*Available online at http://www.journalijdr.com*

IJDR

*International Journal of*
**DEVELOPMENT RESEARCH**

**ISSN: 2230-9926**

*International Journal of Development Research*
*Vol. 07, Issue, 01, pp.10968-10970, January, 2017*

## *Full Length Research Article*

# BREAST CANCER AFFLICTIONS IN PREGNANCY

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**ARTICLE INFO**

***Article History:***
Received 27th October, 2016
Received in revised form
11th November, 2016
Accepted 22nd December, 2016
Published online 30th January, 2017

***Key Words:***

Pregnancy, Breast cancer,
PABC, Ultrasound,
Radiotherapy,
Chemotherapy.

**ABSTRACT**

Cancer is a deadly diseaseand breast cancer in females is a leading cause of death in women world wide annually. Breast cancer is the second most frequently occurring malignancy during pregnancy. As evidence-based data on diagnostics and treatment is lacking, current recommendations mostly derive from nonrandomized experiences The rate of developing breats cancer during pregnancy has increased significantly among women due to modernization. Surgeryis one of the best methods of treatment of cancer during pregnancy as effect on foetus is nill. Screening and delayed diagnosis remains one of the biggest problems with cancer afflictions in pregnancy.



## INTRODUCTION

Cancer can strive not just human beings but also other forms of animals. About 12.7 million cancer cases and 7.6 million cancer deaths are estimated to have occurred world wide, with 56% cases and 64% of the deaths in the economically developing world. Breast cancer is prevalent in economically developed and developing countries. Detection of breast cancer in pregnant women is generally at later stage when it is more likely to have spread to the lymph nodes. Due to hormonal changes during pregnancy which stops menstrual cycle because of which the level of hormones such as progesterone , estrogen and hormone that prepares breast for nursing, prolactin shoots up. The breast becomes larger, lumpy and tender caused by these hormonal changes and makes it harder for the women or the doctor to notice these changes until it becomes quite large. Breast cancer is the second most common malignancy affecting pregnancy. Pregnancy-associated breast cancer (PABC) is defined as breast cancer diagnosed during pregnancy or in the first postpartum year. As depicted by Figure 1; breast cancer worldwide incidence is most in western Europe almost 100% rate per 100 000 women of all ages as compared to say middle Africa where it is barely 20%.

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### Genes involved in Breast cancer

Breast cancers that cluster in families are associated with inherited mutations in particular genes, such as *BRCA1* or *BRCA2*. These genes are described as "high penetrance" because they are associated with a high risk of developing breast cancer.

### Diagnosis of PABC

Many women with breast cancer during pregnancy are in advanced stages at the time of diagnosis and thorough evaluation of possible metastasis is warranted. Breast cancer most commonly metastasizes to lungs, liver, and bone. Chest radiographs are considered safe during pregnancy, with appropriate abdominal shielding, to evaluate for any lung metastasis. Liver metastases can be evaluated with ultrasound. Outside of pregnancy, evaluation of bony metastasis is usually accomplished with a bone scan; however, in pregnancy the radioactive technetium can be harmful to the rapidly developing fetal skeleton. Therefore, evaluation for bony metastasis in pregnancy can be done with noncontrast magnetic resonance imaging.

### Treatment of PABC patients:

**Surgery and Radiation Therapy:** The main goal of surgery is to remove the entire tumor from the breast. There are 2 main types of surgery :

- **Lumpectomy-** in this there is a removal of tumor from breast and small part of normal tissue around it. But the rest of breast remail intact.
- **Mastectomy-** removal of entire breast but in many cases includes the nipple and areola.

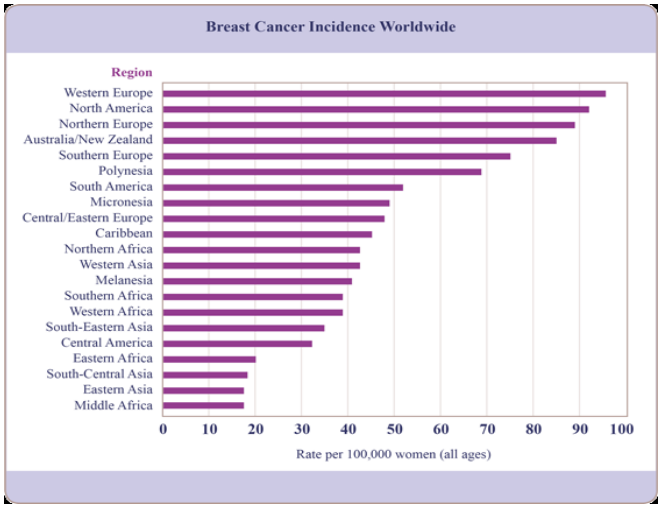


**Figure 1. Breast cancer incidence worldwide statistics**

**Table 1. Showing treatment for PABC patients**

Table 1. NCCN Treatment Guidelines for Pregnant Patients With Confirmed Breast Cancer Diagnosis

| Trimester | Primary Treatment | Adjuvant Treatment |
|---|---|---|
| First | Mastectomy + axillary staging | Adjuvant chemotherapy can begin in second trimester |
| Second/ early third | Mastectomy or breast conserving surgery + axillary staging OR Neoadjuvant chemotherapy, mastectomy, or breast-conserving surgery + axillary staging postpartum | Adjuvant chemotherapy +/- adjuvant radiation therapy and/or endocrine therapy postpartum |
| Third | Mastectomy or breast-conserving surgery + axillary staging | Adjuvant chemotherapy +/- adjuvant radiation therapy and/or endocrine therapy postpartum |

*NCCN: National Comprehensive Cancer Network.*
*Source: Reference 7.*

**Table 2. Showing chemotherapy agents used during PABC**

Table 2. Common Chemotherapy Agents Used During PABC[a]

| Agent | Pharmacologic Class | Major Adverse Effects/Monitoring Parameters |
|---|---|---|
| Fluorouracil (5-FU) | Antimetabolite, pyrimidine analogue | Hand-foot syndrome, GI effects |
| Doxorubicin | Anthracycline topoisomerase II inhibitor | Cardiac toxicity, tumor lysis syndrome |
| Cyclophosphamide | Alkylating nitrogen mustard | Bone marrow suppression, GI effects |
| Paclitaxel | Antimicrotubule taxane derivative | Hypersensitivity reactions: premedicate all patients each treatment; peripheral neuropathy |
| Docetaxel | Antimicrotubule taxane derivative | Hypersensitivity reactions: premedicate with dexamethasone; fluid retention; monitor LFTs with each dose |

[a] *After the first trimester.*
*GI: gastrointestinal; LFT: liver function test; PABC: pregnancy-associated breast cancer.*
*Source: References 10-14.*

Breast cancer surgery is safe during pegnancy.anesthesia used can cross the placenta to fetus, it does not cause birth defects or serious pregnany complications. To avoid the blood loss and further anesthesia breast reonstructions are delayed until the baby is born. Women who are pregnant and in their first trimester and wants to continue their pregnancy mainly recommend mastectomy because radiation therapy is needed after lumpectomy which is harmful for fetus. Women can also have chemotherapy in their second and third trimester before surgery.

**Breast Reconstruction:** It helps in restoring the look and feel of breast after mastectomy. It can be done immediately after mastectomy or can be delayed and is performed by plastic surgeon.

It can be done with:

- Breast implants by saline or silione
- Natural tissue flaps using skin fat etc of own body
- Or combination of both

Each reconstruction method has pros and cons. The body shape and anatomy may affect the types of breast reconstruction likely to give you the best results. The lifestyle may also affect the type of reconstruction chosen.

**Radiation Therapy**

It typically uses targeted, high energy x-rays to kill cancer cells. The goal of radiation therapy is to kill any cancer that might be left in or around the breast after surgery. It can be done if the women have

- Ductal carcinoma in sity( DCIS, non-invasive breast cancer)
- Early stage breast cancer

**Chemotherapy**

Chemotherapy drugs kills or disable caner cells. The decision to use hemotherapy based on tumor stage, tumor characteristics as well as the age, health and personal preferances. It is not given during first trimester as this is the time when the chances for drug related birth defects and miscarriage are greatest. During second and third trimester some chemotherapy drugs can be used safely. It should not be given within 3 weeks of planned delivery date.

**Prognosis**

Prognosis for pregnant women with breast cancer is similar to that of non pregnant women when age and caner stage are taken into account. Breast feeding should be avoided while being treated with radiation therapy, chemotherapy, hormone therapy or targeted therapy.

**Timing of Delivery**

Delivery should occur at term or as close to term as possible. Induction of labor is only indicated to provide a treatment to the mother that is contraindicated in pregnancy. If the patient is receiving chemotherapy, it may be useful to stop treatments prior to 36 weeks of gestation so that delivery does not occur during a period of maternal or fetal leukopenia, where the risks of chorioamnionitis and operative infections if having a cesarean delivery may lead to increased morbidity or mortality. The route of delivery should be vaginal, with cesarean delivery reserved for usual obstetric indications.

**Conclusion**

Fewer than 10% of pregnant women affected with PABC have become pregnant after treatment and little is known about what effect a future pregnancy will have on chances of a breast cancer relapse.

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