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Research Paper

Assess the attitudes of cancer patients attending oncology clinics in several Iraqi governorates on the use of chemotherapy, as well as their awareness of its side effects

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ABSTRACT

Background: Cancers are a class of illnesses characterized by the unchecked growth and spread of abnormal cells. Death may ensue if the metastasis, or the spread of cancer cells at this point, is not stopped.
Methods & Patients: In this cross-sectional descriptive study, one hundred patients participated, carried out in the oncology department at Salah Al Deen general hospital in Salah al Deen governorate and Baquba general hospital in Diyala governorate from 23 October 2022to23 February 2023, key inclusion criteria involved the oncology clinic sees all cancer patients, including inpatient and outpatient. who received chemotherapy.
Results: It was observed through our study that most of participants were female (72%) and only 28% were male. About 72%, 64%, 58%, 56% of participants knew that chemotherapy could cause alopecia, nausea, vomiting and loss of appetite respectively. A50% of cancerd patient participate in these study who received chemotherapy got their information from their friends , 42% of participants received their information from doctor and only 8% of participants received their information from pharmacists
Conclusion: The current study concluded that approximately more than half of the participants have acceptable knowledge about potential side effects of chemotherapy, but most of the participants were informed by their friends more than their doctor regarding side effects of chemotherapy.
Aim of study: The purpose of the study is to look into and determine how cancer patients in particular Iraqi governorates feel about using chemotherapy and how informed they are of its side effects.

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1. INTRODUCTION

Uncontrolled cell growth and division are a prevalent characteristic of the class of diseases referred to as malignancies. Death may ensue if the metastasis, or the spread of cancer cells, which is characteristic of this stage, is not stopped. Among the many internal and external causes of cancer are hormones, immunological disorders, radiation, tobacco use, toxins, pathogenic organisms, and hereditary mutations. Cancer has many different, intricate, and poorly understood causes. Numerous factors have been linked to an increased risk of cancer, such as an unhealthy diet, specific medical conditions, inactivity, obesity, and exposure to environmental contaminants [1].

These factors may work together to initiate or promote human carcinogenesis, which would make cancer the leading cause of death. In 2020, cancer will claim the lives of about 10 million people globally, making it one of the top causes of death. The most common malignancies to be diagnosed were 2.26 million cases of breast cancer, 2.21 million cases of lung cancer, 1.93 million cases of colon and rectum, 1.41 million cases of prostate cancer, 1.20 million cases of skin cancer (non-melanoma), and 1.09 million cases of stomach cancer. The Middle Eastern countries are witnessing a concerning increase in the occurrence of cancer. Long-term projections indicate that by 2030, the incidence of cancer will have grown by 1.8 times [2]. The phrase "chemotherapy" is attributed to German chemist Paul Ehrlich, who conducted research on the use of drugs to cure infectious diseases. Additionally, he was the first scientist to evaluate a range of chemicals for potential anti-disease activity using animal studies. Historical evidence points to the 1900s as the earliest known use of arsenic. In the 1960s, the two cornerstones of cancer treatment were radiotherapy and surgery. After surgery and radiation therapy, indications of micrometastases and cancer recurrence emerged, and combination chemotherapy gained significance [3].

Even while chemotherapy has extended cancer patients' lives and improved their quality of life, even after initially responding to treatment, the majority of these people later experience progressive disease. One of the main challenges to increasing cancer patients' overall response and survival is drug resistance [4]. Nonetheless, a greater number of tumors may show good response to treatment at first before growing resistant to associated drugs [5]. Chemotherapy reduces invasion and metastasis by slowing the growth and cell division of the tumor; yet, because it also affects healthy cells, there might be dangerous side effects. The environment and the cell both have multiple levels where tumor growth can be slowed [6]. The production of proteins, RNA, or DNA is often interfered with or blocked by conventional chemotherapy medications, which impacts the macromolecular synthesis and functionality of cancerous cells. Cell death happens when interference with macromolecular production or function is sufficient, either directly from the chemotherapeutic drug or by the triggering of apoptosis. When using conventional drugs, cell death may be delayed even though some cells may die as a result of a particular treatment. In order to get a reaction, the medication may need to be taken again [7]. Since DNA is produced during the S phase of the cell cycle, this is also the phase in which cytotoxic medicines can have the most detrimental effects. In the M phase, vinca alkaloids and taxes work together to stop mitotic spindle development [8].

Combination chemotherapy is a popular option that also yields satisfactory results. They seem to stop resistant clones from growing by encouraging cytotoxicity in cells that are proliferating and at rest [9]. Numerous genes, receptors, and signal transduction are involved in the intricate biological processes that either promote or prevent cell division and proliferation. Research on cancer cell biology has yielded enormous insights into the mechanisms of apoptosis, angiogenesis, metastasis, cell signal transmission, differentiation, and growth factor control [10].

1.1 Organ Toxicity Related to Chemotherapy

1.1.1 Nephrotoxicity

The kidneys are responsible for removing a lot of chemotherapy medicines from our bodies [11], [12], [13]. Glomerular filtration and tubular secretion are the two main methods of drug excretion [13]. Due to the fact that renal tissue is exposed to higher drug concentrations than the blood and most likely other organs, acute kidney damage (AKI) or late-life nephrotoxicity are frequently caused [14], [15], [16].

1.1.2 Hepatotoxicity

The liver's function in detoxification, drug metabolism, and waste product excretion contributes to the liver damage caused by several cancer therapy. The precise processes underlying the hepatotoxicity of many drugs still need to be clarified, though. Irinotecan, cisplatin, oxaliplatin, and radiation therapy are some of the treatments linked to liver damage, which can appear in a variety of ways. Some of the most common toxic side effects of chemotherapy are hepatitis, cholestasis, and steatosis [17].

1.2 Immunosuppressive Side Effects of Chemotherapeutic

Many of the current cancer chemotherapy drugs are also used to treat severe systemic autoimmune disorders as immunosuppressants. This holds true for the drugs methotrexate and cyclophosphamide, which hinder the proliferation and/or effector capabilities of peripheral T cells. Adaptive immunity's T-cell component may also be impacted by protein tyrosine kinase inhibitors. Imatinib mesylate (Gleevec; Novartis) suppresses T-cell proliferation and activation at high doses, most likely by inhibiting protein tyrosine kinase LCK. It primarily inhibits signaling via the receptors BCR (B-cell receptor)–ABL, its oncogenic fusion variant, c-ABL (cellular Abelson leukaemia-virus protein), and KIT. Research conducted on animal models has demonstrated that imatinib mesylate does not impact main T- and B-cell responses, but rather preferentially inhibits the growth of memory CTLs. Patients treated with imatinib mesylate may also be more vulnerable to viral and bacterial infections, and their allogeneic transplant response to the graft-versus-leukemia effect may be suppressed [18]. Glucocorticoids play a significant role in the chemotherapeutic cocktails used to treat a number of lymphoproliferative illnesses due to their ability to cause lymphocyte apoptosis. Cancer patients who experience nausea and vomiting from chemotherapy are given high dosages of glucocorticoids. In healthy donors' blood mononuclear cells, Glucocorticoids suppress chemokines such as CXC-chemokine ligand 8 (CXCL8), CC-chemokine ligand 7 (CCL7), CCL8, CCL11, CCL13, CCL17, and CCL19, as well as pro-inflammatory cytokines such as interferon (IFN), IFN, interleukin-1 (IL-1), and IL-1 [19].

2. METHODOLOGY

This cross-sectional operative study was involved 100 patients, carried out in the oncology department at Salah Al Deen general hospital in Salah al Deen governorate and Baquba general hospital in Diyala governorate from 23 October 2022 to 23 February 2023, all cancer patients who undergo chemotherapy and are seen as outpatients or inpatients at the oncology clinic met the primary inclusion criteria. A face-to-face interview with a structured questionnaire was conducted with each participant patient who consented to participate in this study. The interviews conducted with each oncology participant patient lasted approximately 5-7minutes. There were three sections to the questionnaire that was used to gather the data. The participant's descriptive information (age, gender, marital status, degree of education, and place of residence) was questioned in the first segment, while chemotherapy-related questions were asked in the second (number of years received chemotherapy, type of side effect , informer of side effect), the last section include awareness about action taken when experienced side effects.

3. RESULTS AND DISCUSSION

Large number of our participants were elderly (36%), 26% aged from 18 to 30 years, while young age group above 30 and under 60 about 12%, 14%, 12%.

Table 1. Age Groups

Range	Number	Percentage
18-30 years	26	26%
31-40 years	12	12%
41-50 years	14	14%
51-60 years	12	12%
Above 60 years	36	36%

Most of participants were female (72%) and only 28% were male.

Table 2. Gender Group

Type of Gender	Number	Percentage
Female	72	72%
Male	28	28%

About 56% of participants married, 36% single and only 8% were widow.

Table 3. Marital Status

Marital Status	Number	Percentage
Single	36	36%
Married	56	56%
Divorced	X	X
Widowed	8	8%

A 50% of participants were have college education, 30% had no education and 12%, 8% had primary and secondary education respectively.

Table 4. Education Level

Level	Number	Percentage
Primary education	12	12%
Secondary education	8	8%
College education	50	50%
No education	30	30%

About 54% of our participants from rural area and 46% were from urban area.

Table 5. Residence

Residence	Number	Percentage
Rural	54	54%
Urban	46	46%

About 38% of our participants received chemotherapy less than 6 months and about 36% received chemotherapy more than 1 year.

Table 6. Period of Chemotherapy

Period	Number	Percentage
1-6 Months	38	38%
7 Months- 1 Year	26	26%
> 1 Year	36	36%

About 72%, 64%, 58%, 56% of participants knew that chemotherapy could cause alopecia, nausea, vomiting and less of appetite respectively.

Table 7. Side Effects Informed About

Side Effect	Number	Percentage
Vomiting	58	58%
Nausea	64	64%
Alopecia	72	72%
Diarrhoea	28	28%
Pain	60	60%
Bleed	14	14%
Anemia	44	44%
Immune suppression	52	52%
Loss of appetite	56	56%
Infertility	10	10%

3.1 The Informer of Side Effects

A50% of cancered patient participate in these-study who received chemotherapy got their information from their friends, 42% of participants received their information from doctor and only 8% of participants received their information from pharmacists.

Table 8. The Informer of Side Effects

Informer	Number	Percentage
Doctor	42	42%
Nurse	4	4%
Pharmacist	8	8%
Friend	50	50%

Most cancered patient participate in these, study who received chemotherapy were experienced chemotherapy side effects include alopecia, nausea, immune suppuration, pain, loss of appetite and vomiting.

Table 9. Experience of Side Effects

Side Effects	Number	Percentage
Vomiting	70	70%
Nausea	86	86%
Alopecia	84	84%
Diarrhoea	46	46%
Pain	76	76%
Bleed	12	12%
Anemia	60	60%
Immune suppression	76	76%
Loss of appetite	74	74-%
Infertility	2	2%

Only 20 patents who participate in this study had another side effects, which was mainly psychiatric side effects.

Table 10. Others of Side Effects

Side Effects	Number	Percentage
Psychiatric disturbance	2	2%
Edema	2	2%
Fatigue	4	4%
Insomnia	6	6%
Depression	6	6%

About 72% of our participants thought they must be went to the doctor if any side effects occur, 26% tolerated their side effects and only 2% stopped their medication.

Table 11. Action Taken when Experienced Side Effects

Action	Number	Percentage
Went back to doctor	72	72%
Tolerated	26	26%
Stopped medication	2	2%

3.2 Discussion

With the increase in the spread of cancerous diseases, this led to an increase in the production and consumption of chemotherapy treatments, which cause many side effects that may be unknown to some patients, which leads to an increase in patients' problems and their negative impact on the patient's health due to the patients' complete lack of awareness to properly deal with these side effects. Participants were questioned about their knowledge of the side effects of chemotherapy and whether they had ever received any information about them. It was observed through this, most of participant were women (72%), which was much higher than men (28%). This is may be due to the high incidence of breast cancer in women. In this study, hair loss, nausea, vomiting, and decreased appetite were the most well-known side effects of chemotherapy. This is probably due to the fact that many people learn about these side effects from friends and primary care providers despite expecting to hear from medical specialists. These are the side effects that practically all chemotherapies cause shortly after use. The similar outcome was reported in Saudi Arabia, where hair loss was identified as the most well-known adverse consequence [20]. The biggest side effect of chemotherapy, according to this study, was hair loss, which was followed by nausea and vomiting, immune suppression, pain, and appetite loss. A comparable result was observed in connection to hair loss, which was considered the most distressing symptom by the participants [21]. In a similar vein, a Malaysian study was conducted [22]. More over two thirds of the participants reported experiencing nausea and vomiting. It was noticed that awareness of side effects before contracting the disease came through friends at a high rate (50%) compared to the medical staff [the doctor, nurse, and pharmacist, at rates of (42%) (4%) (8%), respectively. In this study, the majority of participants who reported experiencing adverse effects were asked what they did about them. About 72 (72 %) When the patients saw the doctor again, 26 (26%) of them tolerated the drug while 2 (2%) quit taking it. The participants' replies varied, perhaps as a result of how intensely they experienced the side effects; for some, they were severe, for others, they were moderate, and for others, they were light. This similar to Katabalo et al which was reported among the 191 responders who reported experiencing side effects, 66 (34.6%) sought medical attention, 69 (36.9%) endured the problems, and 56 (29.3%) discontinued the medicine at least once [23].

4. CONCLUSION

According to the results of the current study, a little over half of the participants had enough understanding about the possible side effects of chemotherapy, but most of the participants were informed by their friends more than their doctor regarding side effects of chemotherapy. The majority of participants were knowledgeable on the proper course of action to take while experiencing adverse effects.

4.1 Study Limitations

Non-cooperation of patients in outpatient clinics, the number of patients were limited in hospitals as inpatients our study was limited to Diyala and Salahuddin governorates, and this may not reflect the awareness of cancer patients throughout the country.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Zainab Mustafa Mahdi	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

Ethical Approval

Not Applicable.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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