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ROLE OF DOSE-INTENSITY OF NEOADJUVANT CHEMOTHERAPY AND COMPLIANCE WITH COMPLETE PATHOLOGICAL REPORT

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ABSTRACT
The purpose of this study is to understand the patterns of neoadjuvant chemotherapy utilization in TNBC and factors that facilitate in improving the response rate, toxicities and compliances. Triple negative breast cancer represents cancer cells that lack progesterone receptors, estrogen receptors as well as the protein called HER2, the tumor primarily starting in the breast, with the metastasis expected to effect the brain and the lungs. In this study, we reviewed the treatment patterns for TNBC and factors that facilitate in improving the response rate, toxicities and compliances. A retrospective observational study was carried out at Basavatarakam Indo American Cancer Hospital, Hyderabad, Telangana. A total of 150 case files of patients of TNBC were evaluated in the study for a duration of 6 months. The parameters included in the evaluation were, A chi-square test of individuality presented that there was a substantial association between the percentage of subjects who reported to show a Pathological complete response and who receive a combination of Anthracycline and cyclophosphamide and paclitaxel. By the best recommendation by the physician and in accordance with the patient preferences to receive which type of treatment we can strive to improve the quality of life. Although chemotherapy is known to have adverse effects by receiving Supportive therapy, we can manage the adverse drug effects and arrest the progression of triple-negative breast cancer.

KEYWORDS: Triple-negative breast cancer, anthracycline chemotherapy, taxanes.

INTRODUCTION
Triple-negative breast cancer (TNBC) constitute store constitutes about 70% of the deaths caused by cancer, with the poorest prognostication compared to othersubtypes of breast cancer. It is highly prevalent in the female population. According to the American Cancer Society even at stage three, the survival rate is at 72%. Upon comparison to the other kinds of cancers, the pattern of metastatic spread in TNBC is different, involvement of the brain and lungs is likely to be seen. This particular type of breast cancer contains receptor cells that respond to hormones. Therefore this type of cancer can be defined by the lack of expression of either estrogen receptor (ER) or progesterone receptor (PR) or human epidermal growth factor receptor 2 (HER2 receptors) by the cancer cells. Upon comparison to the other kinds of cancers, the pattern of metastatic spread in TNBC is different, involvement of the brain and lungs is likely to be seen. -12 The current epoch called for more meticulous studies leading to the division of TNBC into different subtypes. The divisions are made on the basis of their characteristics on a molecular level. Lehman et al analysed the gene-expression profile of TNBC and concluded the existence of 7 different subtypes in 2009.

TNBC Treatment Overview

Department of Pharmacy Practice SUCP (J.N.T.U.H) Page 26 Engagement in a clinical trial of recent prophylaxis for TNBC is a great course of action, no matter what of the stage of the cancer is. Out of all the breast cancers, TNBC is the most unconventional type of breast cancer constituting to about 10-15% of the total breast cancers on the whole. Research often allows patients to have more ingress to pills. It thus has an inclination to have an appalling perusal (end results) upon analogising with disparate varieties of breast most cancers. -9 In this segment, the guidelines provided by the ASCO (American Society of Clinical Oncology) and ESMO (European Society of Medical Oncology) (ESMO) are stated. The goto method of care in patients suffering from triple-negative breast cancer (TNBC) can be defined by means of these guidelines. The common treatment for triple-negative breast cancer (TNBC) includes a concoction of therapy, radiation, and surgery. -10.

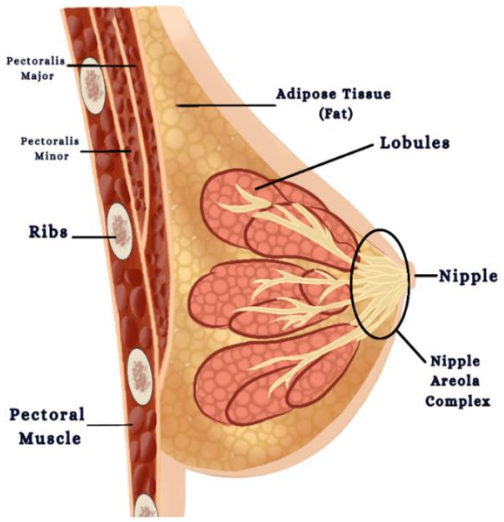

FIG. 1: Anatomy of Breast.

DRUG	BRAND NAME	DOSE	ROUTE
Doxorubicin	Adriamycin	85 mg	IV
Cyclophosphamide	Endoxan	850 mg	IV
Paclitaxel	Taxol	270 mg	IV
Epirubicin	Ellence	150 mg	IV
Docetaxel	Taxotere	110 mg	IV
Aprepitant	Empov	125/80 mg	IV
Pegfilgrastim	Peggrafeel	6mg/0.6ml	IV

Fig. 2: Doses of drugs used in treatment of TNBC.

It's crucial forsurgical decision-making to understand the extent of the spread of triple-negative breast cancer (TNBC), to make sure the decision is justifiable. Many kinds of research are concluded to determine whether or not patients with triple-negative breast cancer (TNBC) were substantially more presumably to pick mastectomy over lumpectomy. -13 Patients who have higher-grade tumors but are young in age, still require surgery, age has nothing to do with the treatment, it always depends upon the intensity of the disease, the spread of the disease, and the stage of the disease. It's a harsh reality that triple-negative breast cancer (TNBC) has a proclivity to be exceptionally truculent but the surgical choice still depends upon the intensity of the spread of the disease inside the patient. This is easily determined by running the necessary tests on the patient and identifying the extent of the disease. It also depends upon conventional signs and symptoms manifested by a patient. But it must be kept in mind that these signs and symptoms are always everchanging in the patient thus demanding a need to change the treatment as necessary. And most importantly it depends on the patient's choice. -11

Radiotherapy in TNBC:

Effect of TN status on adjuvant radiotherapy Department of Pharmacy Practice SUCP (J.N.T.U.H) Page 27 Conventionally radiotherapy is administered in TNBC as directed in other breast cancer subtypes successive to mastectomy or conservative breast surgery (CBS), however there is still controversy on this matter. As TNBC are rapidly multiplying and locally aggressive cancers, CBS followed up by radiation therapy in early-stage (T1-2N0) may not be proven to be as effective as mastectomy in reference to other types of breast cancer. However, Abdulkarim et al. reported that women with TNBCs possess a pathogenic mutation in the BRCA1 gene and tumors deficient in functional BRCA1 are deficient in double-strand DNA break repair by homologous recombination and are possibly extremely radiosensitive. If CBS is succeeded by radiotherapy, the breast and surrounding tissue could possibly eradicate occult BRCA1- deficient tumor foci and thereby bring about a decline in locoregional recurrence in those patients.

Neoadjuvant Treatment

Insertion of carboplatin in the neoadjuvant setting displayed an increase in the rate of pathological complete response in TNBC from 37.0% to 52.1% (OR 1.96, 95% CI 1.46–2.62). Consequently, it is likely to be considered a possible option in patients with TNBC at the cost of more recurring hematological toxicities. For patients with TNBC treated in a neoadjuvant environment but with residual disease postchemotherapy at the time of surgery, the CREATE-X trial displayed improved results when administering capecitabine for six to eight cycles as adjuvant treatment. Disease-free survival rate at 5 years was made better with capecitabine by around 14%

(69.8% vs 56.1%; HR 0.58; 95% CI 0.39–0.87) and collective survival (OS) at 5 years was improved by around 8% (78.8% vs 70.3%; HR 0.52; 95% CI 0.30–0.90).14 The post-neoadjuvant setting has garnered great attention following the publication of the CREATE-X trial and multiple studies are currently assessing and analyzing new treatment options for patients battling the residual disease at the time of surgery.

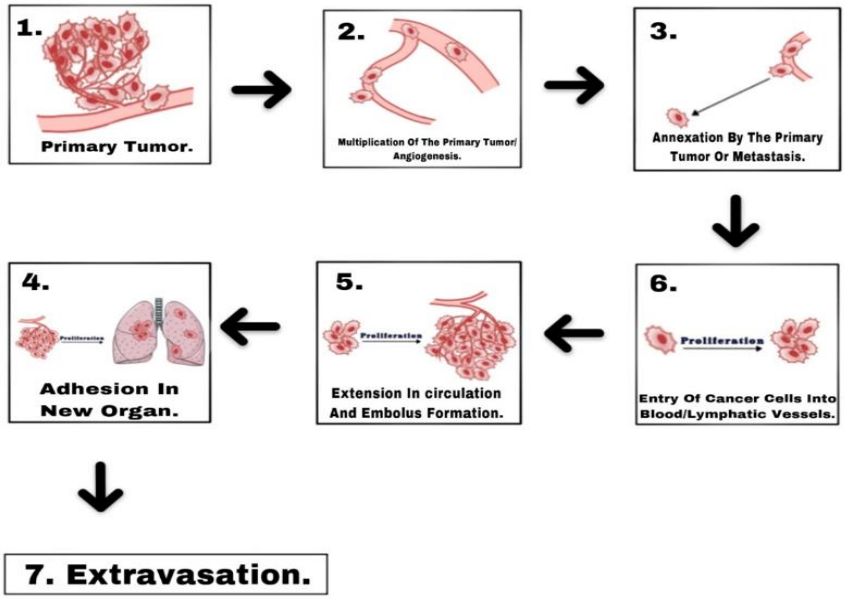

Figure no 3 Metastasis of Breast Cancer.

Adjuvant Treatment

The majority of TNBC benefit from adjuvant chemotherapy with the likely exception of some low-risk histologic subtypes (secretory juvenile, apocrine, or adenoid cystic carcinomas). As and when adjuvant chemotherapy is indicated, anthracycline- and taxanes-based regimens are considered the optimal strategy. A thing off exceptional engrossment in bellicose tumors dose-dense chemotherapy. In fact, efficacy may be further developed when increasing the intensity of treatment by giving individual drugs subsequently at full dose as opposed to in lower-dose all at once, or by condensing the intervals in the middle of cycles. This was evaluated in a singular patientlevel meta-analysis of trials comparing 2-weekly versus standard 3-weekly schedules and of trials comparing sequential versus concurrent administration of anthracycline and taxane chemotherapy. Data was provided for 26 trials including 37,298 patients, mostly aged younger than 70 years. It showed that lesser breast cancer recurrences were seen with dose-intense than with standard-schedule chemotherapy (10-year recurrence 28.0% vs 31.4%; RR 0.86; 95% CI 0.82–0.89). Similarly, 10-year breast cancer mortality was reduced (18.9% vs 21.3%; RR 0.87, 95% CI 0.83–0.92), as was all-cause mortality (22.1% vs 24.8%; RR 0.87, 95% CI 0.83–0.91). The importance of platinum agents in the early setting is being evaluated as of now. The US trial EA1131 is an ongoing randomized phase III postoperative trial analyzing single-agent platinum-based chemotherapy to capecitabine in patients with residual TNBC with residual disease following standard neoadjuvant chemotherapy. The primary objective exists in comparing invasive disease-free survival. -1

Treatment Of Advanced Disease

Chemotherapy: Within patients battling advanced TNBC treated with an anthracycline with or without a taxane in the neoadjuvant or adjuvant setting, carboplatin demonstrated comparable efficacy and a more agreeable toxicity profile than docetaxel.19 In the subgroup of patients with germline BRCA1/2-mutated breast cancer, carboplatin showed to double the objective response rate as compared to docetaxel (68% vs 33%, P=0.01).19 This suggests the importance of characterizing the BRCA1/2 mutation status of patients with advanced disease to also help to inform on the choices of the best first-line chemotherapy approach. Poly ADP-ribose polymerase (PARP) inhibitors Olaparib FDA- and EMA-approved targeted therapy : In metastatic patients harboring a germline BRCA mutation, olaparib has displayed significant activity in both TNBC and luminal-like disease. The OlympiAD study was delineated to analogise and contradistinction the utilization of olaparib compared to customary single-agent chemotherapeutic agents (capecitabine, eribulin, or vinorelbine in 21-day cycles) in patients with BRCA-mutated cancer of the breast. Within the 302 patients that underwent randomization, 205 received olaparib, and 97 received standard chemotherapy. The response rate was 59.9% in patients receiving olaparib and 28.8% in patients receiving standard chemotherapy. The rate of adverse events was higher (50.6%) in the chemotherapy group versus the olaparib group (36.6%). Median progression free survival (PFS) was 7.0 months with olaparib and 4.2

months with chemotherapy (HR 0.58; 95% CI 0.43–0.80). However, no significant difference was observed in OS that was 19.3 months with olaparib and 17.1 months with standard therapy (HR 0.90; 95% CI 0.66–1.23) Talazoparib FDA-approved targeted therapy: With a design similar to the OlympiAD study, the EMBRACE trial showed important activity for talazoparib in the treatment of metastatic breast cancer patients harboring a germline BRCA mutation including women with TNBC.25 This was an at random open-label phase III study that included 431 patients divided into two groups: 287 patients were given talazoparib and 144 were given standard chemotherapy (capecitabine, eribulin, gemcitabine, and vinorelbine). A significantly longer median PFS, the primary result of the study, was identified with the group receiving talazoparib (8.6 months vs 5.6 months; HR 0.54; 95% CI 0.41–0.71). The objective response rate was also higher in the talazoparib group than in the chemotherapy group (62.6% vs 27.2%; OR, 5.0; 95% CI, 2.9–8.8). Median OS was 22.3 months (95% CI 18.1– 26.2) in the talazoparib group and 19.5 months (95% CI 16.3–22.4) in the chemotherapy group, with no significant difference (HR 0.76; 95% CI 0.55–1.06). Respectively, hematologic grades 3–4 adverse events (primarily anemia) and nonhematologic grade 3 adverse events occurred in 55% and 32% of the patients who received talazoparib and each in 38% of the patients who received standard therapy. Within this trial, the quality of life in the two treatment arms was analyzed. In the patientreported outcomes analysis, a significant overall improvement was observed in the global health status/quality of life with the utilization of talazoparib as compared to chemotherapy.

Immunotherapy

Atezolizumab has displayed safety and good clinical activity in TNBC.Chemotherapy, taxanes specifically, may enhance tumor antigens released by activating toll-like receptors and promoting dendritic cell activity.28 Based on this rationale, a phase III trial randomized patients with metastatic TNBC to first-line atezolizumab plus nab-paclitaxel and placebo plus nab-paclitaxel.29 This study had two primary endpoints: PFS and OS. A total of 451 patients were involved in each treatment group. A better PFS was obtained in the atezolizumab plus nab-paclitaxel group (7.2 months vs 5.5 months; HR 0.80; 95% CI 0.69–0.92). OS with atezolizumab plus nab-paclitaxel was 21.3 months as compared to 17.6 months in the chemotherapy alone group (HR 0.84; 95% CI 0.69–1.02). A predetermined subsection perusal showed a considerable gain with the inclusion of immunotherapy amidst patients having PD-L1 positive tumors: median PFS was 7.5 months upon contrasting with 5.0 months (HR 0.62; 95% CI 0.49–0.78) and median OS was 25.0 months versus 15.5 months (HR 0.62; 95% CI 0.45–0.86) favoring the group receiving atezolizumab plus nab-paclitaxel. Lately in patients with PD-L1 Triple-negative breast cancer, as first-line therapy, the amalgamation of atezolizumab along with nab-paclitaxel has been accepted by FDA. The conclusion of various in-progress trials is anticipating additional evaluation of the function of immunotherapy for the therapy of patients with triple-negative breast cancer.

AIM

The purpose of this study is to understand the patterns of neoadjuvant chemotherapy utilization in TNBC and factors that facilitate in improving the response rate, toxicities and compliances.

OBJECTIVES

- To determine the percentage of patients who are taking adjuvant, neoadjuvant and palliative chemotherapy in TNBC.
- To determine the percentage of patients who are compliant in the treatment protocol.
- To study the the dose intensity
- To evaluate all the patients who've taken chemotherapy and/or taken chemotherapy at least once who're having TNBC.
- To evaluate all the patients who've undergone surgery post neoadjuvant chemotherapy for the pathological complete response.
- To Evaluate the efficacy of Combination of chemotherapeutic agents such as Doxorubicin, Cyclophosphamide and Paclitaxel.
- To understand the prescribing pattern of the chemotherapeutic agents and assess which therapeutic agent has highest number of subjects having a pathological Complete response in Triple Negative carcinoma of the breast

MATERIALS AND METHODS

This is a unicentric, observational, retrospective study. The study was performed in inpatient wards of Basavatarakam Indo American Cancer Hospital, Hyderabad, Telangana, India. This study was performed for period of six months from 2nd January 2021 to 10th June 2021. The study was carried out in 150 patients

INCLUSION CRITERIA

- All the patients who've taken chemotherapy and/or taken chemotherapy at least once who're having TNBC.
- All patients who've undergone surgery post neoadjuvant chemotherapy for the pathological complete response.
- Subjects who aren't prescribed any chemotherapy, ACT, NACT, palliative, radiation, surgery.

EXCLUSION CRITERIA

Patients who do not have TNBC.

Subjects who are prescribed NACT, ACT, Surgery, Radiation, other chemotherapy for cancer.

Subjects who were diagnosed to have hormone positive breast carcinoma

Subjects who had other forms of breast cancer other than TNBC

Subjects who were pregnant and were diagnosed with TNBC

STUDY PROCEDURE

After obtaining the institutional ethics committee's approval from the hospital authorities, the study was started. In order to effectuate the study, Case sheets were collected from medical records department and the case files of the patients having triple negative breast cancer. were evaluated and a patient profile form was drawn and all the relevant data was recorded in it. Patient data was collected from patient case files. Case sheets and treatment charts. All the study specific data were collected and documented in the designed data collection form. The data collected form included the patient demographic details, IP number, admission and discharge date, current diagnosis, past medical history, co-morbidities, current medications with their dose, frequency and duration of the treatment, adverse drug effects after the treatment. Daily visit was made to the medical record department to collect the data of the patients. Diagnosis, social history, generic names and brand names were recorded daily. The patients were followed from the day of admission till the day of discharge or death. The data was entered in an excel sheet for data analysis and using a statistical software suite SPSS the statistical analysis of the data was carried., The data was then presented in the form of tabular columns and graphical representation.

RESULTS

This observational retrospective study was done among 150 patients with the inclusion of all Individuals who were diagnosed to have Triple Negative Breast carcinoma. women and children were excluded from the study. After fulfillment of all the inclusion and exclusion criteria, the patients were taken into the study.

DIAGNOSIS OF DIFFERENT STAGES OF TRIPLE NEGATIVE CARCINOMA OF THE BREAST

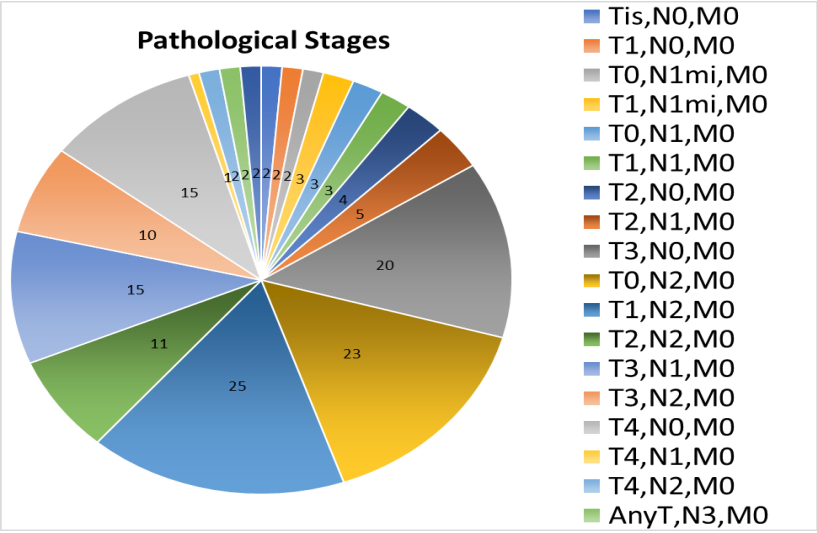

Figure.2 Pathological stages of Carcinoma of Breast.

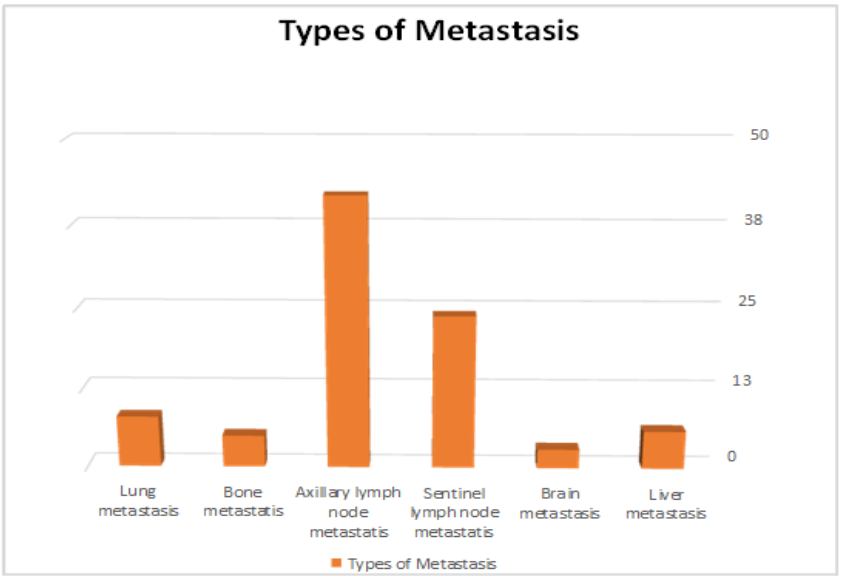

Figure.3 Different Types of Metastasis and the frequency of occurrences in the entire population examined.

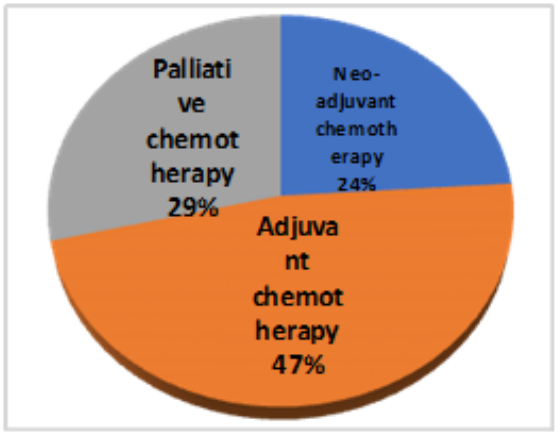

Figure 4. Types Of Chemotherapy.

Table 1: Anti-Cancer Agents For Management Of Triple-Negative Carcinoma Of The Breast.

Type of Chemotherapy	Number Of People Who Received The Type Of Chemotherapy
Doxorubicin + Cyclophosphamide	84
Epirubicin + Cyclophosphamide	19
Paclitaxel	16
Docetaxel +Cyclophosphamide	9
Capecitabine	3
Denosumab +Paclitaxel	4
Gemcitabine	3
Carboplatin	2
Trastuzumab	7

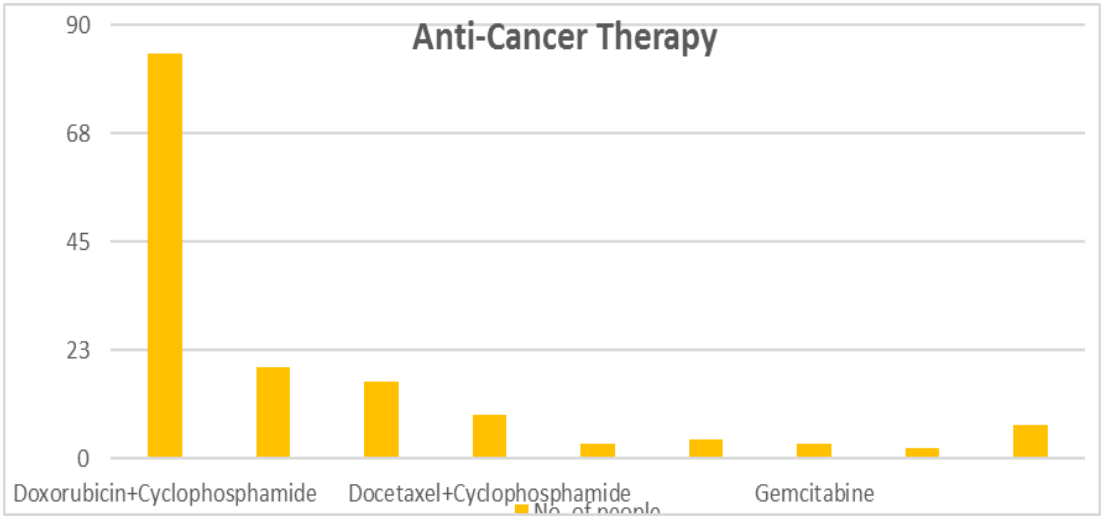

Figure 5: Anti-cancer therapy.

As and when adjuvant chemotherapy is indicated, anthracycline- and taxanes-based regimens are considered the optimal strategy.

A thing off exceptional engrossment in bellicose tumors dose-dense chemotherapy. In fact, efficacy may be further developed when increasing the intensity of treatment by giving individual drugs subsequently at full dose as opposed to in lower-dose all at once, or by condensing the intervals in the middle of cycles.

Supportive Therapy: Table.2 frequency of Supportive Therapy Prescribed.

Table 3: Frequency of Subjects Prescribed Treatment.

	Medical adherence Percentage	Frequency of Subjects Prescribed Treatment	Frequency of Subjects medical adherence
Doxorubicin+ Cyclophosphamide	90%	40	95
Epirubicin+ Cyclophosphamide	98%	72	48
Paclitaxel	98%	68	55
Docetaxel+ Cyclophosphamide	99%	60	40
Capecitabine	99%	72	99
Denosumab+ Paclitaxel	97%	32	32
Gemcitabine	97%	50	98
Carboplatin	99%	56	32
Trastuzumab	90%	46	78
Methotrexate	92%	43	82
5-fluorouracil	99%	37	98

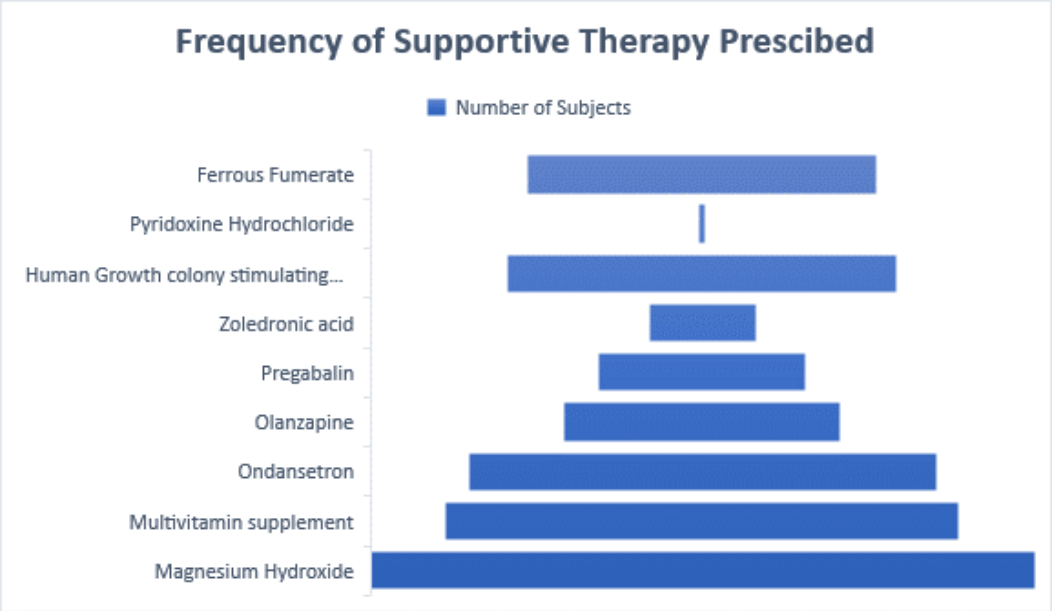

Figure 6: Frequency of Supportive therapy prescribed.

MEDICAL ADHERENCE

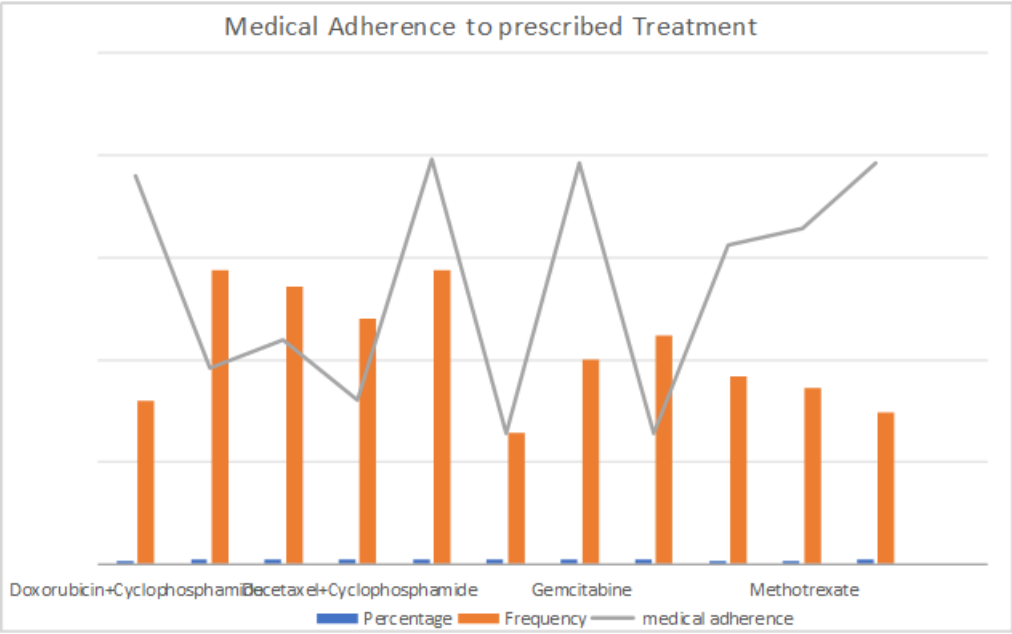

Figure 7: Medical adherence shown in a graphical representation.

Table 4: Disease Free and event-free survival over months and different chemotherapy Prescribed.

Column1	Doxorubicin+ Cyclophosphamide therapy	Paclitaxel therapy	Carboplatin
None less than 1 month	40	16	10
1-6 months	22	18	18
6-12 months	16	15	17
12-18 months	14	14	15
18-24 months	7	12	18
24-30 months	8	10	8
30-36 months	1	1	1

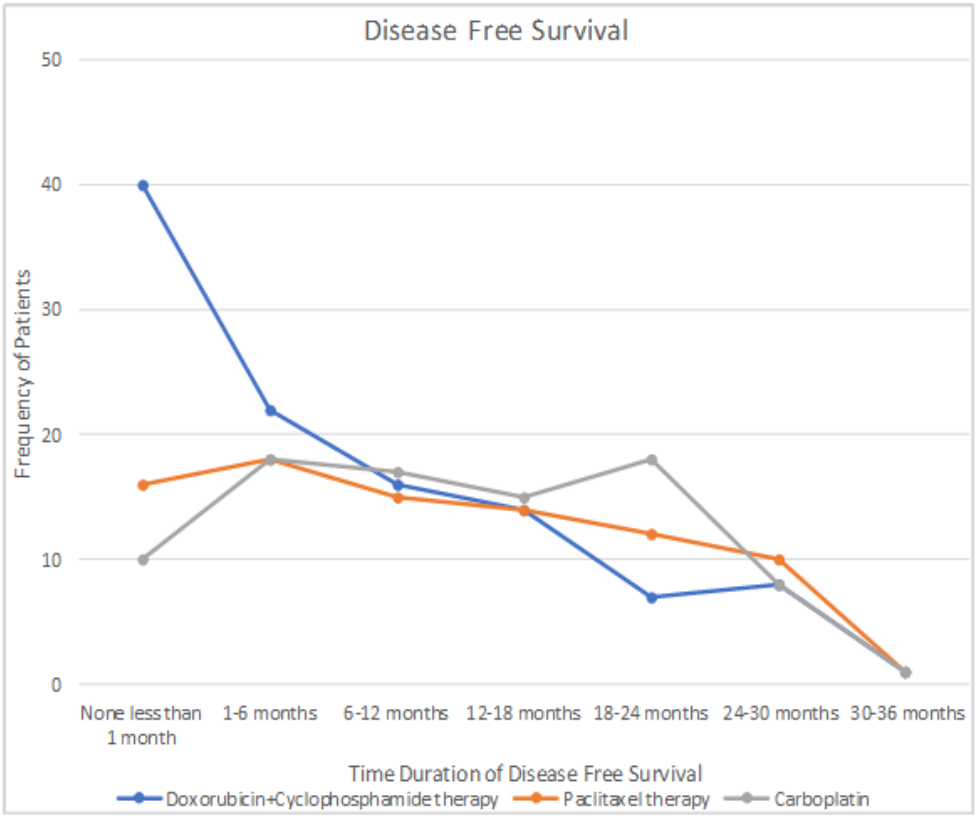

Figure 8: Disease Free and event-free survival over months and different chemotherapy Prescribed.

Long Term Effects and Complications of Anti-Cancer agents

Table 5: Frequency Distribution of adverse Effects seen in Subjects who received Chemotherapy.

Types of Complications and Adverse Drug Effects	Frequency of Occurrence of ADRs
Infections	12
Leukopenia	18
Hypoalbuminemia	87
Stomatitis	88
Diarrhea	14
Peripheral vascular disease	16
Dyslipidemia.	24
Cardiac Complications	89
Neurologic Complications	16
Peripheral neuropathy	19
Chronic sensory neuropathy	86
Vomiting	23
Allodynia	21

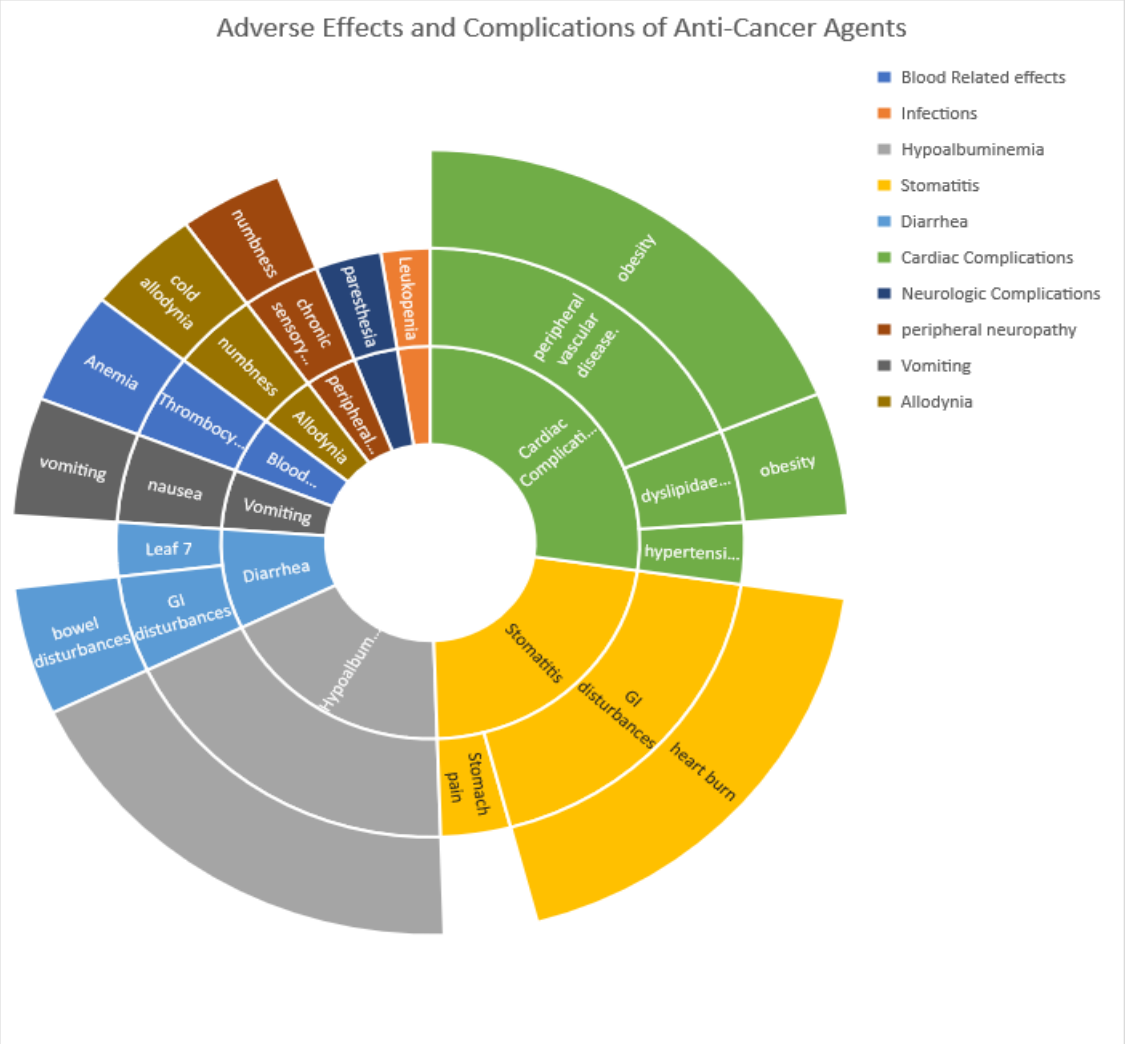

Figure 9: Complications and Adverse Effects were seen in the population Examined.

Pathological Complete Response By Chi Square Level Of Individuality

Table 6: Chi Square Test Calculations.

	PCR achieved	PCR not achieved	*Marginal Row Totals*
Anthracycline and taxanes were given	65 (53.76) [2.35]	31 (42.24) [2.99]	96
Anthracycline and taxanes were not given.	19 (30.24) [4.18]	35 (23.76) [5.32]	54
Marginal Column Totals	84	66	150 (Grand Total)

The Chi-square statistic is 14.836. The p-value is .000117. Significant at $p < .05$.

A Chi-square test of individuality presented that there was a substantial association between the The Chi-square statistic is 14.836. The p-value is .000117. Significant at $p < .05$.

Percentage of subjects who reported to show a complete response and who receive a combination of Anthracycline and cyclophosphamide and paclitaxel,

X2 (1, N = 150) =14.836., The p-value is .000117.

DISCUSSION

A study was directed at Indo American Cancer Hospital and Research Institute.

The Total number of Individuals who were diagnosed to have triple-negative breast cancer was collectively 150 individuals. The duration of follow-up was a maximum of three years between 2018-2020.

The main management of Triple-Negative Breast Cancer is of three types Radiation therapy, Modified Radical Mastectomy, Chemotherapy given before surgery known as Neo-adjuvant chemotherapy, chemotherapy given after surgery known as Adjuvant chemotherapy, Palliative chemotherapy.

The choice of therapy for each patient depends upon the stage of the disease, patients 'preferences and after carefully explaining how the therapy works and obtaining informed consent from the patient and representatives, the physician recommends the specific therapy to the patient.

The triple-Negative disease of the breast is known to respond well to anthracyclines and taxanes in chemotherapy and previous studies on this subtype of breast Cancer also show that in comparison to other types of Cancer of the Breast. Although there is no specific therapy that can be concluded to be the mainline treatment for triple-negative therapy that can be concluded to be the mainline treatment for a triple-negative type of breast cancer; it is seen in previous clinical trials that this type of breast cancer has the highest response to Anti-Cancer agents such as anthracyclines, Cyclophosphamide, Paclitaxel, Docetaxel, Carboplatin.

The triple-negative disease of the breast in the population studied was mainly by first diagnosing the stage of cancer. Cancer which is localized only to the breast tissues and has not yet spread to surrounding lymph nodes is classified as an early stage and has known to have a good prognosis. Early-stage cancer will be prescribed anticancer agents by calculating the body surface area and adjusting the dose of the agent which will be personalized to the patient.

Radiation therapy was given to 11% in all the population of triple-negative disease of breast cancer and chemotherapy was given to almost 99% of the population either before surgery or after surgery. Surgery was of two types mainly the Modified Radical Mastectomy was performed in 56% of the population of patients and The Breast Conservation Surgery was performed in 21% of the population of patients. The Sentinel Lymph Node Biopsy was performed in 19%, and axillary lymph node Dissection in 4% of the total population. A combination of Modified Radical Mastectomy and chemotherapy after surgery was done in 47% of the population examined.

On the appearance of adverse effects, the dose reduction was made by the physician in 6.67% of individuals out of the whole population. On the other hand, the dose was maintained throughout therapy in the majority of the individuals about 93.3% of the total population.

The majority of the individuals were diagnosed to have a tumor which is >2cm and <5cm in clear view and the metastasis in one to three lymph nodes that are surrounding the breast area were found to be 45% with no metastasis to distant parts of the body.

The chemotherapy distribution among the 150 patients presented that about 84% of the population were given doxorubicin and cyclophosphamide combination of chemotherapy. it was known that about 19% were prescribed epirubicin and Cyclophosphamide.

The patients who were prescribed Carboplatin were given a mixture of KCl 1 amp and Magnesium oxide was diluted in 1 pint NS was prearranged as caring hydration therapy in 6 patients 4% of the total population. The intention for this administration is to safeguard the patient from Cisplatin-caused nephrotoxicity.

Patients were chosen to take either doxorubicin from 70mg to 300mg by calculating the body surface area and intravenously with Cyclophosphamide from650 to 1000 mg or the patients took paclitaxel 90 to 240mg or the combination of doxorubicin 50 mg and cyclophosphamide is also given in 43% of individuals followed later by paclitaxel 150 mg. Therapy was administered an average of every 21 days. Any patient was considered to have a delay in receiving the dose if the patient reported after 21 days of previous therapy/ Doxorubicin was prescribed in the regimen for a maximum of eight cycles; paclitaxel was administered until disease severity was present. At the time of severity of disease, patients were even given suggestions for Modified Radical Mastectomy and were referred to a physician for the further decision of chemotherapy after surgery.

The success of chemotherapy was revealed by the pathological complete response. Pathological Complete Response was reserved as an analytical parameter for assessing whether the anti-cancer therapy was proved to be effective in triple Negative Cancer of the breast.

For the individuals receiving Anthracycline with a combination of cyclophosphamide followed by taxanes, the pathological complete response was seen in 43% of the total populations and 15% showed partial response indicating they had a relapse of breast cancer and 4% showed disease-free survival and 1.6% was the mortality percentage.

Metastasis was present in 59% of the total population and the remaining 41% of the population were known to have any form of metastasis. Metastasis to axillary lymph node was seen in about 40% of total metastasis, sentinel lymph node metastasis is seen in about 22% of the total metastasis,6% of the population had lung metastasis, and 4.5%had liver metastasis,2.5% had bone metastasis and 1.65% had brain metastasis.

For the Patients who had a disease state which has advanced to an incurable stage, these individuals were given palliative management. Palliative management is solely focused on improving the quality of life of a Patient. Palliative specialist strives to help patients with symptomatic treatment and improving the quality of life of a patient.

Human Growth colony-stimulating factor was given in 85 individuals in between their prearranged therapy to combat the neutropenia caused by anti-cancer agents were prescribed as a prophylactic measure to avoid risk of infections that may be caused majorly due to neutropenia and immune-compromised state of the individual.

Bisacodyl and Cremaffin were the laxatives that remained given in 98% of the patients, both as sole agents and in a grouping of the two. A combination of Bisacodyl 10 mg and Cremaffin 30 ml was given to 28 patients (16.3%), followed by Bisacodyl 10 mg in 18 patients (14.7%). The additional patients received a combination of the same with mixed doses. 3 (2%) of the total population examined were not prescribed laxatives.

Vitamins were prescribed to patients, as supplements and to increase folic acid levels. Multivitamins were prescribed in 40 patients (33.3%). Vitamin B- the complex was prescribed as a single agent in 2 patients (1.7%) and a combination of Multivitamin and B-complex was prescribed in 2 patients. In 76 patients (63.3%), no multivitamin was prescribed.

Alprazolam, an anxiolytic agent was prescribed in a few patients, to reduce anxiety and depression. While 111 patients (92.5%) were not prescribed any anxiolytic agent, Alprazolam 0.5 mg was prescribed in 5 patients (4.2%) and Alprazolam with a dose of 0.25 mg was prescribed in 4 patients (3.33%).

Pregabalin was prescribed when patients complained of neuropathic pain, cold allodynia, numbness, and peripheral neuropathy. Olanzapine was prescribed as an antiemetic to 90 patients (60%). Both were prescribed in 4 patients (2.66%). 9 patients (6%) were not under pregabalin agent.

Since most of the patients had ulcers in the mouth, antiulcer agents were prescribed as either ointment or tablet form. Pantoprazole 40 mg was prescribed majorly i.e., in 31 patients (25.83%). The other antiulcer agents prescribed were Mucaine Gel 10 ml, Ranitidine 150 mg, Sucralfate 10 ml, or Benzocaine ointment as a single agent or combination among these agents. 32 patients were not prescribed with any of them.

Among the laboratory results, hemoglobin levels in the population in the study were found to be below the normal limits was about 74.33% whereas 26.66% were found to have normal hemoglobin levels. Anemia is prevalent which can be due to either cancer itself or the result of cytotoxic cancer treatment.

Elevated levels of alkaline phosphatase were seen in 19 patients (12.6%). This can be treated with vitamin D and dietary supplements.

Electrolyte disturbances were found in the patients, but the majority of them had normal levels of electrolyte range collectively, more than 80% of the sample size had normal electrolyte balance.

CONCLUSION

In the interpretation of the examined data, we detected that most of the patients with TNBC are responsive to anti-Cancer treatment. The dose intensity is tailored to each patient and compliance with the anti-cancer chemotherapy has shown betterment in the cancer status of the patient. By the best recommendation by the physician and in accordance with the patient preferences to receive which type of treatment we can strive to improve the quality of life. Although chemotherapy is known to have adverse effects by receiving Supportive therapy, we can manage the adverse drug effects and arrest the progression of triple negative breast cancer. Supportive therapy includes Human growth colony-stimulating factors, anticonvulsants, antiemetics, antiulcer agents, laxatives, vitamin supplements. Among the biochemical parameters, it was observed that the majority of the patients had anemia, neutropenia which was managed by prescribing human growth colony-stimulating factor.

A chi-square test of individuality presented that there was a substantial association between the percentage of subjects who reported to show a complete response and who receive a combination of Anthracycline and cyclophosphamide and paclitaxel,

$X2\ (1, N = 150) = 14.836$., The p-value is .000117.

Henceforth we conclude that triple-negative carcinoma of the breast can be managed by specialized and personalized treatment and the individuals can have a better quality of life under good medical conditions through compliance and medication adherence.

However, we will require more advancements in management strategies. International clinical trials should advance with developing new safe and effective treatment options, which will lead to upgraded quality of life for the patients.

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