Females Patients' Knowledge Regarding Chemotherapy of Breast Cancer, Khartoum Oncology Hospital, Khartoum State, Sudan (2017)

Nermeen Elzaki Farah Mohamed
B.Sc. in Nursing Sciences
Nile College (2011)

A Dissertation

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2017
Females Patients' Knowledge Regarding Chemotherapy of Breast Cancer, Khartoum Oncology Hospital, Khartoum State, Sudan (2017)

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Supervision Committee:

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<td>1-Dr: Amna Elton Ibrahim Hassan</td>
<td>Main supervisor</td>
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<tr>
<td>2-Dr: Itemad Ibrahim AbdElrhman Kambal</td>
<td>Co supervisor</td>
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October 2017
Females Patients' Knowledge Regarding Chemotherapy of Breast Cancer, Khartoum Oncology Hospital, Khartoum State, Sudan (2017)

NermeenElzaki Farah Mohamed

Examination committee:

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<tr>
<td>1-Dr: AmnaEltom Ibrahim Hassan</td>
<td>Chair person</td>
<td>………….</td>
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<tr>
<td>2-Dr: Omkalthoum Ibrahim Yousif</td>
<td>External Examiner</td>
<td>………….</td>
</tr>
<tr>
<td>3-Dr: Ekhlas Mohammed Ali Ahmed</td>
<td>Internal Examiner</td>
<td>………….</td>
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Date of examination: /11/2017
Dedication

I dedicate this research to

My parents,

Brothers,

Sisters, and friends
**Acknowledgement**

First and foremost, I would like to thank my Merciful Allah for giving me strength and health to do this work. My thanks and gratitude to the University of Gezira, Faculty of Applied medical sciences and to the staff of nursing department, community health nursing.

I express my sincere thanks to my main supervisor Dr. Amna Eltom and my co-supervisor Dr. Ietimad for their constant support, valuable guidance and encouragement throughout the duration of this study.

I am extremely thankful to all the participants, women who provided me with rich and detailed data for the study and lent breadth and value to the research findings.
Females Patients' Knowledge Regarding Chemotherapy of Breast Cancer, Khartoum Oncology Hospital, Khartoum State, Sudan (2017)
Nermeen Elzaki Farah Mohammed

Abstract

Chemotherapy drugs act mostly on rapidly dividing cancer cells, the drug also act on normal cell that divide rapidly, this constitute the side effect of chemotherapy. Adequate knowledge help women in managing these side effects. A descriptive hospital based study aimed at assessing female patients knowledge regarding Chemotherapy of Breast Cancer, in Oncology Hospital, Khartoum State, Sudan, 2017 during the period from April to June. The sample size consisted of (80) patients as a total coverage of all patients during the period of the study. Data were collected using questionnaire designed for the study. Data was analyses using Statistical Package for Social Sciences (SPSS). Results revealed that respondents' of knowledge regarding risk factor of breast cancer was 35%, and 41.6% responded with correct answers regarding signs and symptoms of breast cancer. Participants' of knowledge regarding methods of diagnosis of breast cancer was 55.5%. of participants' knowledge regarding possible side effects of chemotherapy of breast cancer was 41.6%, The of participants' knowledge regarding management of side effects of chemotherapy was 55%. The study concluded that patients' mean of knowledge regarding breast cancer was poor but their mean of knowledge regarding chemotherapy was good. The study recommended that, Comprehensive Health education programmes regarding breast cancer and possible side effects of chemotherapy should be targeted specially in audiovisual aids.
تعرف الإناث المرضى بالعلاج الكيميائي لسرطان الثدي بمستشفى الخرطوم لعلاج الأورام
ولاية الخرطوم، السودان (2017)
نرمين الزاكي فرح محمد

ملخص الدراسة

يستخدم مصطلح العلاج الكيميائي للتعريف ببعض الأدوية القاتلة للخلايا السرطانية ولكنه في نفس الوقت ذو تأثير قاتل لخلايا الجسم سريعة الانقسام مثل وهو ما يؤدي لظهور الأعراض الجانبية للعلاج الكيميائي المعرفة الكافية للمرضيات تمكنهن من العمل على معالجة والتقليل من تلك الآثار الجانبية المحتملة. أجريت هذه الدراسة الوصفية بهدف تقييم معرفة مريضات سرطان الثدي بالعلاج الكيميائي بمستشفى النزلة بالخرطوم، ولاية الخرطوم السودان في الفترة من أبريل-يونيو 2017. حجم العينة يتكون من (80) من مريضات سرطان الثدي اللاتي يخضعن للعلاج الكيميائي بمستشفى النزلة بالخرطوم في فترة إجراء هذه الدراسة. بيانات هذه الدراسة تم جمعها باستخدام استبيان صمم لهذه الدراسة. تم تحليل البيانات باستخدام برنامج الحزم الإحصائية للعلوم الاجتماعية (SPSS)

وقد أظهرت نتائج الدراسة أن (35%) من عينة الدراسة أدلو بإجابات صحيحة فيما يتعلق بعوامل الخطورة بالنسبة لسرطان الثدي، 41.6% أدلو بإجابات صحيحة عن أعراض وعلامات سرطان الثدي، 55.5% أجابوا إجابات صحيحة بخصوص طرق تشخيص سرطان الثدي، 41.6% كانت إجاباتهم صحيحة عن الآثار الجانبية المحتملة للعلاج الكيميائي، بينما 55% أجابوا بشكل صحيح بخصوص كيفية التخفيض من تلك الآثار الجانبية وتنظيمها. وقد خلصت الدراسة إلى أن متوسط معرفة المريضات بشأن سرطان الثدي كانت ضعيفة ولكن متوسط معرفتهن بالعلاج الكيميائي كانت جيدة، وقد أوصت الدراسة بتقديم برامج تعليمية شاملة في الوسائل المرئية والمسموعة عن سرطان الثدي، أعراضه، طرق التشخيص المبكر بالإضافة للآثار الجانبية للعلاج الكيميائي لسرطان الثدي.
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<tr>
<td>ADH</td>
<td>Atypical Ductal Hyperplasia</td>
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<td>ALH</td>
<td>Atypical Lobular Hyperplasia</td>
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<td>BC</td>
<td>Breast Cancer</td>
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<td>BSE</td>
<td>Breast Self Examination</td>
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<td>DES</td>
<td>Di Ethyl Stilbestrol</td>
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<td>DMPA</td>
<td>Depot-MedroxyProgestosterone Acetate (Depo-Provera)</td>
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<td>ER</td>
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<td>MRI</td>
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<td>MHT</td>
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<td>NSAIDs</td>
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<tr>
<td>PR</td>
<td>Progesterone Receptor</td>
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<td>PHT</td>
<td>Post-Menopausal Hormone Therapy</td>
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<td>RICK</td>
<td>Radiology And Isotope Center Of Khartoum</td>
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<td>SPSS</td>
<td>Statistical Package For Social Sciences Program</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>O C</td>
<td>Oral Contraceptives</td>
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<td>IUD</td>
<td>Intra-Uterine Device</td>
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Breast cancer is a life threatening disease that can affect women sense of self-esteem and their sexuality. Globally, breast cancer is the most common cancer among women (Samira M., 2014). Breast cancer is the leading cause of cancer related deaths among women worldwide. Diagnosis of breast cancer at an earlier stage allows women more treatment choices and greater chance of long term survival. Prevention or identification of breast cancer at an early stage is of paramount importance in saving lives as well as improving the quality of life. Breast cancer lends itself to early detection and subsequent early treatment if women use early detection measures (Omolase C, 2008).

Most commonly the term chemotherapy is used to refer to cancer killing drug. The drugs can be used as single agent or in combination, targeted to eliminating rapidly dividing cancer cell in the body. Chemotherapy can also be used in combination with other treatment modalities like surgery or radiotherapy as adjuvant or neo-adjuvant therapy (Loh and Chew, 2011).

Chemotherapy is used in oncology to prevent recurrences of disease or to achieve palliation in advanced disease, such as pain relief, symptom relief and tumor debunking to down stage advance diseases. Since chemotherapy drugs act mostly on rapidly dividing cancer cells, the drug also act on normal cell that divide rapidly, such tissues are bone marrow, digestive tract and hair follicles, this constitute the side effect of chemotherapy. These side effects present as different clinical symptoms which could be physically and emotionally disturbing to the patients. Ideally before commencement of chemotherapy, patients are properly prepared, the preparation involves appropriate investigations, hydration and counseling to enable the patients to cope and thus comply with the regimen of chemotherapy prescribed. (Loh and Chew, 2011).

1.1 Problem statement

Worldwide, breast cancer is one of the most frequently detected cancers and is the major cause of death among women (Loh and Chew, 2011).

The number of new cases of female breast cancer globally was 124.9 per 100,000 women per year. The number of deaths was 21.2 per 100,000 women per year. These rates are age-adjusted and based on 2010-2014 cases and deaths.
in developed countries according to (WHO) Breast cancer is the most common cancer among women and over 1.15 million cases of breast cancer are diagnosed every year (WHO, 2013).

In 2014, there were an estimated 3,327,552 women living with female breast cancer in the United States. **In developing countries** Breast Cancer incidents have been rising in many developing countries including Asia and African countries. The reasons for these trends are not completely understood but likely reflect changes in reproductive patterns, nutrition and physical inactivity, (Garcia J, 2007).

**In Sudan** the Cancer is becoming a global health problem and the number of cancer cases in sub-Saharan Africa is rising. Being an African country, Sudan has its share of cancer burden. In Sudan Among all registered cancer cases with available information ($N = 6548$, 96.7%), Breast cancer was the most common cancer with an incidence 25.1 per 100,000 in Khartoum, followed by leukemia (rate = 10.0 per 100,000), lymphoma (rate = 8.2 per 100,000). (Kamal H. et al, 2014).

According to Dr. Kamal Eldein Hammed, 29-34.5% of all the cancers seen at RICK. Most are women of a young age; with about 40% below the age of 45 years (mean age of 50). Most presented with late advanced disease, only 5-7% presented with stage 1 and 13-15% presented with stage II diseases. Invasive Ductal Carcinoma compromises about 82% of all breast cancer cases (Kamal H., 2011).

### 1.2 Justification

Breast cancer is the most common cancer affecting women, representing 23% of all types of cancer incidents in the world. In 2014, 57,120 new cases of this disease were expected to be diagnosed in Africa. Although there are several methods of treatment for breast cancer, many cases are beyond therapeutic healing possibilities. Altogether, it is estimated that 50% of cancer patients do not get cured (Kadakia et al, 2014). The study is justified by the following aspects: the situation of cancer in the context of health and its high rates of morbidity and mortality; the need for discussion regarding a clinical decision to indicate palliative chemotherapy in advanced cases; its impact on women's lives, which may call for multiple care needs; and the demands for professional skills in keeping with public health policies. Since this is important and I faced many difficulties to find studies concerning with the same topic, I decided to
continue in this topic for my Ph. D to improve women knowledge regarding chemotherapy of breast cancer as treatment.

**Objectives**

1.4.1 Main Objective

To study female Patients' Knowledge Regarding Chemotherapy of Breast Cancer, in Khartoum Oncology Hospital , Khartoum State, Sudan (2017)

1.4.2 Specific objectives

- To assess female patients knowledge regarding breast cancer such as (definition, symptoms, causes, treatment and complication ( 2017 ).

- To assess female patient knowledge regarding chemotherapy such as, types, possible side effects and complications during the period from April to June 2017
Chapter Two (Literature Review)

2. Literature Review

2.1 Introduction

Breast cancer starts when cells in the breast begin to grow out of control. These cells usually form a tumor that can often be seen on an x-ray or felt as a lump. The tumor is malignant (cancer) if the cells can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. Breast cancer occurs almost entirely in women, but men can get breast cancer, too.

Cells in nearly any part of the body can become cancer and can spread to other areas of the body. To learn more about what cancer is and how all cancers start and spread, see our section on Cancer Basics (Raina V, 2010).

Breast cancers can start from different parts of the breast. Most breast cancers begin in the ducts that carry milk to the nipple (ductal cancers). Some start in the glands that make breast milk (lobular cancers). There are also other types of breast cancer that are less common.

A small number of cancers start in other tissues in the breast. These cancers are called sarcomas and lymphomas and are not really thought of as breast cancers.

Although many types of breast cancer can cause a lump in the breast, not all do. There are other symptoms of breast cancer you should watch for and report to a health care provider. It’s also important to understand that most breast lumps are not cancer, they are benign. Benign breast tumors are abnormal growths, but they do not spread outside of the breast and they are not life threatening. But some benign breast lumps can increase a woman's risk of getting breast cancer. Any breast lump or change needs to be checked by a health care provider to determine whether it is benign or cancer and whether it might impact your future cancer risk. Breast cancer can spread when the cancer cells get into the blood or lymph system and are carried to other parts of the body (Begg C, 2008).

The lymph system is a network of lymph (or lymphatic) vessels found throughout the body. The lymph vessels carry lymph fluid and connect lymph nodes. Lymph nodes are small, bean-shaped collections of immune system cells. Lymph vessels are like small veins, except that they carry a clear fluid called lymph (instead of blood) away from the breast. Lymph contains tissue fluid and waste products, as well as immune
system cells. Breast cancer cells can enter lymph vessels and start to grow in lymph nodes. Most of the lymph vessels of the breast drain into:

- Lymph nodes under the arm (axillary nodes).
- Lymph nodes around the collar bone (supraclavicular and infraclavicular lymph nodes)
- Lymph nodes inside the chest near the breast bone (internal mammary lymph nodes)

If cancer cells have spread to your lymph nodes, there is a higher chance that the cells could have traveled through the lymph system and spread (metastasized) to other parts of your body. The more lymph nodes with breast cancer cells, the more likely it is that the cancer may be found in other organs as well. Because of this, finding cancer in one or more lymph nodes often affects your treatment plan. Usually, surgery to remove one or more lymph nodes will be needed to know whether the cancer has spread.

Still, not all women with cancer cells in their lymph nodes develop metastases, and some women have no cancer cells in their lymph nodes and later develop metastases (Biesheuvel C et al, 2011).

2.2 Breast Cancer Signs and Symptoms

The most common symptom of breast cancer is a new lump or mass. A painless, hard mass that has irregular edges is more likely to be cancer, but breast cancers can be tender, soft, or rounded. They can even be painful. For this reason, it is important to have any new breast mass or lump or breast change checked by a health care provider experienced in diagnosing breast diseases.

Other possible symptoms of breast cancer include:

- Swelling of all or part of a breast (even if no distinct lump is felt)
- Skin irritation or dimpling
- Breast or nipple pain
- Nipple retraction (turning inward)
- Redness, scariness, or thickening of the nipple or breast skin
- Nipple discharge (other than breast milk)
Sometimes a breast cancer can spread to lymph nodes under the arm or around the collar bone and cause a lump or swelling there, even before the original tumor in the breast tissue is large enough to be felt. Swollen lymph nodes should also be checked by a health care provider (Merck M, 2009).

Although any of these symptoms can be caused by things other than breast cancer, if you have them, they should be reported to a health care provider so that he or she can find the cause.

Because mammograms do not find every breast cancer, it is important for you to be aware of changes in your breasts and to know the signs and symptoms of breast cancer (Merck M, 2009).

**2.3 Risk Factors for Breast Cancer**

A risk factor is anything that affects your chance of getting a disease, such as cancer. But having a risk factor, or even many, does not mean that you are sure to get the disease. While you can’t change some breast cancer risk factors—family history and aging, for example—there are some risk factors that you can control (Lacroix M, 2011).

**2.3.1 Lifestyle-related Breast Cancer Risk Factors**

Certain breast cancer risk factors are related to personal behaviors, such as diet and exercise. Other lifestyle-related risk factors include decisions about having children and taking birth control (Hayes et al, 2013).

**2.3.1.1 Drinking alcohol**

Drinking alcohol is clearly linked to an increased risk of developing breast cancer. The risk increases with the amount of alcohol consumed. Compared with non-drinkers, women who have 1 alcoholic drink a day have a very small increase in risk. Those who have 2 to 5 drinks daily have about 1½ times the risk of women who don’t drink alcohol. Excessive alcohol consumption is known to increase the risk of other cancers, too (Hayes et al, 2013).

**2.3.1.2 Being overweight or obese**

Being overweight or obese after menopause increases breast cancer risk. Before menopause ovaries make most of estrogen, and fat tissue makes only a small amount. After menopause (when the ovaries stop making estrogen), most of a woman’s estrogen comes from fat tissue. Having more fat tissue after menopause can raise estrogen levels and increase your chance of getting breast cancer. Also, women who
are overweight tend to have higher blood insulin levels. Higher insulin levels have been linked to some cancers, including breast cancer.
It is recommended to stay at a healthy weight throughout life by balancing food intake with physical activity and avoiding excessive weight gain (Kumar et al, 2011).

2.3.1.3 Physical activity
Evidence is growing that physical activity in the form of exercise; reduces breast cancer risk. To reduce your risk of breast cancer, the American Cancer Society recommends that adults get at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity each week (or a combination of these), preferably spread throughout the week. Moderate activity is anything that makes person breathe as hard as he do during a brisk walk. During moderate activities ((Watson, 2011).

2.3.1.4 Having children
Women who have not had children or who had their first child after age 30 have a slightly higher breast cancer risk overall. Having many pregnancies and becoming pregnant at an early age reduces breast cancer risk overall. Still, the effect of pregnancy is different for different types of breast cancer. For a certain type of breast cancer known as triple-negative, pregnancy seems to increase risk (Yager J, 2006).

2.3.1.5 Birth control
Oral Contraceptives (OC): Studies have found that women using oral contraceptives (birth control pills) have a slightly higher risk of breast cancer than women who have never used them. Once the pills are stopped, this risk seems to go back to normal over time. Women who stopped using oral contraceptives more than 10 years ago do not appear to have any increased breast cancer risk.

Birth control shot: Depo-Provera is an injectable form of progesterone that’s given once every 3 months as birth control. A few studies have looked at the effect of birth control shots on breast cancer risk. Women currently using birth-control shots seem to have an increase in breast cancer risk, but it appears that there is no increased risk in women 5 years after they stop getting the shots.

Birth control implant, IUD, skin patch, vaginal ring: These forms of birth control also use hormones that could fuel breast cancer growth. Some studies have shown a link between use of hormone-releasing IUD and breast cancer risk, but few studies have looked into the use of birth control implants, patch, and ring and breast cancer risk.
2.3.1.6 Hormone therapy after menopause
Hormone therapy with estrogen (often combined with progesterone) has been used for many years to help relieve symptoms of menopause and help prevent osteoporosis (thinning of the bones). This treatment goes by many names, such as post-menopausal hormone therapy (PHT), hormone replacement therapy (HRT), and menopausal hormone therapy (MHT) (Yager J, 2006).

2.3.1.7 Breastfeeding
Some studies suggest that breastfeeding may slightly lower breast cancer risk, especially if it’s continued for 1½ to 2 years. But this has been hard to study, especially in countries like the United States, where breastfeeding for this long is uncommon.

The explanation for this possible effect may be that breastfeeding reduces a woman’s total number of lifetime menstrual cycles (the same as starting menstrual periods at a later age or going through early menopause).

2.3.2 Breast Cancer Risk Factors women Cannot Change
The main risk factors for breast cancer are things you cannot change: being a woman, getting older, and having certain gene changes. These make your risk of breast cancer higher. But having a risk factor, or even many, does not mean that you are sure to get the disease.

2.3.2.1 Being a woman
Simply being a woman is the main risk factor for breast cancer. Men can have breast cancer, too, but this disease is about 100 times more common in women than in men. This might be because men have less of the female hormones estrogen and progesterone, which can promote breast cancer cell growth.

2.3.2.2 Getting older
As you get older, your risk of breast cancer goes up. Most invasive breast cancers (those that have spread from where they started) are found in women age 55 and older.

2.3.2.3 Certain inherited genes
About 5% to 10% of breast cancer cases are thought to be hereditary, meaning that they result directly from gene defects (called mutations) passed on from a parent (ACS, 2009).
2.3.2.4 Having a family history of breast cancer

It’s important to note that most women (about 8 out of 10) who get breast cancer do not have a family history of the disease, but:

- Women who have close blood relatives with breast cancer have a higher risk of the disease.

- Having a first-degree relative (mother, sister, or daughter) with breast cancer almost doubles a woman’s risk. Having 2 first-degree relatives increases her risk about 3-fold.

- Women with a father or brother who have had breast cancer also have a higher risk of breast cancer.

Overall, less than 15% of women with breast cancer have a family member with this disease (Watson, 2011).

2.3.2.5 Having a personal history of breast cancer

A woman with cancer in one breast has a higher risk of developing a new cancer in the other breast or in another part of the same breast. (This is different from a recurrence or return of the first cancer.) This risk is even higher for younger women with breast cancer (Roger a, 2013).

2.3.2.6 Race and ethnicity

Overall, white women are slightly more likely to develop breast cancer than African-American women, but African-American women are more likely to die of this cancer. In women under age 45, breast cancer is more common in African-American women. Asian, Hispanic, and Native American women have a lower risk of developing and dying from breast cancer.

2.3.2.7 Having dense breast tissue

Breasts are made up of fatty tissue, fibrous tissue, and glandular tissue. Someone is said to have dense breasts (on a mammogram) when they have more glandular and fibrous tissue and less fatty tissue. Women with dense breasts on mammogram have a risk of breast cancer that is 1.2 to 2 times that of women with average breast density. Unfortunately, dense breast tissue can also make mammograms less accurate.

A number of factors can affect breast density, such as age, menopausal status, the use of certain drugs (including menopausal hormone therapy), pregnancy, and genetics. For more information, see our page on breast density and mammograms.
2.3.2.8 Certain benign breast conditions

Women diagnosed with certain benign (non-cancer) breast conditions may have a higher risk of breast cancer. Some of these conditions are more closely linked to breast cancer risk than others. Doctors often divide benign breast conditions into 3 general groups, depending on how they affect this risk.

2.3.2.9 Starting menstruation (periods) before age 12

Women who have had more menstrual cycles because they started menstruating early (before age 12) have a slightly higher risk of breast cancer. The increase in risk may be due to a longer lifetime exposure to the hormones estrogen and progesterone.

2.3.2.10 Going through menopause after age 55

Women who have had more menstrual cycles because they went through menopause later (after age 55) have a slightly higher risk of breast cancer. The increase in risk may be because they have a longer lifetime exposure to the hormones estrogen and progesterone.

2.3.2.11 Having radiation to chest

Women who as children or young adults were treated with radiation therapy to the chest for another cancer have a significantly higher risk for breast cancer. This varies with the patient’s age when they got radiation.

3/ Stage breast cancer:

Breast cancer staging using the TNM system is based on the size of the tumor (T), whether or not the tumor has spread to the lymph nodes (N) in the armpits, and whether the tumor has metastasized (M) (i.e. spread to a more distant part of the body). Larger size, nodal spread, and metastasis have a larger stage number and a worse prognosis.

The main stages are:

- Stage 0 is a pre-cancerous or marker condition, either ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS).
- Stages 1–3 are within the breast or regional lymph nodes.
- Stage 4 is 'metastatic' cancer that has a less favorable prognosis since it has spread beyond the breast and regional lymph nodes.
- Where available, imaging studies may be employed as part of the staging process in select cases to look for signs of metastatic cancer. However, in cases of breast cancer with low risk for metastasis, the risks associated with
PET scans, CT scans, or bone scans outweigh the possible benefits, as these procedures expose the patient to a substantial amount of potentially dangerous ionizing radiation (Kumar V et al, 2010).

2.4 Breast self examination
Breast self-examination (BSE) is a screening method used in an attempt to detect early breast cancer. The method involves the woman herself looking at and feeling each breast for possible lumps, distortions or swelling.

BSE was once promoted heavily as a means of finding cancer at a more curable stage, but large randomized controlled studies found that it was not effective in preventing death, and actually caused harm through needless biopsies, surgery, and anxiety. Breast awareness is an informal alternative to structured breast self-examinations (Thomas D et al, 2012).

2.5 Limitations of Breast self examination
According to a meta-analysis in the Cochrane Collaboration, two large trials in Russia and Shanghai found no beneficial effects of screening by breast self-examination "but do suggest increased harm in terms of increased numbers of benign lesions identified and an increased number of biopsies performed." They concluded, "At present, screening by breast self-examination or physical examination cannot be recommended."

Although breast self-examination increases the number of biopsies performed on women, and thus revenue for the breast cancer industry, it does not reduce mortality from breast cancer. In a large clinical trial involving more than 260,000 female Chinese factory workers, half were carefully taught by nurses at their factories to perform monthly breast self-exam, and the other half were not. The women taught self-exam detected more benign (normal or harmless lumps) or early-stage breast disease, but equal numbers of women died from breast cancer in each group (Thomas D et al, 2012).

Because breast self-exam is not proven to save lives, it is no longer routinely recommended by health authorities for general use. It may be appropriate in women who have a particularly high risk of developing breast cancer. Some charitable organizations, whose donations depend on promoting fear of breast cancer, still promote this technique as a one-size-fits-all, universal screening approach, even in the low-risk women who are most likely to be harmed by unnecessary invasive follow-up procedures. Among groups promoting evidence-based medicine, awareness of breast
health and familiarity with one's own body is typically promoted instead of self-exams (Thomas D et al, 2012).

Breast self-examinations are based on an incorrect theory of cancer development which assumes steady growth of the tumor. According to breast cancer specialist and surgeon Susan Love, "Breast cancer doesn't work like that...it's sneaky. You could examine yourself every day and suddenly find a walnut (Gayle A, 2010).

Among women with high-risk BRCA mutations, about 10% said that performing breast self-examination increased their anxiety. Half of those who did perform BSE felt that it gave them a sense of control (Gayle A, 2010).

Learning breast self-examination increases a woman's level of depression, worrying, and anxiety about breast cancer. Greater anxiety about breast cancer is associated with a higher likelihood of performing breast self-examination. Women are also more likely to perform breast self-examination if they have experienced a false positive error from screening mammography (being wrongly told that breast cancer may be present, when the woman is actually cancer-free) (Spiegel et al, 2009).

### 2.6 The Five Steps of a Breast Self-Exam

**Step 1:** Begin by looking at your breasts in the mirror with your shoulders straight and your arms on your hips.

Here's what you should look for:

- Breasts that are their usual size, shape, and color
- Breasts that are evenly shaped without visible distortion or swelling

If you see any of the following changes, bring them to your doctor's attention:

- Dimpling, puckering, or bulging of the skin
- A nipple that has changed position or an inverted nipple (pushed inward instead of sticking out)
- Redness, soreness, rash, or swelling

**Step 2:** Now, raise your arms and look for the same changes.

**Step 3:** While you're at the mirror, look for any signs of fluid coming out of one or both nipples (this could be a watery, milky, or yellow fluid or blood).

**Step 4:** Next, feel your breasts while lying down, using your right hand to feel your

XXIII
left breast and then your left hand to feel your right breast. Use a firm, smooth touch with the first few finger pads of your hand, keeping the fingers flat and together. Use a circular motion, about the size of a quarter (Harris and Kinsinger, 2012). Cover the entire breast from top to bottom, side to side — from your collarbone to the top of your abdomen, and from your armpit to your cleavage. Follow a pattern to be sure that you cover the whole breast. You can begin at the nipple, moving in larger and larger circles until you reach the outer edge of the breast. You can also move your fingers up and down vertically, in rows, as if you were mowing a lawn. This up-and-down approach seems to work best for most women. Be sure to feel all the tissue from the front to the back of your breasts: for the skin and tissue just beneath, use light pressure; use medium pressure for tissue in the middle of your breasts; use firm pressure for the deep tissue in the back. When you've reached the deep tissue, you should be able to feel down to your ribcage.

**Step 5:** Finally, feel your breasts while you are standing or sitting. Many women find that the easiest way to feel their breasts is when their skin is wet and slippery, so they like to do this step in the shower. Cover your entire breast, using the same hand (Harris and Kinsinger, 2012)

### 2.7 Chemotherapy

**Chemotherapy** is a category of cancer treatment that uses one or more anti-cancer drugs (chemotherapeutic agents) as part of a standardized chemotherapy regimen. Chemotherapy may be given with a curative intent (which almost always involves combinations of drugs), or it may aim to prolong life or to reduce symptoms (palliative chemotherapy). Chemotherapy is one of the major categories of the medical discipline specifically devoted to pharmacotherapy for cancer, which is called medical oncology.

By common usage, the term chemotherapy has come to connote the use of rather non-specific intracellular poisons, especially related to inhibiting the process of cell division known as mitosis, and generally excludes agents that more selectively block extracellular growth signals (i.e. blockers of signal transduction). To avoid these connotations for recently developed (against specific molecular or genetic targets) therapies which inhibit of growth-promoting signals coming from classic endocrine hormones (primarily estrogens for breast cancer and androgens for prostate cancer) is known as hormonal therapy, while the inhibition of other growth-promoting...
influences (especially those associated with receptor tyrosine kinases) is known as targeted therapy.

Importantly, the use of drugs (whether chemotherapy, hormonal therapy or targeted therapy) constitutes systemic therapy for cancer in that they are introduced into the blood stream and are therefore in principle able to address cancer at any anatomic location in the body. Systemic therapy is often used in conjunction with other modalities that constitute local therapy (i.e. treatments whose efficacy is confined to the anatomic area where they are applied) for cancer such as radiation therapy, surgery and/or hyperthermia therapy (Skeel R, (2013)).

Traditional chemotherapeutic agents are cytotoxic by means of interfering with cell division (mitosis) but cancer cells vary widely in their susceptibility to these agents. To a large extent, chemotherapy can be thought of as a way to damage or stress cells, which may then lead to cell death if apoptosis is initiated. Many of the side effects of chemotherapy can be traced to damage to normal cells that divide rapidly and are thus sensitive to anti-mitotic drugs: cells in the bone marrow, digestive tract and hair follicles. This results in the most common side-effects of chemotherapy: myelosuppression (decreased production of blood cells, hence also immunosuppression), mucositis (inflammation of the lining of the digestive tract), and alopecia (hair loss). Because of the effect on immune cells (especially lymphocytes), chemotherapy drugs often find use in a host of diseases that result from harmful overactivity of the immune system against self (so-called autoimmunity). These include rheumatoid arthritis, systemic lupus erythematosus, multiple sclerosis, vasculitis and many others (Skeel R, (2013)).

2.8 Treatment strategy

There are a number of strategies in the administration of chemotherapeutic drugs used today. Chemotherapy may be given with a curative intent or it may aim to prolong life or to palliate symptoms. Induction chemotherapy is the first line treatment of cancer with a chemotherapeutic drug. This type of chemotherapy is used for curative intent. Combined modality chemotherapy is the use of drugs with other cancer treatments, such as surgery, radiation therapy, and/or hyperthermia therapy. Consolidation chemotherapy is given after remission in order to prolong the overall disease-free time and improve overall survival. The drug that is administered is the same as the drug that achieved remission. Intensification chemotherapy is identical to...
consolidation chemotherapy but a different drug than the induction chemotherapy is used (Corrie P, 2008).

Combination chemotherapy involves treating a patient with a number of different drugs simultaneously. The drugs differ in their mechanism and side-effects. The biggest advantage is minimising the chances of resistance developing to any one agent. Also, the drugs can often be used at lower doses, reducing toxicity.

Neoadjuvant chemotherapy is given prior to a local treatment such as surgery, and is designed to shrink the primary tumor. It is also given to cancers with a high risk of micrometastatic disease (Chabner B, 2015).

Adjuvant chemotherapy is given after a local treatment (radiotherapy or surgery). It can be used when there is little evidence of cancer present, but there is risk of recurrence. It is also useful in killing any cancerous cells that have spread to other parts of the body. These micrometastases can be treated with adjuvant chemotherapy and can reduce relapse rates caused by these disseminated cells.

Maintenance chemotherapy is a repeated low-dose treatment to prolong remission.

Salvage chemotherapy or palliative chemotherapy is given without curative intent, but simply to decrease tumor load and increase life expectancy. For these regimens, in general, a better toxicity profile is expected.

All chemotherapy regimens require that the patient be capable of undergoing the treatment. Performance status is often used as a measure to determine whether a patient can receive chemotherapy, or whether dose reduction is required. Because only a fraction of the cells in a tumor die with each treatment (fractional kill), repeated doses must be administered to continue to reduce the size of the tumor. Current chemotherapy regimens apply drug treatment in cycles, with the frequency and duration of treatments limited by toxicity to the patient (Nastoupil et al, 2012).

2.9 Chemotherapy for Breast Cancer

Chemotherapy (chemo) is treatment with cancer-killing drugs that may be given intravenously (injected into a vein) or by mouth. The drugs travel through the bloodstream to reach cancer cells in most parts of the body (Nastoupil et al, 2012).

2.10 When is chemotherapy used

Not all women with breast cancer will need chemo, but there are several situations in which chemo may be recommended:

- **After surgery (adjuvant chemotherapy):** Adjuvant chemo is used after surgery to try to kill any cancer cells that may have been left behind or spread
but can't be seen, even on imaging tests. If these cells were allowed to grow, they could form new tumors in other places in the body. Adjuvant chemo can reduce the risk of breast cancer coming back (Freedman A, 2012).

- **Before surgery (neoadjuvant chemotherapy):** Neoadjuvant chemo is given before surgery. It can be used to try to shrink the tumor so that it can be removed with less extensive surgery. Because of this, neoadjuvant chemo is often used to treat cancers that are too big to be removed at the time of diagnosis (called *locally advanced* cancers). Also, by giving chemo before the tumor is removed, doctors can better see how the cancer responds to it. If the first set of chemo drugs doesn’t shrink the tumor, your doctor will know that other drugs are needed.

- **For advanced breast cancer:** Chemo can be used as the main treatment for women whose cancer has spread outside the breast and underarm area, either when it is diagnosed or after initial treatments. The length of treatment depends on how well the chemo is working and how well you tolerate it (Nastoupil et al, 2012).

2.11 Which chemotherapy drugs are used for breast cancer?

In most cases (especially as adjuvant or neoadjuvant treatment), chemo is most effective when combinations of more than one drug are used. Today, doctors use many different combinations, and it's not clear that any single combination is clearly the best.

2.12 The most common drugs used for adjuvant and neoadjuvant chemo include

- Anthracyclines, such as doxorubicin (Adriamycin) and epirubicin (Ellence)
- Taxanes, such as paclitaxel (Taxol) and docetaxel (Taxotere)
- 5-fluorouracil (5-FU)
- Cyclophosphamide (Cytoxan)
- Carboplatin (Paraplatin)
Most often, combinations of 2 or 3 of these drugs are used.

2.13 Chemotherapy for advanced breast cancer

Chemo drugs useful in treating women with breast cancer that has spread include:

- Docetaxel
- Paclitaxel
- Platinum agents (cisplatin, carboplatin)
- Vinorelbine (Navelbine)
- Capecitabine (Xeloda)
- Liposomal doxorubicin (Doxil)
- Gemcitabine (Gemzar)
- Mitoxantrone (Novantrone)
- Ixabepilone (Ixempra)
- Albumin-bound paclitaxel (nab-paclitaxel or Abraxane)
- Eribulin (Halaven)

Although drug combinations are often used to treat early breast cancer, advanced breast cancer is more often treated with single chemo drugs. Still, some combinations, such as carboplatin or cisplatin plus gemcitabine, are commonly used to treat advanced breast cancer.

For cancers that are HER2-positive, one or more drugs that target HER2 may be used with chemo (Skeel R, 2013).

2.14 Method of given chemotherapy

Chemo drugs for breast cancer are typically given into a vein (IV), either as an injection over a few minutes or as an infusion over a longer period of time. This can be done in a doctor’s office, chemotherapy clinic, or in a hospital setting.

Doctors give chemo in cycles, with each period of treatment followed by a rest period to give the body time to recover from the effects of the drugs. Cycles are most often 2 or 3 weeks long. The schedule varies depending on the drugs used. For example, with some drugs, the chemo is given only on the first day of the cycle. With others, it is
given for a few days in a row, or once a week. Then, at the end of the cycle, the chemo schedule repeats to start the next cycle (Beumer J et al, 2012).

Adjuvant and neoadjuvant chemo is often given for a total of 3 to 6 months, depending on the drugs used. The length of treatment for advanced breast cancer is based on how well it is working and what side effects you have.

2.15 Dose-dense chemotherapy
Doctors have found that giving the cycles of certain chemo drugs closer together can lower the chance that the cancer will come back and improve survival for some women. For example, a drug that would normally be given every 3 weeks might be given every 2 weeks. This approach can be used for neoadjuvant and adjuvant treatment. It can lead to more problems with low blood cell counts, so it’s not an option for all women (Beumer J et al, 2012).

2.16 Possible side effects of chemo for breast cancer
Chemo drugs can cause side effects. These depend on the type and dose of drugs given, and the length of treatment. Some of the most common possible side effects include:

- Hair loss
- Nail changes
- Mouth sores
- Loss of appetite or increased appetite
- Nausea and vomiting
- Diarrhea

Chemo can affect the blood-forming cells of the bone marrow, which can lead to:

- Increased chance of infections (from low white blood cell counts)
- Easy bruising or bleeding (from low blood platelet counts)
- Fatigue (from low red blood cell counts and other reasons)

These side effects usually go away after treatment is finished. There are often ways to lessen these side effects. For example, drugs can be given to help prevent or reduce nausea and vomiting.
Other side effects are also possible. Some of these are more common with certain chemo drugs (Rachel A, 2009).

2.16.1 Nerve damage (neuropathy)

Many drugs used to treat breast cancer, including the taxanes (docetaxel and paclitaxel), platinum agents (carboplatin, cisplatin), vinorelbine, eribulin, and ixabepilone, can damage nerves outside of the brain and spinal cord. This can sometimes lead to symptoms (mainly in the hands and feet) like numbness, pain, burning or tingling sensations, sensitivity to cold or heat, or weakness. In most cases this goes away once treatment is stopped, but it might last a long time in some women (Moreno et al, 2010).

2.16.2 Hand-foot syndrome

Certain chemo drugs, such as capecitabine and liposomal doxorubicin, can irritate the palms of the hands and the soles of the feet. This is called hand-foot syndrome. Early symptoms include numbness, tingling, and redness. If it gets worse, the hands and feet can become swollen and uncomfortable or even painful. The skin may blister, leading to peeling or even open sores. There is no specific treatment, although some creams may help. These symptoms gradually get better when the drug is stopped or the dose is lowered. The best way to prevent severe hand-foot syndrome is to tell your doctor when early symptoms come up, so that the drug dose can be changed (Elad et al, 2012).

2.16.3 Chemo brain

Many women who are treated for breast cancer report a slight decrease in mental functioning. They may have some problems with concentration and memory, which may last a long time. Although many women have linked this to chemo, it also has been seen in women who did not get chemo as part of their treatment. Still, most women function well after treatment. In studies that have found chemo brain to be a side effect of treatment, the symptoms most often last for a few years.

2.16.4 Feeling unwell or tired (fatigue)

Many women do not feel as healthy after chemo as they did before. There is often a residual feeling of body pain or achiness and a mild loss of physical functioning. These may be very subtle changes that happen slowly over time. Fatigue is another common problem for women who have received chemo. This may last up to several years. It can often be helped, so it’s important to let your doctor or nurse know about it. Exercise, naps, and conserving energy may be recommended. If

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you have sleep problems, they can be treated. Sometimes women become depressed, which may be helped by counseling and/or medicines (Franklin D, 2013).

2.16.5 Heart damage

Doxorubicin, epirubicin, and some other chemo drugs may cause permanent heart damage (called cardiomyopathy). The risk is highest if the drug is used for a long time or in high doses.

Most doctors will check your heart function with a test like an echocardiogram (an ultrasound of the heart) or a MUGA scan before starting one of these drugs. They also carefully control the doses, watch for symptoms of heart problems, and may repeat the heart test during treatment. If the heart function begins to decline, treatment with these drugs will be stopped. Still, in some people, signs might not appear until months or years after treatment stops. Damage from these drugs happens more often if other drugs that can cause heart damage, such as drugs that target HER2, are used as well, so doctors are more cautious when these drugs are used together (Gill, et al, 2012).

2.16.6 Menstrual changes and fertility issues

For younger women, changes in menstrual periods are a common side effect of chemo. Premature menopause (not having any more menstrual periods) and infertility (not being able to become pregnant) may occur and may be permanent. Some chemo drugs are more likely to cause this than others. The older a woman is when she gets chemotherapy, the more likely it is that she will go through menopause or become infertile as a result. When this happens, there is an increased risk of bone loss and osteoporosis. There are medicines that can treat or help prevent problems with bone loss.

Even if your periods have stopped while you are on chemo, you may still be able to get pregnant. Getting pregnant while on chemo could lead to birth defects and interfere with treatment. If you are pre-menopausal before treatment and are sexually active, it’s important to discuss using birth control with your doctor. For women with hormone receptor-positive breast cancer, some types of hormonal birth control (like birth control pills) are not a good idea, so it’s important to talk with both your oncologist and your gynecologist (or family doctor) about what options would be best in your case. Women who have finished treatment (like chemo) can safely go on to have children, but it's not safe to get pregnant while on treatment.
If you are pregnant when you get breast cancer, you still can be treated. Certain chemo drugs can be taken safely during the last 2 trimesters of pregnancy. We have more details in our section on breast cancer during pregnancy.

If you think you might want to have children after being treated for breast cancer, talk with your doctor before you start treatment. Learn more from our section on fertility concerns for women with cancer (Morgan S et al, 2012).

2.16.7 Increased risk of leukemia

Very rarely, certain chemo drugs can cause diseases of the bone marrow, such as myelodysplastic syndrome or even acute myeloid leukemia, a cancer of white blood cells. When this happens it is usually within 10 years after treatment. For most women, the benefits of chemo in helping prevent breast cancer from coming back or in extending life are likely to far exceed the risk of this rare but serious complication.

2.17 Managing of chemotherapy side effect

Chemotherapy destroys cancer cells because the medicines target rapidly dividing cells. But normal cells in your blood, mouth, intestinal tract, nose, nails, vagina, and hair also divide rapidly. So chemotherapy affects them, too.

The healthy cells in body can repair the damage that chemotherapy causes, hair will grow back and energy levels will rise. But cancer cells can't repair themselves very well.

The side effects patient may have from chemotherapy depend on the regimen he is on, the amount of medicine he is getting, the length of treatment, and his general health. The side effects may be different from one patient to another who is on the same regimen.

While body is recovering from chemotherapy, other medicines can help ease many of the side effects. It's important to tell doctor and oncology nurse about any side effects. If medicines aren't controlling the side effects, doctor or nurse can help to find something that works.

Most chemotherapy side effects go away shortly after patient finished chemotherapy. Still, some side effects may take several months or longer to go away completely. When patient and his doctor are deciding on a chemotherapy regimen, weighing the benefits versus the side effects is part of the process (King P, 2011).

2.18 Limitations

Chemotherapy does not always work, and even when it is useful, it may not completely destroy the cancer. Patients frequently fail to understand its limitations. In
one study of patients who had been newly diagnosed with incurable, stage 4 cancer, more than two-thirds of patients with lung cancer and more than four-fifths of patients with colorectal cancer still believed that chemotherapy was likely to cure their cancer. The blood–brain barrier poses a difficult obstacle to pass to deliver chemotherapy to the brain. This is because the brain has an extensive system in place to protect it from harmful chemicals. Drug transporters can pump out drugs from the brain and brain's blood vessel cells into the cerebrospinal fluid and blood circulation. These transporters pump out most chemotherapy drugs, which reduces their efficacy for treatment of brain tumors. Only small lipophilic alkylating agents such as lomustine or temozolomide are able to cross this blood–brain barrier (Weeks J et al, 2012).

Blood vessels in tumors are very different from those seen in normal tissues. As a tumor grows, tumor cells furthest away from the blood vessels become low in oxygen (hypoxic). To counteract this they then signal for new blood vessels to grow. The newly formed tumor vasculature is poorly formed and does not deliver an adequate blood supply to all areas of the tumor. This leads to issues with drug delivery because many drugs will be delivered to the tumor by the circulatory system (Gerstner and Fine, 2013).

2.19 Previous studies

A study was conducted in USA (2012) to examine beliefs regarding the necessity of chemotherapy and knowledge of breast cancer and its treatment in African American women with newly diagnosed breast cancer, and to explore factors associated with women’s beliefs and knowledge, Descriptive, cross-sectional study, Six urban cancer centers in Western Pennsylvania and Eastern Ohio. With samples of 101 African American women with newly diagnosed breast cancer. Using, Secondary analysis using baseline data collected from participants in a randomized, controlled trial at their first medical oncology visit before the first cycle of chemotherapy. Results revealed that African American women endorsed the necessity of chemotherapy. Most women did not know their tumor size, hormone receptors, specific therapy, or why chemotherapy was recommended to them. Women who perceived better interpersonal communication with physicians, less self-efficacy, or were less involved in their own treatment decision making held stronger beliefs about the necessity of chemotherapy. Women without financial difficulty or having stronger social functioning had more knowledge of their cancer and recommended chemotherapy (King P, 2011).
A qualitative research approach was adopted at Lahore hospital to gain a better understanding of the current perceptions and knowledge held by cancer patients. Twenty patients were interviewed using a semi-structured interview guide. A saturation point was reached after the 18th interview, and no new information emerged with the subsequent 2 interviews. All interviews were transcribed verbatim and analysed by means of a standard content analysis framework (Saadeldin A.et al, 2013).

The majority of patients related the cause of their cancer to be God’s will. Participants perceived conventional therapies as effective due to their scientific methods of preparations. A fear of side effects was main reasons given for delay in seeking treatment; however, perceptions were reported to change after receiving treatment when effective management to reduce the risk of side effects had been experienced.

Study was conducted to determine the knowledge and practice of Sudanese medical students regarding BSE in which female final year medical students in three governmental universities participated. Two hundred students participated in the study. Their age ranged from 18 to 29 years, with a mean of 23. Most respondents (86%) were aware of BSE. Mass media such as Newspaper, Television and Radio were the major source of information while information conducted by health workers was the least. Only two thirds of the respondents reported performing BSE. The results point out that final year medical students have a non-satisfactory knowledge regarding BSE, compared to what is expected. Conclusion: The findings showed that the knowledge and practice of BSE is inadequate among young female medical students (Saadeldin A.et al, 2013).
Chapter Three (Materials and Methods)

3. Materials and Methods

3.1. Study Design
This is a descriptive hospital-based study.

3.2. Study area
The study was conducted at Khartoum oncology hospital, Khartoum State, it was located in El-gasr street South of faculty of medicine, university of Khartoum, The hospital is a 300 bedded, 9 departments and research centre with good facilities, in the medical department there are 3 wards. The manpower of Khartoum oncology hospital is illustrated in the following table:

<table>
<thead>
<tr>
<th>Manpower</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>44</td>
</tr>
<tr>
<td>Nurses (with diploma)</td>
<td>29</td>
</tr>
<tr>
<td>Technical (Bachelor ) nurses</td>
<td>29</td>
</tr>
<tr>
<td>Radiologist</td>
<td>9</td>
</tr>
<tr>
<td>Laboratory technicians</td>
<td>30</td>
</tr>
<tr>
<td>Nutritionists</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>27</td>
</tr>
<tr>
<td>Medical engineers</td>
<td>11</td>
</tr>
<tr>
<td>Support staff (cleaners)</td>
<td>55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

Statistic and researches department Khartoum oncology hospital (2016)

3.3. Study Population
All women with breast cancer undergoing chemotherapy at Khartoum oncology hospital during the period from (April to June 2017).

3.3.1. Inclusion criteria –
Patients with breast cancer undergoing chemotherapy during the period of the study from (April to June 2017).

3.3.2. Exclusion criteria
– Patients with other types of cancer
3.3.4 Sample size and Sampling Technique

Study sample was consisted of 80 women. A convenience sample included all available women with breast cancer undergoing chemotherapy.

3.4 Data collection tools:

One tool was used, the questionnaire was designed in order to cover all sides of this study issues. The questions and structuring of the questionnaire were chosen from the findings from review of literature. Questionnaire was consisted of the following sections:

Section one: demographic data of respondents (gender, age, qualification and residence and socio-economic status).

Section two: women's knowledge regarding:

- Breast cancer
- chemotherapy

Patients knowledge was assessed according to Sultan Baliz Patients Knowledge-Level Scale:

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacceptable</td>
<td>Less than 35%</td>
</tr>
<tr>
<td>Poor</td>
<td>35-55 %</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>56-65 %</td>
</tr>
<tr>
<td>Good</td>
<td>66-75 %</td>
</tr>
<tr>
<td>very good</td>
<td>Above 75 %</td>
</tr>
</tbody>
</table>

Sultan (2011)

3.5 Ethical considerations:

Permission was obtained from the hospital administrative authority to collect the necessary data. Confidentiality of the data was asserted. The aim of the study was explained to patients by the researcher. The right to refuse to participate in the study was emphasized to the patients.

3.6. Data analysis

Data was analyzed using Statistical Packages for Social Sciences (SPSS) version 16 descriptive method, frequencies table and means were used.
4.1 Results

Table (4-1) Distribution of study sample according to their age and gender

(N=80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>26-30</td>
<td>5</td>
<td>6.2</td>
</tr>
<tr>
<td>31-35</td>
<td>18</td>
<td>22.5</td>
</tr>
<tr>
<td>36 and more</td>
<td>54</td>
<td>67.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>25</td>
<td>31.2</td>
</tr>
<tr>
<td>Housewife</td>
<td>52</td>
<td>65.0</td>
</tr>
<tr>
<td>Student</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>48</td>
<td>60.0</td>
</tr>
<tr>
<td>Rural</td>
<td>32</td>
<td>40.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Results of table (4-1) showed that more than half (67.5%) of the study sample were above 36 years, about 2 third of them were housewives and 60% are living in urban areas.
Table (4-2) Distribution of study sample according to their educational level, marital and economical status

(N=80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>secondary</td>
<td>42</td>
<td>52.5</td>
</tr>
<tr>
<td>University</td>
<td>24</td>
<td>30.0</td>
</tr>
<tr>
<td>postgraduate</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>48</td>
<td>60.0</td>
</tr>
<tr>
<td>single</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td>divorced</td>
<td>24</td>
<td>30.0</td>
</tr>
<tr>
<td>widow</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Economical status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>36</td>
<td>45.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>40</td>
<td>50.0</td>
</tr>
<tr>
<td>High</td>
<td>4</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Results of table (4-2) showed that more than half (52.5%) of the study sample finished their secondary education, 30% were graduated, the majority of them (60%) were married, while half of them (50%) with moderate and 45% with low economical status.
Table (4-3) Distribution of study sample according to their source of information and receiving of awareness about breast cancer (N=80)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>health education</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>radio &amp; tv</td>
<td>40</td>
<td>50.0</td>
</tr>
<tr>
<td>media</td>
<td>17</td>
<td>21.5</td>
</tr>
<tr>
<td>health care providers</td>
<td>15</td>
<td>18.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Receiving of awareness about breast cancer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>21</td>
<td>26.2</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>73.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Results of table (4-3) showed that half (50%) of the study sample got their information about breast cancer and chemotherapy from radio and television, the majority of them (73%) did not attended any workshops or educational session regarding breast cancer.

Table (4-4) Distribution of the study sample according to their knowledge regarding risk factors and diagnosis of breast cancer (n=80)

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Risk factors of breast cancer</td>
<td>28</td>
<td>35%</td>
<td>52</td>
</tr>
<tr>
<td>Diagnosis of breast cancer</td>
<td>44</td>
<td>55%</td>
<td>36</td>
</tr>
</tbody>
</table>

Table (4-4) showed that, only 35% of the study sample responded with correct answers regarding risk factors of breast cancer. While 55% of the study sample responded with correct answers regarding diagnosis methods of breast cancer.
Table (4-5) Distribution of the study sample according to their knowledge regarding signs, symptoms and Possible side effects of breast cancer (n=80)

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Signs and symptoms of breast cancer</td>
<td>33</td>
<td>41.3%</td>
<td>47</td>
</tr>
<tr>
<td>Possible side effects of chemotherapy for breast cancer</td>
<td>62</td>
<td>77.5%</td>
<td>18</td>
</tr>
</tbody>
</table>

Table (4-5) showed that, the average of participants' knowledge regarding signs and symptoms of breast cancer was 41.3%. The average of participants' knowledge regarding possible side effects of chemotherapy of breast cancer was 77.5%

Table (4-6) Distribution of the study sample according to their knowledge regarding barriers and Management of side effects of chemotherapy for breast cancer (n=80)

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Barriers of chemotherapy for breast cancer</td>
<td>53</td>
<td>66.5%</td>
<td>27</td>
</tr>
<tr>
<td>Management of side effects of chemotherapy for breast cancer</td>
<td>44</td>
<td>55%</td>
<td>36</td>
</tr>
</tbody>
</table>

Table (4-6) showed that, 66.5% of participants' responded with correct answers regarding possible barriers of chemotherapy for breast cancer. The average of participants' knowledge regarding management of side effects of chemotherapy was 55%.
<table>
<thead>
<tr>
<th>Item</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Risk factors of breast cancer</td>
<td>28</td>
<td>35%</td>
<td>52</td>
</tr>
<tr>
<td>Diagnosis of breast cancer</td>
<td>44</td>
<td>55%</td>
<td>36</td>
</tr>
<tr>
<td>Signs and symptoms of breast cancer</td>
<td>33</td>
<td>41.3%</td>
<td>47</td>
</tr>
<tr>
<td>Possible side effects of chemotherapy for breast cancer</td>
<td>62</td>
<td>77.5%</td>
<td>18</td>
</tr>
<tr>
<td>Barriers of chemotherapy for breast cancer</td>
<td>53</td>
<td>66.5%</td>
<td>27</td>
</tr>
<tr>
<td>Management of side effects of chemotherapy for breast cancer</td>
<td>44</td>
<td>55%</td>
<td>36</td>
</tr>
</tbody>
</table>

Overall mean of knowledge = 55%

As shown in table (4-7) the overall mean of respondents' knowledge regarding breast cancer and chemotherapy was 55%.

**Table (4-8) Average knowledge of the study sample regarding breast cancer.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Risk factors of breast cancer</td>
<td>28</td>
<td>35%</td>
<td>52</td>
</tr>
<tr>
<td>Diagnosis of breast cancer</td>
<td>44</td>
<td>55%</td>
<td>36</td>
</tr>
<tr>
<td>Signs and symptoms of breast cancer</td>
<td>33</td>
<td>41.3%</td>
<td>47</td>
</tr>
</tbody>
</table>

As shown in table (4-8) the mean of respondents' knowledge regarding breast cancer was 43.7%.
Table (4-9) Average knowledge of the study sample regarding chemotherapy.

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible side effects of chemotherapy for breast cancer</td>
<td>62 77.5%</td>
<td>18 22.5%</td>
<td>80 100%</td>
</tr>
<tr>
<td>Barriers of chemotherapy for breast cancer</td>
<td>53 66.5%</td>
<td>27 33.5%</td>
<td>80 100%</td>
</tr>
<tr>
<td>Management of side effects of chemotherapy for breast cancer</td>
<td>44 55%</td>
<td>36 45%</td>
<td>80 100%</td>
</tr>
</tbody>
</table>

As shown in table (4-8) the mean of respondents, knowledge regarding chemotherapy was 66.3 %
Chapter Four (Data Analysis and Discussion)

4.2 Discussion

This descriptive hospital based-study was conducted among (80) female patients with breast cancer undergoing chemotherapy with age 20 years old and above aimed at assessing female Patients Knowledge regarding Chemotherapy of Breast Cancer, in Khartoum Oncology hospital, Khartoum State, Sudan during the period from April to June 2017.

Socio-demographic data

Regarding socio-demographic characteristics the study revealed that about 2 third (67.5) of the study sample were above 36 years, about 2 third of them were housewives and 60% are living in urban areas. (52.5%) of the study sample finished their secondary education, 30% were graduated, the majority of them (60%) were married, and the majority of them (95%) were either with moderate (50%) or low economical status (45%). Also (73%) of them did not attended any workshops or educational session regarding breast cancer. Additionally, amongst this study samples, the most common source of information on breast cancer were audiovisual, table(4-3 ). Similarly with a previous study from Iran (Akhtari-Zavare et al. 2014) and Malaysia (Al-Naggar et al, 2011) who reported that television was the most common source of information.

FemalePatients' knowledge regarding breast cancer

Regarding knowledge about breast cancer, the study revealed that respondents' mean of knowledge regarding risk factor of breast cancer was 35% (Table 4-4), while 41.6% responded with correct answers regarding signs and symptoms of breast cancer this results is partially similar to (Masqsood et al, (2009) as they reported in their study Pakistan that, 35% knew about one or two major risks factors of breast cancer and 65% knew at least one major sign or symptom of breast cancer. Participants’ knowledge regarding methods of diagnosis of breast cancer was 55.5% , (62.5%) of respondent knew that breast self examination is the method of early detection of breast cancer Table ( 4-5) this is a good sign but (70%) of them need to increase knowledge regarding mammogram as the important method of early diagnosis of breast cancer. Table (4-6).
Participants' knowledge regarding chemotherapy

Results showed that, the average of participants' knowledge regarding possible side effects of chemotherapy of breast cancer was 77.5%, while 66.5% of participants responded with correct answers regarding possible barriers of chemotherapy for breast cancer. That means they need to increase their knowledge. This percent is less than that reported in study conducted in South Africa among female patients (Keneth A. 2012). Were 63.7% of the respondents has a good knowledge about chemotherapy side effect.

Participants' knowledge regarding management of side effects of chemotherapy was 55%. This is similar to the study of (Rajiv B, 2010) who stated that her participant’s knowledge was 57.3%.
Chapter Five

Conclusion and Recommendations

5-1 Conclusion

Based on the results of the study concluded that patients' mean of knowledge regarding breast cancer was poor (43.7%), but their mean of knowledge regarding chemotherapy was good (66.3%).

5-2 - Recommendations

Based on the study results it can be recommend that:

- Conducting of educational programs about breast cancer regarding its signs and symptoms, and early detection methods, which in turn helps to alert to any abnormal changes in the breasts and provoke to seek medical advice immediately.

- Comprehensive Health education programmes regarding possible side effects of chemotherapy should be targeted specially in audiovisual (Television, and Radio) obtained because it is available method for respondents.

- Conducting of further studies in different states of Sudan concerning with this important topic.
References


7- Entrez Gene (2015): ERBB2 v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)


26- National Cancer Institute (2012). "Paget's Disease of the Nipple: Questions and Answers

XLVII
34- WHO (2014)."WHO Disease and injury country estimates". World Health Organization.
جامعة الجزيرة
كلية العلوم الطبية التطبيقية
قسم التمريض
برنامج ماجستير صحة المجتمع

استبيان عن تقييم معلومات النساء حول العلاج الكيميائي لسرطان الثدي في مستشفى الذرة بالخرطوم، ولاية الخرطوم، السودان 2017

الجزء الأول (المعلومات الأولية)

1/ العمر :
   أقل من 20 ( )  21-25 ( )  26-30 ( )  31-35 ( )
   36 عاماً فما فوق ( )

2/ المهنة :
   عاملة ( )  ربة منزل ( )  طالبة ( )

3/ مكان الإقامة :
   مدينة ( )  قرية ( )

4/ المستوى التعليمي :
   أمي ( )  أساس ( )  ثانوي ( )
   جامعي ( )  فوق الجامعي ( )

5/ الحالة الاجتماعية :
   متزوجة ( )  عازبة ( )  مطلقة ( )  أرملة ( )

6/ مستوى الدخل :
   ضعيف ( )  متوسط ( )  مرتفع ( )

7/ ما هي مصادر المعلومات عن المرض والعلاج؟
   التثقيف الصحي ( )  الإذاعة والتلفزيون ( )  الصحف ( )  الوسائط ( )
هل تلقيتي أي توعية أو إرشادات عن سرطان الثدي أو علاجه؟
نعم ( ) لا ( )

الجزء الثاني معلومات عن سرطان الثدي
وضع علامة ( ) أو ( X )

9/ عوامل خطر الإصابة بسرطان الثدي تشمل
أ/ التاريخ العائلي للمرض ( )
ب/ ال١٣ الميلاً فوق ٣٥ سنة ( )
ج/ الطفل الرضيع الأول بعد ال٣٠ ( )
د/ حبيوب منع الحمل ( )
ه/ دليل الهرمونات ( )
و/ السمنة (الوزن الزائد) ( )
ز/ البلوغ المبكر قبل ١٢ ( )

10/ كيف يتم تشخيص سرطان الثدي؟
أ/ لاشعة الماموغرام ( )
ب/ ظهور كتلة بالثدي ( )
ج/ الموجات الصوتية للثدي ( )
د/ الفحص الذاتي للثدي ( )
ه/ فحص الدم ( )

10/ ما هي أعراض وعلامات سرطان الثدي؟
أ/ كتلة بالثدي
ب/ تغيير لون جلد الثدي
ج/ ورم في كل أجزاء الثدي حتى إذا لم تتحسس كتلة متميزة ( )
د/ ألم في الحلقة أو الثدي ( )
ه/ جرّ حلقة الثدي إلى الداخل ( )
ز/ توقف نزول الحليب من حلقة الثدي ( )
المعرفة عن العلاج الكيميائي لسرطان الثدي

11/ يعمل العلاج الكيميائي على:
أ/ إيقاف أو إبطاء نمو الخلايا السرطانية (    )
ب/ القضاء على الخلايا السرطانية تماما (    )

12/ دواعي استخدام العلاج الكيميائي لسرطان الثدي
أ/ التقليل من حجم الورم قبل الجراحة أو العلاج الإشعاعي للسرطان (    )
ب/ تدمير الخلايا السرطانية التي قد تبقى بعد العلاج الجراحي أو العلاج الإشعاعي للسرطان (    )
ج/ تلطيف أعراض السرطان، بتقلص حجم الأورام المسببة للألم أو الضغط (    )
د/ بديل للجراحة (    )

13/ يكون العلاج الكيميائي أكثر فاعلية عندما:
أ/ يكون من نوعين أو أكثر من العقاقير (    )
ب/ يكون من نوع واحد من العقاقير (    )

14/ الأعراض الجانبية المحتملة
أ/ اسهال (    )
ب/ استفراغ (    )
ج/ دوار (    )
د/ اجهاد (    )
و/ المفاصل (    )
ه/ قرح الفم (    )
ز/ تساقط الشعر (    )
د/ نقصان الوزن (    )
ع/ فقدان الشهية (    )
ك/ اضطراب الدورة الشهرية (    )

15/ موانع استخدام العلاج الكيميائي
أ/ الحمل (    )
ب/ الرضاعة (    )
ج/ ارتفاع ضغط الدم (    )

16/ كيفية معالجة الآثار الجانبية

أ/ التغذية الجيدة (    )

ب/ استعمال المكملات الغذائية (فيتامينات، معادن) (    )

ج/ استخدام المضادات الحيوية (    )

د/ الابتعاد عن السحر والاتجاه (    )