obtain patient bill the financial offices of specialized and public hospitals were used. Nematollahi found that the QOL of the majority of cancer patients (66%) was moderate, which is consistent with our data (20). But the data of Moshtagh indicated poor the QOL of women with breast cancer in Mashhad (Iran) (21). In other words, the majority of patients have poor QOL and only a few have high QOL. Several studies have found that many patients complained of complications from surgery and chemotherapy like, gastrointestinal disorders, immune system weakness, hair loss, and so on. They posed pain and swelling in their hands, fatigue, and reduced ability to do their daily tasks as the most important physical problems (22). Most of them had the ability to perform their daily routine activities, but they needed help from spouse, children and relatives (23). Cancer causes physical as well as psychological problems, such as denial, anger and feeling guilty for patients. Presence of anger with invasion and violence, cardiovascular disorders, and incompatibilities have been confirmed (24). Many cancer patients are depressed and do not care about themselves. That is, prevention of emotional disorders such as, depression in cancer patients is necessary because depression can decrease their QOL, and interventions to reduce depression can lead to improved QOL (25). Relaxation as an independent therapy could have very good outcomes (26). This is a kind of intervention method that uses the psycho-immunology to regulate physiological activity in various body organs. Thus, the person gets rids of everyday

stress, preserves energy, confusion decreases, the person takes more pleasure of life, and the feeling of calm and safety increases about the life (27). People with a better economic situation will experience less financial distress and because they are less worried about high costs of treatment, job loss and salaries, which result in better QOL (28). Cancer not only affects the overall QOL of patients, but also affects the QOL of single members of their families. For this reason, the families of these patients need a lot of social support to better adapt to the threats and problems associated with the disease. The adequate support to the families of patients improves the QOL of family members and provides the best support for patients finally improving their QOL (29). In this study, the larger the size of the social network, the more people understood social support. A large supportive network, through a large amount of financial assistance and greater security in the socioeconomic context, can have a positive effect on the QOL of cancer patients (30). The data reported by Boev in the United States showed patients have a high degree of satisfaction with management and overall quality in nursing care. Patient satisfaction with nursing services is a very important indicator for evaluating the quality of nursing care. It is considered as a good achievement in the development of health care The Relationship between Nurses' Perception of Work Environment and Patient Satisfaction in Adult Critical Care (31). Rheostone's study suggests that different cancers have different effects on the QOL of the patients. Because each cancer causes certain complications that may differ from other type of cancers, and with different effects on QOL (32). The average total cost of patients in this study was 20161801 Rials. The mean of efficacy in terms of QOL in patients was 2.43 out of 5 points. As a result, the rate of effectiveness in terms of QOL index in patients is 2.41% per 250 US \$.

- **Authors' contributions:** M. Ranjbar and MJ Fallahpour considered and aimed, the study and drafted the thesis. M. Ranjbar, MJ Fallahpour and Hasan Siamian extracted the article from thesis and drafted the article in the style of the journal. Hasan Siamian translated from Persian Language to English Language and providing all of the references in Vancouver style and used Endnote for final version of the References. All authors' read, and approved of the final manuscript.
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