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## Chemopreventive

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### Editorial Article

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### Introduction

Chemoprevention is defined as interventions with pharmaceuticals, vitamins, minerals, biologics, or delay, reverse the carcinogenic process. The use of drugs or other agents to inhibit the development or progression of cancer recurrence. Chemo preventive agents, alone or in combination can be used, they can help prevent that process from occurring or slow it down. Cancer is a diseases in which cells become abnormal and it grows uncontrollably, chemopreventive is not used to treat existing cancer, but may be used in people who have had cancer in order to lower the risk of developing new cancers.

Chemoprevention is typically used by people who have a higher risk of developing cancer, and those who are already suffering with cancer, an inherited cancer syndrome, or family history of cancer. Recent studies showed, the US Food and Drug Administration (FDA) has approved the following agents for cancer prevention:

- Antiestrogen drugs like tamoxifen and raloxifene against breast cancer
- Celecoxib against adenomatous colorectal polyps,
- Fluorouracil against actinic keratosis,
- BCG (Bacillus Calmette-Guerin) against bladder cancer recurrence,
- HPV (human papilloma virus) vaccine against cervical cancer,
- Photodynamic therapy with photofrin against Barrett Esophagus
- Non-steroidal anti-inflammatory drugs (NSAIDs) like Aspirin or Cox-2 inhibitions that lower the risk of many types of cancer in people with an average risk of cancer.
- Chemopreventive drugs may delay cancer, chemoprevention for cancer may be similar to drugs used to prevent heart disease or stroke, such as statins or antihypertensive drugs, which are not 100% protective.

### Dietary source:

It has been widely used recognized that plant foods maintains a healthy body weight prevent cancer and other diseases. Plant foods like fruits, vegetables contain phytochemicals that fight against cancer Examples: Broccoli contain sulforaphane, Grapes contain resveratrol Lycopenes in tomatoes, Green tea, Soy, Flaxseeds they have the resistance to fight with cancer.

### Causes:

Alcohol is also potentially carcinogenic, overweight and obese are causatively linked to many

forms of cancer.

#### **Side effects:**

**Anemia:** Anemia is normally lowers the level of red blood cells,it is common in people with cancer, especially those who receiving the chemotherapy.

**Appetite Loss:** Appetite changes are common in the cancer patients or those who taking the cancer treatment. Some types of cancer may cause many changes in appetite, cancers like ovarian, pancreatic, and stomach cancers may cause a loss of appetite, usually by affecting a person's metabolism, which is the process of the body breaking down food and turning it into energy.

**Hair loss or Alopecia:** It is a potential side effect of chemotherapy or radiation. Due to the treatment for cancer hair loss may occur by harming the cells that help hair grow. Few drugs may cause hair loss or thinning of hair while used in the treatment of chemotherapy or radiotherapy drugs like, Gemcitabine, Cisplatin, Vinorelbine, Vincristine

#### **Discussion:**

We discuss the types of agents, since all have found clinical application. Although various dietary constituents, such as Vitamin c,  $\beta$ -carotene, folic acid, and  $\alpha$ -tocopherol (vitamin E),soy, Lycopenes in tomatoes have the capable of many clinical trials to prevent cancer. Three classes of drugs are used to prevent the cancer chemopreventive that act as selective estrogen receptor modulators (SERMs): tamoxifen, raloxifene and toremifene . All three agents are competitive inhibitors of estrogen binding to estrogen receptors (ERs), and all have mixed agonist & antagonist activity, it mainly depends on the target tissue. These mixed activities have led to the redesignation of this class of compounds from "anti-estrogens" to SERMs. It will be necessary to use agents that either are potent antimutagens or can significantly alter patterns of gene expression. Tamoxifen: Tomoxifen is used to treat breast cancer that has spread to other parts of the body Tamoxifen is a SERM that selectively blocks the effect of estrogen on breast tissue. Tamoxifen are non-steroidal triphenylethylene derivative showed lowered the risk for a new breast cancer in the other breast by about 40% in women with BRCA1 mutations and by about 25% in women with BRCA2 mutations.

#### **Uses & sideeffects:**

- Tomoxifen is used in the treatment for breast cancer
- Tomoxifen is recommend not to use in pregnancy because it could harm the unborn baby

#### **While using Tomoxifen following adverse effects can occur**

- Anxiety
- blistering, peeling, or loosening of the skin and mucous membranes
- blurred vision
- cataracts in the eyes or eye problems
- change in vaginal discharge
- chest pain
- chills
- confusion
- cough
- dizziness
- fainting

- fast heartbeat
- fever

### **Mechanism of Action:**

Tamoxifen mechanism of action is complex. Clearly, it shows the principal mechanism of action is mediated by its binding to the estrogen receptor and the blocking of the proliferative actions of estrogen on mammary epithelium. It has also show that tamoxifen can induce synthesis of TGF- $\beta$  in estrogen receptor-negative cells, like fetal fibroblasts Overall; tamoxifen is considered an effective preventative strategy for healthy women at increased risk for breast cancer.it also shown an excellent safety profile with only a few number of side effects.

### **Conclusion**

Breast cancer detection, treatment, mechanism of action was studied in the chemopreventive topic. Selective estrogen receptor modulators (SERMs) and increased Increased intake of foods high in vitamin E, lycopene, or selenium have also been associated with decreased breast cancer.

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