

ORIGINAL ARTICLE

CHEMOTHERAPY INDUCED SIDE EFFECTS AMONG PATIENTS TREATED FOR MALIGNANCY

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ABSTRACT:

Background: Cancer is one of the most common disease all over the world. Cancer incidences and death rates are rapidly increasing world widely. This study was conducted to estimate the side effects of chemotherapy among study population. **Materials & Methods:** This study was conducted in year 2015. All patients with any malignancy who underwent chemotherapy were included in this study. It included 68 patients of different malignancy. A questionnaire was prepared which included basic information such as name, age, gender, socio-economic status, patients' opinion about starvation for different time lengths and the side effects of the chemotherapy. The side effects were graded into four categories. 0 - no side effect, 1- mild, 2- moderate and 4- Severe side effects. **Results:** Out of 98 patients. 29 were males and 69 were females. The difference was significant (P<0.01). Most common cancer in males was oral cancer (7) followed by lung cancer (6), cancer GIT (4), blood cancer (4) and throat cancer (4). In females, most commonly seen cancer was breast cancer (41) followed by uterine cancer (10) and ovarian cancer (5). The difference was significant among distribution of cancer in females (P<0.01). Among various side effects of chemotherapy most common was fatigue (90%), followed by weakness (87%), nausea (75%), headache (68%), xerostomia (65%), vomiting (60%), mouth sore (35%), diarrhea (30%), alopecia (25%), memory impairment (25%), and abdominal cramps (12%). The difference was significant (P<0.05). We also recorded severity of side effects. They were graded into mild, moderate and severe. Most common severe side effect was fatigue (60%), moderate was weakness (45%) and mild was vomiting (50%). There was no significant difference among males and females regarding side effects (P>0.05). **Conclusion:** Chemotherapy is considered to be the treatment for malignancy. However, though well response is seen among patients, side effects cannot be prevented. Hence there is need to invent newer drugs with minimal side effects.

Key words: Chemotherapy, side effect, xerostomia, vomiting.

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INTRODUCTION

Cancer is one of the most common disease all over the world. Cancer incidences and death rates are rapidly increasing world widely. Breast, Colorectal, lung and prostate cancer are among commonly seen cancer. It is associated with various environmental, social, cultural, life-style, hormonal and genetic factors. Other causes includes smoking, reduced physical activity and consumption of highly processed and calorie-rich food.¹

Various treatment modalities are available. All have some associated side effects. Management includes chemotherapy, surgery and radiotherapy. Chemotherapy is the most effective and widely used treatment in most types of malignancies.²

Chemotherapy is the use of medicines or drugs to treat a disease, such as cancer. Many times this treatment is just called chemo. Surgery and radiation therapy remove, kill,

or damage cancer cells in a certain area, but chemo can work throughout the whole body. Chemo can kill cancer cells that have metastasized or spread to parts of the body far away from the primary tumor. More than 100 chemo drugs are used in many combinations.³ A single chemo drug can be used to treat cancer, but often multiple drugs are used in a certain order or in certain combinations known as combination chemotherapy. Multiple drugs with different actions can work together to kill more cancer cells. This can also reduce the chance that the cancer may become resistant to any one chemo drug. Earlier thought was that chemotherapy drugs specifically kill the cancer cells only but now it is well known that it also damages to the normal cells resulting the chemotherapy dose dependent side effects such as fatigue, nausea, hair loss vomiting, etc. and even death may also occur in severe cases.⁴ The main strategy of chemotherapy drugs based on the phenomenon that these drugs selectively target the

tumor cells, largely by the means of genotoxicity partially caused by the production of reactive oxygen species, which does not specifically damages the cancer cells but also the normal cells.⁵

Among side effects, headache, nausea, hair loss, fatigue, mouth sores, dry mouth and memory impairment are common. This study was conducted to estimate the side effects of chemotherapy among study population.

MATERIALS & METHODS

This study was conducted in year 2015. All patients with any malignancy who underwent chemotherapy were included in this study. It included 68 patients of different malignancy. Case history performa was retrieved from the cancer centre. A questionnaire was prepared which included basic information such as name, age, gender, socio-economic status, patients’ opinion about starvation for different time lengths and the side effects of the chemotherapy. The side effects were graded into four categories. 0 - no side effect, 1- mild, 2- moderate and 4- Severe side effects.

Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that out of 98 patients. 29 were males and 69 were females. The difference was significant (P<0.01). Table II shows that most common cancer in males was oral cancer (7) followed by lung cancer (6), cancer GIT (4), blood cancer (4) and throat cancer (4). In females, most commonly seen cancer was breast cancer (41) followed by uterine cancer (10) and ovarian cancer (5). The difference was significant among distribution of cancer in females (P-

0.01). Graph I shows various side effects of chemotherapy. Most common was fatigue (90%), followed by weakness (87%), nausea (75%), headache (68%), xerostomia (65%), vomiting (60%), mouth sore (35%), diarrhea (30%), alopecia (25%), memory impairment (25%), and abdominal cramps (12%). The difference was significant (P<0.05). Table III shows severity of side effects. They were graded into mild, moderate and severe. Most common severe side effect was fatigue (60%), moderate was weakness (45%) and mild was vomiting (50%). Graph II shows that there was no significant difference among males and females regarding side effects (P>0.05).

Table I Distribution of patients

Total- 98		
Male	Female	P value
29 (30%)	69 (70%)	0.01

Table II Different forms of cancer in patients

Malignancy	Male	Female
Breast cancer	0	41
Uterine cancer	0	10
Oral cancer	7	1
Cancer GIT	4	2
Lung cancer	6	1
Blood cancer	4	1
Bone cancer	2	2
Ovarian cancer	0	5
Bladder cancer	2	4
Throat cancer	4	2
Total	29	69

Graph I Side effects of chemotherapy

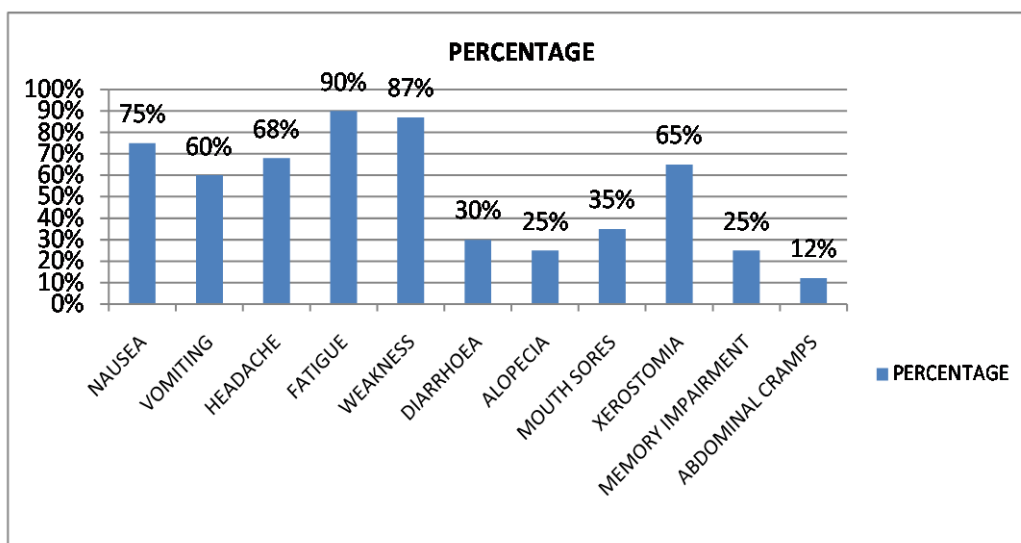
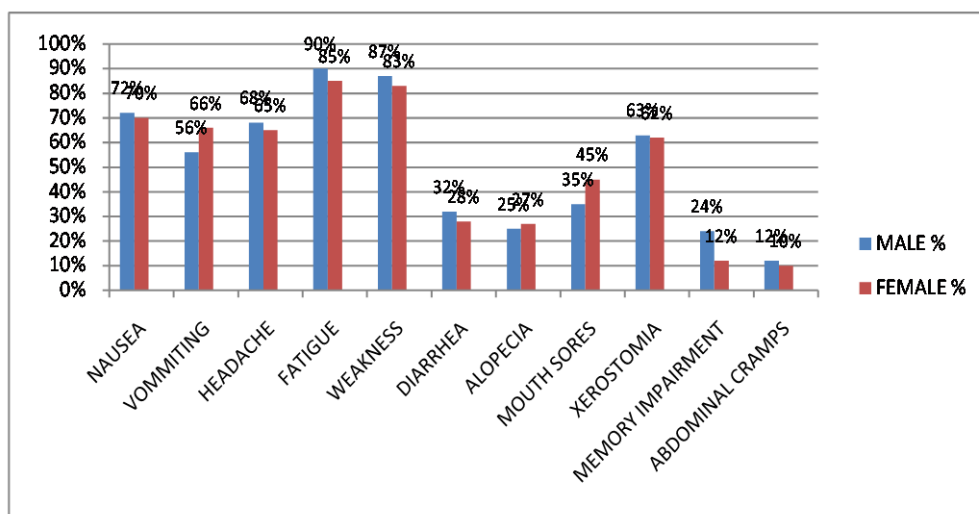


Table III Level of severity of side effects in patients

Side effects	Mild (%)	Moderate (%)	Severe (%)
fatigue	20	20	60
weakness	5	45	50
nausea	25	13	38
headache	34	43	12
xerostomia	32	18	46
vomiting	50	22	24
mouth sore	49	44	12
diarrhea	35	12	39
alopecia	15	18	45
memory impairment	10	22	45
abdominal cramps	19	30	12

Graph II Comparison of side effects in both gender



DISCUSSION

Cancer is increasing day by day throughout the world due to which mortality rate is also going to increase world widely. Mostly cancer treatments are based on selective killing of the cancer cells but not normal cells. Chemotherapy is the most widely used treatment for a large number of cancer types. Earlier these chemotherapeutic drugs were considered to be quite targeted and selective for tumor cells, but now it is a well-known that normal cells are also damaged by chemotherapeutic drugs, which leads to various side effects and in some cases even death. These side effects include headache, fatigue, weakness, hair loss, nausea, vomiting, diarrhea, abdominal cramps, mouth sores, dry mouth, memory impairment and numbness.⁶ This study was conducted to estimate the side effects of chemotherapy among study population.

The present study comprised of out of 98 patients. 29 were males and 79 were females. Most common cancer in males was oral cancer followed by lung cancer, cancer of GIT, blood cancer and throat cancer. In females, most commonly

seen cancer was breast cancer followed by uterine cancer and ovarian cancer. Chen Y⁷ in his study reported that among males most commonly seen cancer was lung cancer and in females it was breast cancer. However, Links M et al⁸ in their study found oral cancer to be more prevalent in males.

We also evaluated side effects of chemotherapy. Most common was fatigue (90%), followed by weakness (87%), nausea (75%), headache (68%), xerostomia (65%), vomiting (60%), mouth sore (35%), diarrhea (30%), alopecia (25%), memory impairment (25%), and abdominal cramps (12%). Raffaghelo found that among malignant cancer the side effect resulting from chemotherapy are xerostomia and headache. Our results also found similar results. Our results are in agreement with Tanenbaum¹⁰. We evaluated severity of side effects. They were graded into mild, moderate and severe. Most common severe side effect was fatigue seen in 60%, side effect with moderate intensity was weakness seen in 45% and side effect with mild intensity was vomiting seen in 50%. Hursting et al¹¹

in their study found that vomiting and hair loss to be severe side effect.

CONCLUSION

Chemotherapy is considered to the treatment for malignancy. However, though well response is seen among patients, side effects cannot be prevented. Hence there is need to invent newer drugs with minimal side effects.

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