Breast Cancer Risk-Reducing Medications

Breast cancer risk-reducing medications may decrease the risk of primary breast cancer in some women.

Who Might Benefit From These Medications?

These medications should be considered in women aged 35 years or older who have an increased risk of developing breast cancer. There is no specific cutoff for defining "increased risk," though most studies define this as at least a 3% chance of developing breast cancer in the next 5 years. This risk is determined by considering family history and reproductive factors, such as the age at which a woman began menstruation. Women may be born with hereditary genetic mutations that put them at very high risk of breast cancer (such as *BRCA*), but these mutations are extremely rare, and other preventive strategies are recommended for these individuals.

How Breast Cancer Risk Is Determined

There are multiple breast cancer risk estimation models that have been developed, none of which is clearly superior to the others. Personal risk factors (age, menstrual history, pregnancy history, history of previous breast biopsies) and family history are common components, with some using more extensive family history and mammographic density. Which tool to use and how to interpret results should be discussed with a doctor or genetic counselor. These models include the National Cancer Institute Breast Cancer Risk Assessment Tool, also known as the Gail model (https://bcrisktool.cancer.gov/), the Breast Cancer Surveillance Consortium Risk Calculator (https://tools.bcsc-scc.org/BC5yearRisk/), the IBIS Breast Cancer Risk Evaluation Tool (http://www.ems-trials.org/riskevaluator/), and the Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm (https://ccge.medschl.cam.ac.uk/boadicea/).

What Medications Are Available?

The medications that may be used for breast cancer risk reduction include selective estrogen receptor modulators (SERMs), such as tamoxifen and raloxifene, and aromatase inhibitors (AIs), such as anastrozole and exemestane. Although any of these medications may be prescribed for postmenopausal women, tamoxifen is the only option for premenopausal women.

Other Important Factors

These medications may reduce a person's risk of certain types of breast cancer, but there is no evidence that they decrease the risk of developing estrogen receptor (ER)–negative breast cancer. Women taking these medications should still undergo regular breast cancer screening. Younger women considering pregnancy should defer taking tamoxifen until completing their family. For postmenopausal women who still have a uterus, raloxifene may be a better option than tamoxifen because it has a lower risk of uterine cancer. The typical treatment duration is 5 years.

Potential benefits and risks of breast cancer risk-reducing medications

Medication name, class	Potential benefits	Potential risks and adverse effects	Additional considerations
Tamoxifen, selective estrogen receptor modulator	Reduced risk of breast cancer Increased bone mineral density Associated with decreased fracture risk in postmenopausal women	Blood clots in the veins of the legs and lungs Increased risk of endometrial cancer Hot flashes Menstrual abnormalities Sexual dysfunction Vaginal discharge	Indicated for premenopausal or postmenopausal women
Raloxifene, selective estrogen receptor modulator	Reduced risk of breast cancer Increased bone mineral density Associated with decreased fracture risk in postmenopausal women	Blood clots in the veins of the legs and lungs Hot flashes	Not indicated for premenopausal women
Anastrozole, aromatase inhibitor	Reduced risk of breast cancer	Joint pain Muscle pain Decreased bone mineral density	Not indicated for premenopausal women
Exemestane, aromatase inhibitor	Reduced risk of breast cancer	Joint pain Muscle pain Decreased bone mineral density	Not indicated for premenopausal women

Medications have not been shown to decrease the risk of developing estrogen receptor–negative breast cancer.

Steps for Patients Who May Benefit From These Medications

Women who believe they might benefit from breast cancer risk–reducing medications should discuss the options with their doctor. The goal is to determine who is likely to have the greatest benefit from these medications and whether these outweigh the risks. This is a nuanced and personalized decision based on individual history and risk factors, and the evidence for these medications is constantly evolving. Thus, a woman's doctor will best be able to help determine if these medications might be beneficial.

FOR MORE INFORMATION

US Preventive Services Task Force
https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-medications-for-risk-reduction

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