

INSIGHTS FROM A RETROSPECTIVE STUDY: BREAST CANCER TREATMENT,
ADVERSE EFFECTS AND SECONDARY CANCER INCIDENCESwapna Sunil^{1*}, Vinsu Ann Shaji², Sherin Mariam Varghese³, Jasmine Rachel Cherian⁴, Dr. Philip Jacob⁵ and
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Article Received on 27/06/2024

Article Revised on 17/07/2024

Article Accepted on 07/08/2024

ABSTRACT

Cancer is a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body. These contrast with benign tumors, which do not spread. Possible signs and symptoms include a lump, abnormal bleeding, prolonged cough, unexplained weight loss, and change in bowel movements. Over 100 types of cancer affect humans. This study aims to find out the proportion of different cancers in different age populations, in various gender groups, and to study the treatment, adverse drug reactions, and occurrence of secondary cancer associated with breast and lung cancer. This study is a hospital-based 6 months long retrospective study involving 400 patients from Oncology Hospital. Data was collected with the help of case report forms which included Laboratory values, diagnosis, treatment, sex, age, and Naranjo scale to assess the adverse drug reactions experienced. From the study, we were able to conclude that for the treatment of breast cancer, the commonly used medications were Cyclophosphamide, Docetaxel, and Letrozole. The frequently used pre-medications were Ondansetron, Calcium with Vitamin D3, and Dexamethasone. From the study, it was evident that the frequency of peripheral neuropathy occurring due to the administration of Docetaxel was high, hemorrhagic cystitis was caused due to Cyclophosphamide, and Letrozole caused joint pain, and hyperlipidemia. Metastasis to bone and adjacent breast was found to be the highest occurring secondary cancer due to breast cancer.

KEYWORDS: Cancer, Treatment, Adverse Drug reaction, Secondary Reaction, Metastasis.**INTRODUCTION**

Cancer, a multifaceted group of diseases characterized by abnormal cell growth, poses significant challenges to global health, resulting in substantial morbidity and mortality.^[1] Early detection and intervention are paramount, necessitating recognition of signs and symptoms such as unexplained weight loss, fatigue, and abnormal growth.^[2] With various types including carcinomas, sarcomas, lymphomas, and leukemias, tailored treatment approaches are essential. While conventional methods like surgery, chemotherapy, and radiation therapy are common, advancements in immunotherapy, targeted therapies and precision medicine offer more personalized and innovative options.^[3] This comprehensive overview underscores the importance of understanding cancer's diverse manifestations and treatment modalities to drive research, improve diagnosis, and enhance patient outcomes worldwide.

Breast cancer is the most common female cancer worldwide including in India.^[4] The incidence of breast cancer is constantly increasing in all regions of the world. Despite advances in detection and treatment, which have led to improved mortality rates it is essential to understand cancer literacy in women.^[5]

Breast cancer occurs when some breast cells begin to grow abnormally. These cells divide more rapidly than healthy cells and continue to gather, forming a lump or mass. The cells may spread (metastasize) to the lymph nodes or other parts of the body. Breast cancer mostly begins with cells in the milk-producing ducts (invasive ductal carcinoma) in the glandular tissue called lobules (invasive lobular carcinoma) or in other cells or tissue within the breast.^[6]

OBJECTIVE

To study the treatment, adverse drug reaction, and occurrence of secondary cancer associated with breast cancer.

METHODOLOGY

A Retrospective study was carried out in the oncology department of St.Gregorios Medical Mission Multispecialty Hospital, Parumala, Thiruvalla. A sample size of 400 patients was selected. The study duration was 6 months. The study was conducted after receiving approval from the Institutional Ethics Committee of

Pushpagiri Medical College Hospital, Thiruvalla. The data collection form includes the demographic criteria, reports, complaints, staging, recurrence, treatment, and follow-up. The study was conducted to find out the treatment, adverse drug reaction, and occurrence of secondary cancer associated with breast cancer.

RESULTS

DISTRIBUTION OF TREATMENT IN BREAST CANCER (n-91)

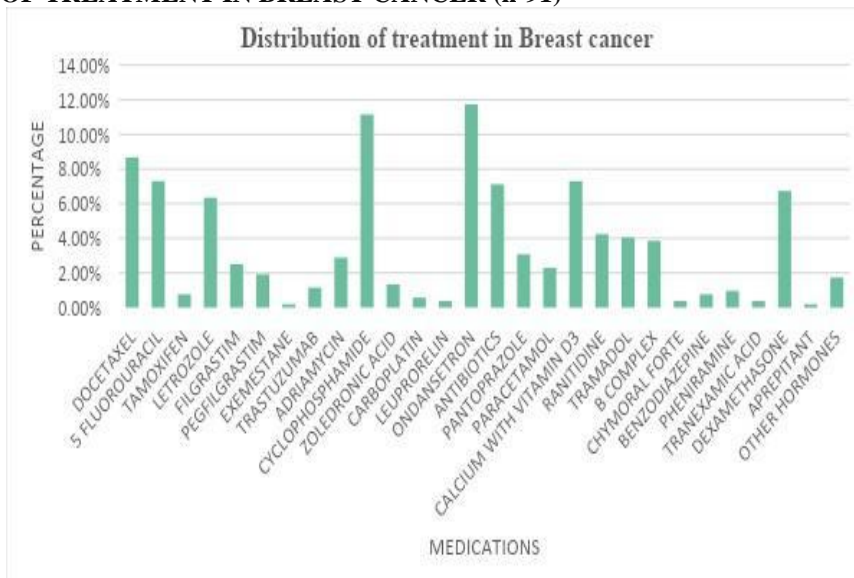


Figure No. 1: Distribution of treatment in Breast cancer.

For the treatment of Breast cancer, the most commonly used medications were Cyclophosphamide (11.15%), Docetaxel (8.67%), and Letrozole (6.35%). The commonly used pre-medications were Ondansetron

(11.73%), Calcium with Vitamin D3 (7.3%), and Dexamethasone (6.73%). Tramadol was given as supportive medication.

Table No. 1: Distribution of Adr Associated Treatment Given For Breast Cancer.

Sl. No.	Suspected Drug	ADR	Frequency
1	Adriamycin	Alopecia	1
2	Trastuzumab	Anemia	1
3	Cyclophosphamide	Black tarry stool	1
		Body pain	1
		Hemorrhagic Cystitis	4
		Lymphadenopathy	1
		Neutropenia	1
4	Docetaxel	Cellulitis	1
		Grade 1 fatty liver	2
		Hemoptysis	1
		Hyponatremia	1
		Mucositis	2
		Pedal edema	1
		Peripheral neuropathy	5
5	5-Fluorouracil	Cholelithiasis	2
		Erythema	1
6	Carboplatin	Ear discharge	1
		Body Pain	1
		Peripheral neuropathy	1
		Anemia	2
		Hypocalcemia	1

7	Letrozole	Hyperlipidemia	2
		Insomnia	1
		Joint pain	4
8	Tamoxifen	Vaginal bleeding	1
	Total		40

Table No. 2: Distribution of Occurrence of Secondary Cancer Associated With Breast Cancer.

Sl. No.	Occurrence of Secondary cancer	Frequency	Percentage (%)
1	Bone metastasis	2	25
2	Brain metastasis	1	12.5
3	Lymph node metastasis	1	12.5
4	Metastasis into omentum	1	12.5
5	Metastasis in the left breast	2	25
6	Metastasis in the right breast	1	12.5
	Total	8	100

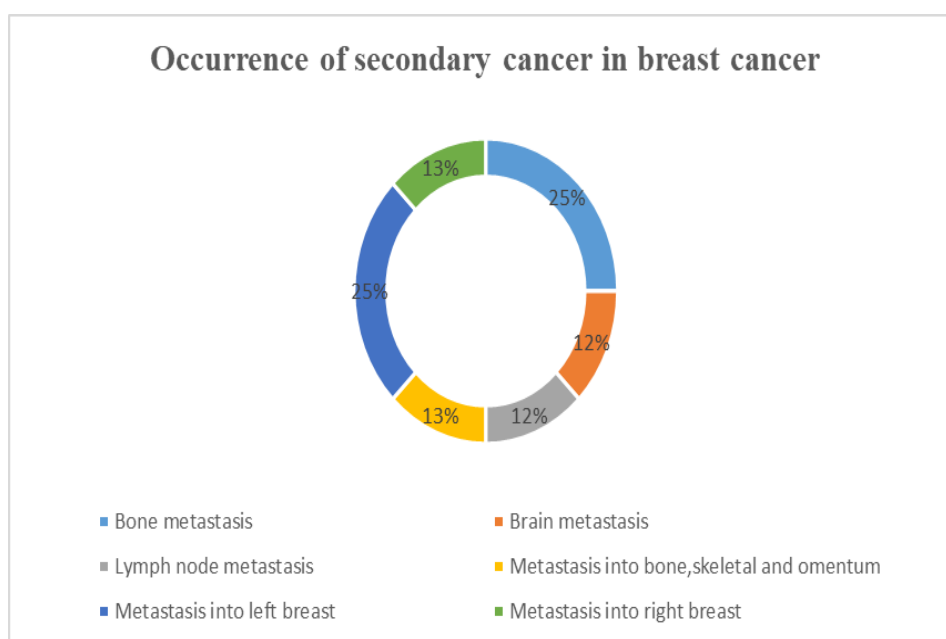


Figure No. 2: Distribution of occurrence of secondary cancer in breast cancer.

Among the 400 patients taken for study, 91 patients had breast cancer out of which 8 of them exhibited occurrence of secondary cancer. Metastasis to the adjacent breast and bone was found to be the highest.

DISCUSSION

Cancer is a large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably, go beyond their usual boundaries to adjoining parts of the body, or spread to other parts. The latter process is called metastasizing and is a major cause of death from cancer. Neoplasm and malignant tumors are other names of cancer. Cancer is the second leading cause of death globally accounting for an estimated 9.6 million deaths or one in six deaths in 2018. Lung, Prostate, Blood, Brain, Lymph node, Liver, etc. are common cancers in males. In females cancers affecting the breast, endometrium, and ovary are common.

For the treatment of Breast cancer, the most commonly used medications were Cyclophosphamide (11.15%), Docetaxel (8.67%), and Letrozole (6.35%). The commonly used pre-medications were Ondansetron (11.73%), Calcium with Vitamin D3 (7.3%), and Dexamethasone (6.73%). Tramadol was given as supportive medication. From the study, it was evident that the frequency of peripheral neuropathy occurring due to the administration of Docetaxel was high, hemorrhagic cystitis was caused due to Cyclophosphamide, and Letrozole caused joint pain and hyperlipidemia. A study conducted by **Morimoto Y *et al*** stated that out of 141 Patients who have received aromatase inhibitors, 70 had been treated with Anastrozole and 71 with Letrozole. Joint symptoms occurred in 60.3% of the 141 patients.^[7] A study conducted by **Matz EL *et al*** suggested that Cyclophosphamide are widely used drug for malignancies. One of the most significant adverse reactions to this drug is hemorrhagic cystitis.^[8]

Among the 400 patients taken for study, 91 patients had breast cancer, out of which 8 of them exhibited the occurrence of secondary cancer. Metastasis to the adjacent breast and bone was found to be the highest. From the study, it was evident that the frequency of Anemia occurring due to the administration of Carboplatin was high. A study conducted by **Marani TM et al** indicated that carboplatin-induced antibody reacting in-vitro by a complex mechanism combining elements of 'immune complex', drug adsorption, and auto-antibody mechanisms.^[9]

CONCLUSION

From the study, we were able to conclude that, for the treatment of breast cancer, the commonly used medications were Cyclophosphamide, Docetaxel, and Letrozole. The frequently used pre-medications were Ondansetron, Calcium with Vitamin D3, and Dexamethasone.

From the study, it was evident that the frequency of peripheral neuropathy occurring due to the administration of Docetaxel was high, hemorrhagic cystitis was caused due to Cyclophosphamide, and Letrozole caused joint pain and hyperlipidemia.

Metastasis to bone and adjacent breast was found to be the highest occurring secondary cancer due to breast cancer.

ACKNOWLEDGEMENT

We thank Nazareth College of Pharmacy Othara, Thiruvalla, and St.Gregorios Medical Mission Multi-speciality Hospital, Parumala, Thiruvalla, Kerala for their kind support in this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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