World Journal of Breast Cancer Research

Opinion
Published: 29 Apr, 2019

Carcinogenic Chemicals Causing Breast Cancer, Their Diagnosis and Treatment

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Introduction

Cancer that develops into the tissues of breast is called breast cancer. The common type of breast cancer is "ductile carcinoma". This begins in the lining of the milk ducts (thin tubes that carry milk from lobules of breast to the nipple). Another common type of breast cancer is "lobular carcinoma", which begins in lobules (milk gland). A rare type of breast cancer is sarcoma which is a cancer of breast's connective tissue. They are of two types:

***In situ*:** The cancer remains in the area it originated.

Invasive: The cancer cells spread to neighboring regions from where they began.

Signs of Breast Cancer: Signs of breast cancer may include a change in breast shape, a lump in a breast, dimpling of the skin, fluid coming from nipple, inverted nipple and a red or scaly patch of skin.

Risk Factors of Developing Breast Cancer: Obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, prior history of breast cancer [1].

Diagnosis: Tissue biopsy.

Treatment: Surgery, radiation therapy, chemotherapy, hormonal therapy, targeted therapy etc.

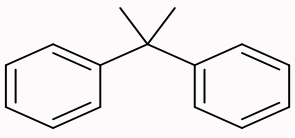
Chemicals Responsible for Breast Cancer

Xenoestrogens: These are industrially made estrogenic compound. These are endocrine disruptors and potential risk factors of breast cancer. Xenoestrogens are a type of xenohormones that imitates estrogen. Synthetic xenoestrogens include some widely used industrial compounds, such as BPA and phthalates.

Bisphenol A: This compound is used in production of plastics which are used in laptop, baby bottles, food containers, laboratory and hospital equipments etc., (Figure 1) [2].

Experiment: Rats exposed prenatally to environmentally relevant doses of BPA show an increased number of intraductal hyperplasia (precancerous lesions) in mammary gland that appear during adulthood, while high doses induce the development of carcinomas in breast tissues. We should avoid canned food and poly carbonated plastic containers.

Amines: Monocyclic amines have been found to cause mammary cancer in rats. Studies have shown that women, who eat higher amount of overcooked meat, meaning more exposure to heterocyclic amines, have also been diagnosed with more post menopausal breast cancer. Some epidemiological investigations have revealed that frequent consumption of over cooked meats and



Bisphenol A

Figure 1:

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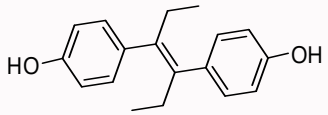
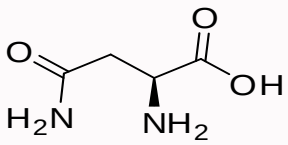
Received Date: *09 Mar 2019*
Accepted Date: *25 Apr 2019*
Published Date: *29 Apr 2019*

Citation:
Sharma N, Sharma J, Maurya HK. Carcinogenic Chemicals Causing Breast Cancer, Their Diagnosis and Treatment. World J Breast Cancer Res. 2019; 2(1): 1013.



Diethylestilbestrol

Figure 2:



Aspergine

Figure 3:

tobacco smoking is risk factors for breast cancer in women.

2-amino-1-methyle-6-phenylimidazole [4,5-b] pyridine (PhIP)is a heterocyclic aromatic amine that is formed in overcooked meat and 4-aminophenyle (4-ABP) is an aromatic amine that arises in tobacco smoke and occurs as a contaminant in atmosphere.

DES Exposure: Women who were given the now banned drug diethylestilbestrol to prevent miscarriage decades ago faced a slightly increased risk of breast cancer, as do their daughters (Figure 2) [3].

Aspergine: It is an amino acid. It appears to help cancer cells change in to a form that easily spread from the breast, through the blood stream, to others organs where they grow in secondary tumors (by Hannon) (Figure 3) [4].

Thus, we find that above chemicals may be a reason for increasing breast cancer now a day.

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