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Research Article

Side Effects of Chemotherapy and Cancer Treatment in Tertiary Care Teaching Hospital

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ABSTRACT

To determine the most common physical side effects experienced by local chemotherapy patients. Their perceptions of these side effects and informational needs from clinical pharmacists were also evaluated. This was a single center, observational cross-sectional study conducted at department of General Surgery, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab. A face to face interview was conducted. Information collected included chemotherapy related side effects after last chemotherapy experience, the most worrisome side effects, overlooked by healthcare professionals and the preferred method, amount and source of receiving related information. In this study, hundred patients were enrolled out of them 48 were male and 52 were female. When differential calculations was done, common side effects or adverse effects of chemotherapy in the patients of breast, lung cancer, Ovarian Cancer, Colon cancer, Prostate cancer, Lymphoma Cancer, Cervix cancer where there is much irregular medicine intake 57.4% may be due to common problem of joint pain reported by all the patients under study, with the consecutive problem of nausea and vomiting. The high prevalence of chemotherapy related side effects among local patients is a major concern and findings of their perceptions and informational needs may serve as a valuable guide for clinical pharmacists and physicians to help in side effect management. This study shows the common problems reported by the patients when they are suffering from cancer condition, according to their incidence perceptions as experienced by the patient, this will allow the physician and clinical pharmacist to effectively counsel and manage the common symptoms as reported prior to its occurrence in the patient, so that withdrawal can be checked.

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INTRODUCTION:

Cancer generally is a growth or tumor that results from abnormal and uncontrolled cell division. Cells of the body, with a few exceptions, constantly undergo cell division and proliferation as old and injured cells die off and are replaced. [1][2] The story of drug discovery begins with the German physician and scientist Paul Ehrlich Born in 1854. Ehrlich seen one synthetic dyes selectively stain components of cells and tissues. The idea to develop “magic bullet” is which would be target specific to disease cell and disease causing organisms. [2][3] Resistance and side effects of drugs to existing drugs lead to impetus new drugs developmental process, so that new molecules must be constantly screened, the incidence that results from these risks are defined as side effect or ADR and adverse drug events on the inherent consequence of individual either drug or both.[2][4]

The branch of medical science which deals with diagnosis and treatment of cancer Oncology is the field dealing with chemotherapeutic drugs having wide known side effects and Adverse Drug Reactions. When prescribing chemotherapeutic drugs there is huge need to minimize these effects besides

considering the beneficial effects of drugs. Due to large number of these symptoms it becomes mandatory to keep in mind the chemotherapeutic agent while prescribing.[2][5][6] Majority of antineoplastic drugs act by interfering with cell growth. Since cancerous cells grow more rapidly than other cells, the drugs target those cells that are in the process of reproducing themselves. As a result, antineoplastic drugs will commonly affect not only the cancerous cells, but others cells that commonly reproduce quickly, including hair follicles, ovaries, testes and blood-forming organs. Newer methods of antineoplastic drug therapy have taken different approaches, including angiogenesis the inhibition of formation of blood vessels feeding the tumor and contributing to tumor growth.[7][8][9] Researchers have expanded their research to determine how the drug might be developed. This was an important step Antineoplastic drugs may be divided into two classes: cycle specific and non-cycle specific. Cycle specific drugs act only at specific points of the cell's duplication cycle, such as anaphase or metaphase, while non-cycle specific drugs may act at any point in the cell cycle. In order to gain maximum effect, antineoplastic drugs are commonly used in

combinations.[10] Study based to analyze the incidence of side effects in cancer patients post treatment phase which provides an insight into occurrence of side effects, that will help to pharmacist and other stakeholders in the hospital to arrange required preparations for any of the complication arises in post treatment of the chemotherapy, which most commonly related with disease and patients parameter. The pharmacist will be ready with informational counseling support to patient and improve the compliance explaining the chemotherapy problems in advance. [11]

METHODS

Observational cross sectional study was performed and data was collected according to inclusion and exclusion criteria. A face to face interview guided by structured questionnaire with cancer patients was conducted. Information collected includes, chemotherapy related side effects after last chemotherapy experience. Questionnaire is developed and used as a material to collect information, data for analysis, for interpretation of results and conclusions. Data was collected for 6 months at study site. Randomly selected patients were included in the study with prescribed medication for cancer both In-patients as well as Out-patients disregard of their age. Patients unable to communicate and unwilling to participate in the study, pregnant and lactating mothers were excluded from the study.

Study Subjects: Randomly selected patients directly interviewed

Source of Data

Data was collected from case sheets, lab reports and prescriptions of poisoned patients admitted in In-patients as well as Out-patients.

Inclusion Criteria:

- Patients diagnosed and prescribed medications for cancer
- Patient from both outpatient and inpatient
- Any age patient of either sex

Exclusion Criteria:

- Pregnant and lactating mother
- Patient unable to communicate and unwilling to participate in the study

Ethical Approval: The Study was carried out after obtaining the ethical committee clearance from the Institutional Ethical Review Board of the hospital. Informed consent was obtained from the conscious patients or from their relatives if the patients were unconscious.

RESULTS:

In this study, common side effects were studied related to cancer chemotherapy, classified according to type of cancer in patients they was suffering. Set of questions was developed in the form of questionnaire, with which survey was conducted for different side effects or adverse effects. In the random sample taken for survey, 48% were male and 52% were female presented in Table 1. List of common chemotherapy medicines taken by the patients are shown in the Table 2. The medicines are classified and presented here, according to cancer type in which they had used, with first line and second line use in the therapy.

In Breast Cancer, 23 patients were included in the study, 91.3% patients were found to be taking their medicines at time. Table 3 displays the most commonly reported side effects or adverse effects in breast cancer, from which most common was Nausea or Vomiting whose incidence percentage was 95.65% then numbness or weakness in peripheral extremities with incidence 82.60%, then mood swings and abdominal pain or diarrhea with 73.9%, then falling of hairs with 66.6%, then joints .pain with 60.8%, then gum pain or gum bleed with 30.4%, then deafness or vision problems with 26.08% and least reported problem was shortness of breath or nonproductive cough with 21.73%.

In Lung Cancer, 8 patients were included in the study, 100% patients was found to be taking their medicines at time. Table 4 displays the most commonly reported side effects or adverse effects in Lung Cancer, from which incidence percentage for Nausea or Vomiting was 87.5% and incidence for other side effects or adverse effects were numbness or weakness in peripheral extremities with incidence 37.5%, mood swings with 50% abdominal pain or diarrhea with 37.5%, falling of hairs with 75%, joints pain with 37.5%, gum pain or gum bleed with 12.5%, deafness or vision problems with 12.5% and shortness of breath or nonproductive cough with 12.5%.

In Esophagus Cancer, 10 patients were included in the study 90% patients were found to be taking their medicines at time. Table 5 displays the most commonly reported side effects or adverse effects in esophagus cancer, from which incidence percentage for Nausea or Vomiting with 90% and incidence for other side effects or adverse effects were numbness or weakness in peripheral extremities with incidence 100%, no patient with mood swings with abdominal pain or diarrhea with 90%, falling of hairs with 60%, joints pain with 70%, gum pain or gum bleed with 40%, deafness or vision problems with 20% and shortness of breath or nonproductive cough with 10%.

In Leukemia Cancer, 10 patients were included in the study, 90% patients were found to be taking their medicines at time. Table 6 displays the most commonly reported side effects or adverse effects in leukemia cancer, from which incidence percentage for Nausea or Vomiting was 70% and incidence for other side effects or adverse effects are numbness or weakness in peripheral extremities with incidence 50%, mood swings with 20% abdominal pain or diarrhea with 70%, falling of hairs with 60%, joints pain with 20%, gum pain or

gum bleed with 60%, deafness or vision problems with 10% and none of the patient with shortness of breath or nonproductive cough experiences.

In Cervix Cancer, 7 patients were included in the study, 57.1% patients were found to be taking their medicines at time. Table 7 displays the most commonly reported side effects or adverse effects in cervix cancer, from which incidence percentage for Nausea or Vomiting was 100% and incidence for other side effects or adverse effects are numbness or weakness in peripheral extremities with incidence 57%, mood swings with 28.57% abdominal pain or diarrhea with 71.42%, falling of hairs with 85.7%, joints pain with 100%, gum pain or gum bleed with 14.2%, deafness or vision problems with 42.85% and shortness of breath or nonproductive cough with 14.28%.

In Ovary Cancer, 8 patients were included in the study, 87.5% patients were found to be taking their medicines at time. Table 8 displays the most commonly reported side effects or adverse effects in ovary cancer, from which incidence percentage for Nausea or Vomiting was 100% and incidence for other side effects or adverse effects were numbness or weakness in peripheral extremities with incidence 87.5%, mood swings with 50% abdominal pain or diarrhea with 50%, falling of hairs with 75%, joints pain with 62.5%, gum pain or gum bleed with 12.5%, deafness or vision problems with 37.5% and shortness of breath or nonproductive cough with 25%.

In Colon Cancer 10 patients were included in the study 90% patients were found to be taking their medicines at time. Table 9 displays the most commonly reported side effects or adverse effects in colon cancer, from which incidence percentage for Nausea or Vomiting was 90% and incidence for other side effects or adverse effects are numbness or weakness in peripheral extremities with incidence 80%, mood swings with 20% abdominal pain or diarrhea with 70%, falling of hairs with 70%, joints pain with 60%, gum pain or gum bleed with 60%, deafness or vision problems with 40% and shortness of breath or nonproductive cough with 40%.

In Prostate Cancer, 11 patients were included in the study, 72.72% patients were found to be taking their medicines at time. Table 10 displays the most commonly reported side effects or adverse effects in prostate cancer, from which incidence percentage for Nausea or Vomiting was 81.81% and incidence for other side effects or adverse effects were numbness or weakness in peripheral extremities with incidence 100%, mood swings with 100% abdominal pain or diarrhea with 54.54%, falling of hairs with 63.63%, joints pain with 09.09%, gum pain or gum bleed with 27.27%, deafness or vision problems with 50% and shortness of breath or nonproductive cough with 100%.

In Bladder Cancer 4 patients were included in the study 100% patients were found to be taking their medicines at time. Table 11 displays the most commonly reported side effects or adverse effects in Bladder Cancer, from which incidence percentage for Nausea or Vomiting was 75% and

incidence for other side effects or adverse effects were numbness or weakness in peripheral extremities with incidence 50%, mood swings with 0% abdominal pain or diarrhea with 25%, falling of hairs with 25%, joints pain with 75%, gum pain or gum bleed with 25%, deafness or vision problems with 50% and shortness of breath or nonproductive cough with 25%.

In Lymphoma Cancer, 6 patients were included in the study, 100% patients were found to be taking their medicines at time. Table 12 displays the most commonly reported side effects or adverse effects in Lymphoma Cancer, from which incidence percentage for Nausea or Vomiting was 50% and incidence for other side effects or adverse effects were numbness or weakness in peripheral extremities with incidence 25%, mood swings with 25% abdominal pain or diarrhea with 66.6%, falling of hairs with 83.3%, joints pain with 50%, gum pain or gum bleed with 33.3%, deafness or vision problems with 25% and shortness of breath or nonproductive cough with 25%.

Only one patient was associated with liver cancer and two patients were associated with larynx cancer, which resulted to insignificant calculation and data interpretation. So, data reported by the liver cancer is excluded from the presentation of results. The overall majorly reported problems in different types of cancer are summarized in Table 13.

When differential calculations are done, common side effects or adverse effects among patients are as: In Breast Cancer, was Nausea or Vomiting whose incidence percentage was 95.65% then numbness or weakness in peripheral extremities with incidence 82.60%; In Lung Cancer, the Nausea or Vomiting reported was 87.5% and falling of hairs with 75% of patients; In Esophagus Cancer, the weakness in peripheral extremities with incidence 100%, Nausea or Vomiting 90% and abdominal pain or diarrhea with 90% of the patients; In Leukemia Cancer, the Nausea or Vomiting was 70% and abdominal pain or diarrhea with 70% of patients; In Cervix Cancer, the Nausea or Vomiting reported was 100% and joints pain with 100%; In Ovarian Cancer, the Nausea or Vomiting was 87.5% and numbness or weakness in peripheral extremities with 87.5% of the patients; In Colon Cancer, the Nausea or Vomiting was 90%, abdominal pain or diarrhea with 70% and falling of hairs with 70% of the patients; In Prostate Cancer, numbness or weakness in peripheral extremities with incidence 100%, mood swings with 100% and shortness of breath or nonproductive cough with 100% of the patients; In bladder cancer, Nausea or Vomiting was 75% and joints pain with 75% of patients; In Lymphoma Cancer, the abdominal pain or diarrhea with 66.6% and falling of hairs with 83.3% of patients.

Only one patient was associated with liver cancer and two patients were associated with larynx cancer, which resulted to insignificant calculations and data interpretation. So, data reported by the liver cancer is excluded from the presentation of results. Other problems reported by the patients on questionnaire form are malaise, fatigue and pain, which are common to every cancer studied here and reported by everyone. These symptoms could also occur on the psychological basis of disease state, that's why analysis and presentation of these are found to be insignificant as it is also

common to other diseases, not under study. This study shows the common problems reported by the patients when they were suffering from cancer condition, according to their incidence perceptions as experienced by the patients, this will allow the physician and clinical pharmacist to effectively counsel and manage the common symptoms as reported prior to its occurrence in the patient, so that most worrisome withdrawal can be checked. As, in the case with cervix cancer patient where there is much irregular medicine intake 57.4% may be due to common problem of joint pain reported by all the patients under study, with the consecutive problem of nausea and vomiting.

DISCUSSION:

When differential calculations are done, common side effects or adverse effects among patients are as: In Breast Cancer, was Nausea or Vomiting whose incidence percentage was 95.65% then numbness or weakness in peripheral extremities with incidence 82.60%; In Lung Cancer, the Nausea or Vomiting reported was 87.5% and falling of hairs with 75% of patients; In Esophagus Cancer, the weakness in peripheral extremities with incidence 100%, Nausea or Vomiting 90% and abdominal pain or diarrhea with 90% of the patients; In Leukemia Cancer, the Nausea or Vomiting was 70% and abdominal pain or diarrhea with 70% of patients; In Cervix Cancer, the Nausea or Vomiting reported was 100% and joints pain with 100%; In Ovarian Cancer, the Nausea or Vomiting was 87.5% and numbness or weakness in peripheral extremities with 87.5% of the patients; In Colon Cancer, the Nausea or Vomiting was 90%, abdominal pain or diarrhea with 70% and falling of hairs with 70% of the patients; In Prostate Cancer, numbness or weakness in peripheral extremities with incidence 100%, mood swings with 100% and shortness of breath or nonproductive cough with 100% of the patients; In bladder cancer, Nausea or Vomiting was 75% and joints pain with 75% of patients; In Lymphoma Cancer, the abdominal pain or diarrhea with 66.6% and falling of hairs with 83.3% of patients.

Only one patient was associated with liver cancer and two patients were associated with larynx cancer, which resulted to insignificant calculations and data interpretation. So, data reported by the liver cancer is excluded from the presentation of results. Other problems reported by the patients on questionnaire form are malaise, fatigue and pain, which are common to every cancer studied here and reported by everyone. These symptoms could also occur on the psychological basis of disease state, that's why analysis and presentation of these are found to be insignificant as it is also common to other diseases, not under study. This study shows the common problems reported by the patients when they were suffering from cancer condition, according to their incidence perceptions as experienced by the patients, this will allow the physician and clinical pharmacist to effectively counsel and manage the common symptoms as reported prior to its occurrence in the patient, so that most worrisome withdrawal can be checked. As, in the case with cervix cancer patient where there is much irregular medicine intake 57.4% may be due to common problem of joint pain reported by all the patients under study, with the consecutive problem of nausea and vomiting.

CONCLUSION:

This study had revealed some of the chemotherapy related side effects commonly experienced by local cancer patients. Though these symptoms have been well characterized, their high prevalence and impact on patient psychological aspects were of concern. Nausea and vomiting remained as two of the most prevalent and worrisome side effects. Other indicated as the major symptoms being overlooked by healthcare professionals. Patient demanded as much information about these side effects as possible before chemotherapy was given. Pharmacists are well accepted as patient educators in this aspect. In fact, findings of patient's perceptions and informational needs may serve as a valuable guide for clinical pharmacists to help in side effect management. The high prevalence of chemotherapy related side effects is of concern. Findings of their perceptions and informational needs may serve as a valuable guide for clinical pharmacists and physicians to help in side effect management.

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Table 1: Gender Variation in Random Sample

Gender	Number	Percentage (%)
Male	48	48
Female	52	52

Table 2: List of common drugs used in the Cancer Chemotherapy

Malignancy	First Line Drugs	2 nd line drugs	Second Line Drugs
Leukemia	Daunorubicin,Cyclophosphami	Cytarabine, Methotrexate,	
		-de, Prednisolone, Busulfan	Doxorubicin, Hydroxyurea,
Lymphoma	Vinblastine, cyclophosphamide	Bleomycin,Doxorubicin,Cytarabi ne	Vincristine
Esophagus Carcinoma	Doxorubicin, Vincristine, Cyclophosamide	Carmustine, Daunorubicin	
Prostate Carcinoma	Bicalutamide Gonadotrophin Realsing Hormone agonist	Doxorubcin, Cisplatin, 5-Fluro uracil, Cyclophosphamide	
Breast Carcinoma	Tamoxifen, Methotrexate, 5-Fluro uracil	Prednisolone, Vincristine,Paclitaxe l,	Docetaxel, Cyclophosphamide,
Ovarian carcinoma	Cisplastin, Carboplatin, Paclitaxel, Cyclophosphamide,	Melphalan, Chlorambucil, 5-Fluro uracil, Methotrexate, Vincristine, Doxorubicin	
Lung Cancer (small cell)	Cyclophosphamide, Vincristine, Doxorubicin		Carboplatin, Methotrexate
Cervix Carcinoma	Mitomycin C, Cisplatin, Methotrexate, Carboplatin	Cyclophosphamide, Lomustine, Vincritine, Doxorubicin.	
Colon Cancer	Capecitabine, Mitomycin, 5-FU	Leucovorin, Prednisolone	
Bladder Cancer	Methotrexate, Vinblastine, Doxorubicin	Cisplastin, 5 Fluoro uracil, Paclitaxil	

Table 3: Most common symptoms reported in Breast Cancer

Sr. No.	Questions	No. of Patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	23	21	2	91.3	8.69
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	23	22	1	95.65	4.34
C	Do you feel abdominal pain or Diarrhea?	23	17	6	73.9	26.08
D	Do you feel that your hairs have started falling?	23	20	3	66.6	13.04
E	Do you feel pain in gum or gum bleeds?	23	7	16	30.4	69.56
F	Do you experience pain in joints?	23	14	9	60.8	39.13
G	Do you experience mood swings after medication?	23	17	6	73.9	26.08
H	Do you experience any deafness or vision problems?	23	6	17	26.08	73.91
I	Have you experiencing shortness of breath or nonproductive cough?	23	5	18	21.73	78.26
J	Do you feel numbness or weakness in peripheral extremities?	23	19	4	82.60	17.39

Table 4: Most common symptoms reported in Lung Cancer

Sr. No.	Questions	No. of Patients	Yes	No	YES (%)	NO (%)
A	Do you take your medicines at time?	8	8	0	100	0
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	8	7	1	87.5	12.5
C	Do you feel abdominal pain or diarrhea?	8	3	5	37.5	62.55
D	Do you feel that your hairs have started falling?	8	6	2	75	25
E	Do you feel pain in gum or gum bleeds?	8	1	7	12.5	87.5
F	Do you experience pain in joints?	8	3	5	37.5	62.5
G	Do you experience mood swings after medication?	8	4	4	50	50
H	Do you experience any deafness or vision problems?	8	1	7	12.5	87.5
I	Have you experiencing shortness of breath or nonproductive cough?	8	1	7	12.5	87.5
J	Do you feel numbness or weakness in peripheral extremities?	8	3	5	37.5	62.5

Table 5: Most common symptoms reported in Esophagus Cancer

Sr. No.	Questions	No. of Patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	10	9	1	90	10
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	10	9	1	90	10
C	Do you feel abdominal pain or diarrhea?	10	9	1	90	10
D	Do you feel that your hairs have started falling?	10	6	4	60	40
E	Do you feel pain in gum or gum bleeds?	10	4	6	40	60
F	Do you experience pain in joints?	10	7	3	70	30
G	Do you experience mood swings after medication?	10	0	10	0	100
H	Do you experience any deafness or vision problems?	10	2	8	20	80
I	Have you experiencing shortness of breath or nonproductive cough?	10	1	9	10	90
J	Do you feel numbness or weakness in peripheral extremities?	10	10	0	100	0

Table 6: Most common symptoms reported in Leukemia Cancer

Sr. No.	Questions	No. of Patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	10	9	1	90	10
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	10	7	3	70	30
C	Do you feel abdominal pain or Diarrhea?	10	7	3	70	30
D	Do you feel that your hairs have started falling?	10	6	4	60	40
E	Do you feel pain in gum or gum bleeds?	10	6	4	60	40
F	Do you experience pain in joints?	10	2	8	20	80
G	Do you experience mood swings after medication?	10	2	8	20	80
H	Do you experience any deafness or vision problems?	10	1	9	10	90
I	Have you experiencing shortness of breath or nonproductive cough?	10	0	10	0	10
J	Do you feel numbness or weakness in peripheral extremities?	10	5	5	50	50

Table 7: Most common symptoms reported in Cervix Cancer

Sr. No.	Questions	No. of Patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	7	4	3	57.10	42.80
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	7	7	0	100	0
C	Do you feel abdominal pain or diarrhea?	7	5	2	71.42	28.58
D	Do you feel that your hairs have started falling?	7	6	1	85.7	14.2
E	Do you feel pain in gum or gum bleeds?	7	1	6	14.2	85.7
F	Do you experience pain in joints?	7	7	0	100	0
G	Do you experience mood swings after medication?	7	2	5	28.57	71.42
H	Do you experience any deafness or vision problems?	7	3	4	42.85	57.15
I	Have you experiencing shortness of breath or nonproductive cough?	7	1	6	14.28	85.71
J	Do you feel numbness or weakness in peripheral extremities?	7	4	3	57.1	42.8

Table 8: Most common symptoms reported in Ovary Cancer

Sr. No.	Questions	No. of Patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	8	7	1	87.5	12.5
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	8	8	0	100	0
C	Do you feel abdominal pain or diarrhea?	8	4	4	50	50
D	Do you feel that your hairs have started falling?	8	6	2	75	25
E	Do you feel pain in gum or gum bleeds?	8	1	7	12.5	87.5
F	Do you experience pain in joints?	8	5	3	62.5	37.5
G	Do you experience mood swings after medication?	8	4	4	50	50
H	Do you experience any deafness or vision problems?	8	3	5	37.5	62.5
I	Have you experiencing shortness of breath or nonproductive cough?	8	2	6	25	75
J	Do you feel numbness or weakness in peripheral extremities?	8	7	1	87.5	12.5

Table 9: Most common symptoms reported Colon Cancer

Sr. No.	Questions	No. of patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	10	9	1	90	10
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	10	9	1	90	10
C	Do you feel abdominal pain or diarrhea?	10	7	3	70	30
D	Do you feel that your hairs have started falling?	10	7	3	70	30
E	Do you feel pain in gum or gum bleeds?	10	6	4	60	40
F	Do you experience pain in joints?	10	6	4	60	40
G	Do you experience mood swings after medication?	10	2	8	20	80
H	Do you experience any deafness or vision problems?	10	4	6	40	60
I	Have you experiencing shortness of breath or nonproductive cough?	10	4	6	40	60
J	Do you feel numbness or weakness in peripheral extremities?	10	8	2	80	20

Table 10: Most common symptoms reported in Prostate Cancer

Sr. No.	Questions	No. of patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	11	8	3	72.72	27.27
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	11	9	2	81.81	18.18
C	Do you feel abdominal pain or diarrhea?	11	6	5	54.54	45.45
D	Do you feel that your hairs have started falling?	11	7	4	63.63	36.36
E	Do you feel pain in gum or gum bleeds?	11	3	8	27.27	72.72
F	Do you experience pain in joints?	11	1	10	9.09	90.90
G	Do you experience mood swings after medication?	11	6	0	100	0
H	Do you experience any deafness or vision problems?	11	3	3	50	50
I	Have you experiencing shortness of breath or nonproductive cough?	11	6	0	100	0
J	Do you feel numbness or weakness in peripheral extremities?	11	6	0	100	0

Table 11: Most common symptoms reported Bladder Cancer

Sr. No.	Questions	No. of patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	4	4	0	100	0
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	4	3	1	75	25
C	Do you feel abdominal pain or diarrhea?	4	1	3	25	75
D	Do you feel that your hairs have started falling?	4	1	3	25	75
E	Do you feel pain in gum or gum bleeds?	4	1	3	25	75
F	Do you experience pain in joints?	4	3	1	75	25
G	Do you experience mood swings after medication?	4	0	4	0	100
H	Do you experience any deafness or vision problems?	4	2	2	50	50
I	Have you experiencing shortness of breath or nonproductive cough?	4	1	3	25	75
J	Do you feel numbness or weakness in peripheral extremities?	4	2	2	50	50

Table 12: Most common symptoms reported in Lymphoma Cancer

Sr. No.	Questions	No. of patients	Yes	No	Yes (%)	No (%)
A	Do you take your medicines at time?	6	6	0	100	0
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	6	3	3	50	50
C	Do you feel abdominal pain or diarrhea?	6	4	2	66.6	33.3
D	Do you feel that your hairs have started falling?	6	5	1	83.3	16.6
E	Do you feel pain in gum or gum bleeds?	6	2	4	33.3	66.6
F	Do you experience pain in joints?	6	3	3	50	50
G	Do you experience mood swings after medication?	6	1	3	25	75
H	Do you experience any deafness or vision problems?	6	1	3	25	75
I	Have you experiencing shortness of breath or nonproductive cough?	6	1	3	25	75
J	Do you feel numbness or weakness in peripheral extremities?	6	1	3	25	75

Table 13: Percentage Distribution of Perceptions among Different Types of Cancer

Sr. No.		BC (%)	LC (%)	EC (%)	LK (%)	CC (%)	OC (%)	COC (%)	PC (%)	BLC (%)	LYM (%)
A	Do you take medicines at time	91.3	100	90	90	57.1	87.5	90	72.72	100	100
B	Do you feel symptoms like Nausea or Vomiting after taking medicine?	95.65	87.5	90	70	100	100	90	81.81	75	50
C	Do you feel abdominal pain or diarrhea?	73.9	37.5	90	70	71.42	50	70	54.54	25	66.6
D	Do you feel that your hairs have started falling?	66.6	75	60	60	85.7	75	70	63.63	25	83.3
E	Do you feel pain in gum or gum bleeds?	30.4	12.5	40	60	14.2	12.5	60	27.27	25	33.3
F	Do you experience pain in joints?	60.8	37.5	70	20	100	62.5	60	09.09	75	50
G	Do you experience mood swings after medication?	73.9	50	0	20	28.57	50	20	100	0	25
H	Do you experience any deafness or vision problems?	26.08	12.5	20	10	42.85	37.5	40	50	50	25
I	Have you experiencing shortness of breath or nonproductive cough?	21.73	12.5	10	0	14.28	25	40	100	25	25
J	Do you feel numbness or weakness in peripheral extremities?	82.60	37.5	100	50	57.1	87.5	80	100	50	25

Where; BC: Breast Cancer, **LC:** Lung Cancer, **EC:** Esophagus Cancer, **LK:** Leukemia, **CC:** Cervix Cancer, **OC:** Ovarian Cancer,

COC: Colon Cancer, **PC:** Prostate Cancer, **BLC:** Bladder Cancer, **LYM:** Lymphoma

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