TREATMENT UPDATE:

Breast Cancer With Highlights from the 2018 San Antonio Breast Cancer Symposium

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Treatment Update: Breast Cancer With Highlights from the 2018 San Antonio Breast Cancer Symposium

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For women coping with breast cancer, the number of treatment options continues to grow.

Each year in the United States, more than 260,000 women are diagnosed with breast cancer. In recent years, the number of effective treatments for breast cancer has increased. Breast cancer is not just one disease—there are several different subtypes, each with its own unique features— and doctors are able to tailor treatments according to the characteristics of these specific subtypes.

Men can also be diagnosed with breast cancer but represent only about 1 percent of all breast cancer cases, making it challenging for doctors to conduct clinical trials on the treatment of breast cancer in male patients. In this e-booklet, we refer only to women with breast cancer, but much of the information also applies to men. If you are a man affected by breast cancer, your health care team will tailor a treatment plan that best fits your situation.

In this update, we talk about current available breast cancer treatments and new medicines in development. We also describe how to cope with possible treatment side effects and how to communicate most effectively with your health care team.

Types of Breast Cancer

Hormones and other chemical messengers in the bloodstream can attach to specialized proteins (called receptors) and fuel the growth of cancer cells. These receptors may lie within or on the surface of cancer cells.

There are three main subtypes of breast cancer:

- **Hormone receptor (HR) positive.** Cancers that have receptors for the female hormone estrogen (ER-positive) and/or progesterone (PR-positive) are considered hormone-sensitive. ER-positive cancers account for about 80 percent of breast cancers. Nearly two-thirds of ER-positive cancers also have receptors for progesterone (are PR-positive as well as ER-positive).
- **HER2-positive.** Cancers that are positive for human epidermal growth factor receptor 2 (HER2) have an abundance of HER2 receptor cells on their surface. HER2-positive cancers account for about 20 to 25 percent of breast cancers, about half of which are also hormone receptor-positive. This subtype can be either HR-positive or HR-negative.
- **Triple-negative.** Approximately 15 percent of women with breast cancer have a type called triple-negative. These tumors do not have receptors for estrogen or progesterone and do not have excess HER2 receptors on their surface.

Diagnostic Tests

Mammogram

A mammogram is an X-ray picture of the breast. It is often the first test used to check for breast cancer in women who have a lump or another sign of tumor growth. A mammogram is also used as a screening test in women who have no signs or symptoms of breast cancer. If the doctor sees anything suspicious, additional tests are conducted.

Ultrasound

Breast ultrasound uses sound waves to examine the breast. This is another common tool in evaluating breast lumps and other abnormal findings, especially in young women who have breasts that are considered dense (have a relatively high amount of glandular tissue and fibrous connective tissue and a relatively low amount of fatty tissue).

Magnetic Resonance Imaging (MRI)

Breast MRI uses magnetic waves to evaluate breast tissue and breast abnormalities. Breast MRI is sometimes useful after a breast cancer diagnosis to look for additional findings not seen on a mammogram, help evaluate the extent of disease and help with surgical planning. For some young women at high risk of developing breast cancer (such as women with strong family histories of breast cancer and/or BRCA or other gene mutations), breast MRI is recommended as part of cancer screening.

Biopsy

Tests performed on tumor samples provide doctors with valuable information that helps guide treatment decisions. One such test is a biopsy, in which a doctor uses a needle to remove a tissue sample from the tumor so that it can be examined under a microscope. Some breast biopsies require surgery (known as an excisional biopsy).

Biopsies can help doctors determine whether the tumor is non-invasive (has not spread outside the milk duct or gland, where breast tumors usually begin) or invasive (has spread outside the duct or gland into nearby breast tissue). Another important piece of information that can be learned from the biopsy is the tumor's hormone receptor status, which indicates whether or not the tumor's growth is driven by hormones (ER-positive, PR-positive or HER2-positive).

Surgical Staging

In a staging surgery, the doctor assesses the size and microscopic patterns of the cancer cells in the breast to assess how likely the cancer is to return. The surgeon also removes one or more lymph nodes in the underarm near the affected breast to see if they contain cancer cells. (Lymph nodes are a normal part of the immune system and can be one of the first sites where cancer cells spread in cases of early breast cancer.)

Genomic Tests

For certain women with early-stage breast cancer, a test called a "genomic assay" may be used. This test is designed to detect several genes or groups of genes in the cancerous cells. The expression profile of these genes can help doctors determine how likely it is that a woman with early-stage breast cancer will have her cancer return after completing first-line treatment. (A woman's recommended first-line treatment is dependent on her type of cancer as well as other factors.) Having certain genes can also be associated with a higher likelihood of the cancer responding well to a particular drug.

Genomic assays provide a quantitative (numbers-based) analysis that can help women and their doctors better understand the prognosis and decide if additional treatment, such as chemotherapy, should be pursued. Commonly used genomic assays include the Oncotype DX score, MammaPrint and others.

Treatment Options

Treatment recommendations are individualized, taking into consideration the biology of the cancer, the stage and the overall health of the woman.

Treatment for non-metastatic breast cancer (cancer that has not spread beyond the breast) often includes a combination of surgery, radiation and drug therapy. Treatment for metastatic breast cancer generally focuses on drug therapy that circulates to wherever cancer cells are located, although localized treatment to specific metastatic lesions may sometimes be useful.

Surgery

In the past, doctors thought that mastectomy (full removal of the breast) was the best way to improve the chances that the cancer would not return. However, mastectomy does not completely eliminate the chances of the tumor coming back, and for many women lumpectomy (removal of just the tumor with some surrounding tissue) plus radiation is equally effective. Lumpectomy also has the advantage of often offering a better cosmetic result and a shorter recovery time than mastectomy.

The surgeon also removes one or more lymph nodes in the underarm near the affected breast to see if they contain cancer cells. In some cases, the surgeon will remove only the "sentinel lymph node," the first lymph node into which breast cancer cells spread. If the sentinel lymph node is cancer-free, chances are that other lymph nodes are also unaffected and can be left in place, reducing the risk of lymphedema, a painful swelling of the arm that sometimes results from the removal of lymph nodes.

Radiation

Radiation to the entire breast, usually given over 6 to 7 weeks, has been the standard of care for women who have been treated with lumpectomy. Recent trials have shown that, for some women, higher daily doses of radiation given over 3 to 5 weeks (with the same total combined dose of radiation) are as effective as the standard approach, with similar potential side effects. Any form of radiation can damage healthy tissues and cause cosmetic deformities, swelling and scarring.

Some women who have undergone a mastectomy will require post-surgery radiation. Factors that increase the likelihood of radiation after a mastectomy being required include larger tumor size and the presence of affected lymph nodes.

Drug Therapy

Drug therapy is an important treatment option for many women with breast cancer. These therapies work by traveling through the bloodstream to destroy cancer cells.

Chemotherapy

Chemotherapy can be an important part of treatment for both early stage and metastatic breast cancer. Based on clinical trials over many years, doctors have learned how to use chemotherapy more effectively, either alone or in combination with other treatments. They have refined the doses and schedules of these drugs so that women get the most benefit from treatment with the fewest possible side effects.

Chemotherapy can be used before surgery (neoadjuvant) to try to shrink the tumor so the surgery can be less extensive, or after surgery (adjuvant) to try to kill any remaining cancer cells. It can also be used for women whose breast cancer has metastasized (spread outside the breast and underarm area).

The most common chemotherapy drugs used to treat breast cancer include:

- Anthracyclines, such as doxorubicin (Adriamycin) and epirubicin (Ellence)
- Cyclophosphamide (Cytoxan)
- Taxanes, such as paclitaxel (Taxol and Abraxane) and docetaxel (Taxotere)
- Carboplatin (Paraplatin) and Cisplatin (Platinol, Platinol AQ)
- Capecitabine (Xeloda)

Young women diagnosed with breast cancer who receive chemotherapy may experience a temporary or permanent menopause. For many of these women, preserving their fertility (the ability to have a child) plays a large part in their treatment decisions.

There are steps that can be taken if you are concerned about your ability to have children after treatment:

- Discuss treatment plans with all members of your health care team. The discussion should include the coverage provided by your health insurance plan.
- Consider consulting with a specialist in reproductive medicine, who can help weigh the benefits and risks of a specific treatment.

- Ask about newer options for preserving fertility, such as oocyte cryopreservation, also known as egg freezing. In this process, a woman's eggs are removed, frozen and stored for later use. Another option includes freezing frozen embryos or fertilized eggs. You can discuss with your fertility specialist which option is best for you.
- Fertility-preserving alternatives are most often used before a woman starts chemotherapy.

Hormone (Endocrine) Therapy

Doctors will often recommend hormone therapy as a treatment for early stage and metastatic ER-positive and/or PR-positive breast cancer. Hormone treatments work in different ways. Some are designed to prevent estrogen from attaching to receptors in breast cancer cells, while others are designed to reduce the amount of hormones that circulate in the body. By blocking the effects of estrogen or lowering levels of estrogen, these treatments deprive tumor cells of the stimulation that fuels their growth.

The most common hormone therapies used to treat ER-positive or PR-positive breast cancer include:

- **Tamoxifen** (Soltamox, Nolvadex) is an estrogen-blocking treatment given to both pre- and postmenopausal women with breast cancer. Studies have shown that taking tamoxifen for five years following surgery reduces the chance of the cancer recurring by fifty percent. Tamoxifen also lowers the risk of a new tumor developing in the other breast.

  Some recent studies show that taking tamoxifen for ten years can be even more beneficial for women at higher risk of recurrence. For women with metastatic breast cancer—cancer that has spread from where it started to other parts of the body—tamoxifen can shrink the tumor, prolong progression-free survival (time in which the tumor does not grow) and improve overall survival.

  Tamoxifen has also been approved as chemoprevention, reducing the chance of ER-positive breast cancer developing in healthy pre- or postmenopausal women who are at high risk for breast cancer, with the preventive benefits of the drug extending for many years beyond when the drug is taken. In postmenopausal women, treatment with tamoxifen slightly increases the risk of endometrial cancer and blood clots.

  Healthy women who are at high risk for developing breast cancer should talk with their doctors about whether taking tamoxifen for breast cancer prevention is a good option for them. The doctor will consider multiple factors such as age, family history, biopsy results and reproductive history.

- **Aromatase inhibitors (AIs)**, another type of hormone therapy, are given to postmenopausal women with early-stage ER-positive breast cancer to help prevent cancer from returning after surgery. Aromatase inhibitors are also commonly used to treat metastatic breast cancer, sometimes in combination with targeted therapies; they have shown some effectiveness in breast cancer prevention. In postmenopausal women, AIs block the action of a certain enzyme (called aromatase), cutting off the supply of estrogen that can stimulate tumor growth.

  The AIs primarily used to treat breast cancer are anastrozole (Arimidex), letrozole (Femara) and exemestane (Aromasin). Taking AIs for five years (either alone or after five years of tamoxifen) can help reduce recurrences in postmenopausal women with ER-positive breast cancer.

- **Fulvestrant** (Faslodex) is another estrogen-blocking drug. It works by attaching to estrogen receptors, changing their shape and preventing the receptors from working properly, which slows the growth of breast cancer cells. Fulvestrant is given as a monthly injection and is approved only for postmenopausal women with metastatic breast cancer.

Ovarian Suppression (Combined with Tamoxifen or Aromatase Inhibitors)

The estrogen produced by the ovaries can fuel tumor growth. Ovarian suppression uses drug therapy or surgery to stop the ovaries from producing estrogen. Some younger, premenopausal women with hormone receptor-positive breast cancer may benefit from treatment with ovarian suppression drugs, combined with tamoxifen or an aromatase inhibitor. Ovarian suppression drugs include leuprolide (Lupron) and goserelin (Zoladex).

Targeted Therapy

Targeted therapy focuses on specific molecules and cell mechanisms thought to be important for cancer cell survival and growth, taking advantage of what researchers have learned in recent years about how cancer cells grow.
Targeted therapy is designed to spare healthy tissues and cause less severe side effects than chemotherapy. A number of targeted therapies have been developed for the treatment of HER2-positive breast cancer:

- **Trastuzumab** (Herceptin) is the standard treatment for HER2-positive breast cancer. Typically taken for one year in the treatment of early stage breast cancer, trastuzumab can also be given over longer periods to treat women with metastatic disease.

- **Lapatinib** (Tykerb) is able to block HER2 signals from within cancer cells, and has shown to be effective in treating women whose HER2-positive breast cancer returned, spread or continued growing despite treatment with trastuzumab and chemotherapy.

- **Pertuzumab** (Perjeta) was approved in 2012 for metastatic HER2-positive breast cancer and in 2013 as a neoadjuvant treatment option for HER2-positive breast cancer when used in combination with trastuzumab and chemotherapy (docetaxel or paclitaxel). In December 2017, pertuzumab's approval was extended for use as an adjuvant treatment for HER2-positive breast cancer, also in combination with trastuzumab and chemotherapy.

- **Ado-trastuzumab emtansine** (Kadcyla), also known as T-DM1, is a combination of trastuzumab and a chemotherapy drug, and is used to treat HER2-positive metastatic breast cancer. It has recently been shown to improve outcomes for certain women with early-stage HER2-positive breast cancer whose tumors do not completely respond to pre-operative treatments. The trastuzumab component of T-DM1 is designed to bind to HER2 receptors on the surface of breast cancer cells. The chemotherapy component of T-DM1 kills cancer cells and damages their ability to multiply.

- **Neratinib** (Nerlynx). In July 2017, the Food and Drug Administration (FDA) approved the tyrosine kinase inhibitor neratinib in the "extended adjuvant setting" to further reduce recurrence in patients with early-stage HER2-positive breast cancer who have finished at least one year of post-surgery therapy with trastuzumab.

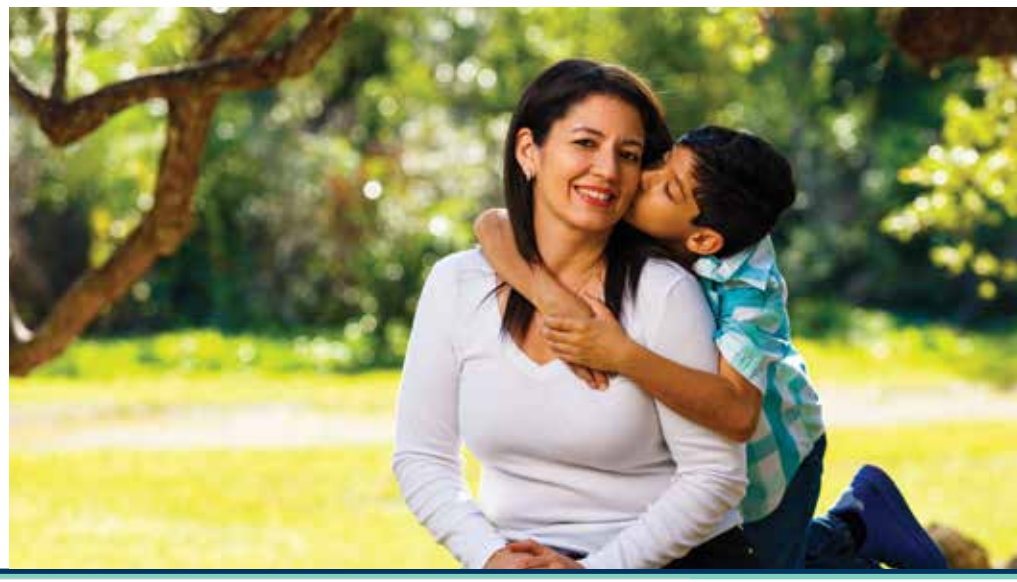
Other targeted therapies that have been developed for specific types of breast cancer include:

- **mTOR inhibitors.** Everolimus (Afinitor) is a targeted therapy that works inside cancer cells to restore their sensitivity to anti-estrogen therapies such as AIs. In treating breast cancer, everolimus seems to help hormone therapy work more effectively, but it may cause increased side effects. Taken once daily with the AI exemestane, everolimus treats advanced hormone receptor-positive, HER2-negative breast cancer in postmenopausal women whose cancer has continued to grow after treatment with another AI.

- **CDK4/6 inhibitors.** CDK4/6 inhibitors are designed to interrupt enzymes that promote the growth of cancer cells. The CDK4/6 inhibitors used in treating ER-positive, HER2-negative metastatic breast cancer are abemaciclib (Verzenio), palbociclib (Ibrance) and ribociclib (Kisqali). Each of these drugs can be given in combination with hormone therapy, such as the aromatase inhibitor letrozole or the hormone therapy fulvestrant. Abemaciclib can also be used alone for the treatment of these types of cancers.

  - In February 2018, the FDA granted an additional approval to abemaciclib, in combination with an aromatase inhibitor, as initial therapy for postmenopausal women with HR-positive, HER2-negative advanced or metastatic breast cancer.
  - In July 2018, the FDA granted an additional approval to ribociclib, in combination with an aromatase inhibitor, for the treatment of pre-, peri-, or postmenopausal women with HR-positive/HER2-negative advanced or metastatic breast cancer and for use in combination with fulvestrant for the treatment of postmenopausal women with this type of metastatic breast cancer, either as initial treatment or after disease progression while on endocrine therapy.

- **PARP inhibitors.** PARP is a type of enzyme that helps repair DNA. In cancer treatment, PARP inhibitors are used to prevent cancer cells from repairing their damaged DNA; this prevention can cause the cancer cells to die, especially those with defective DNA repair pathways, such as BRCA1/2-associated breast cancers. In January 2018, the FDA approved olaparib (Lynparza) for the treatment of patients with BRCA-positive, HER2-negative metastatic breast cancer who have previously received chemotherapy. In October 2018, the PARP inhibitor talazoparib (Talzenna) was approved for the treatment of the same type of breast cancer.



The Importance of Clinical Trials

Clinical trials are the standard by which we measure the worth of new treatments and the quality of life of individuals as they receive those treatments. For this reason, doctors and researchers urge people with cancer to take part in clinical trials.

Your doctor can guide you in making a decision about whether a clinical trial is right for you. Here are a few things that you should know:

- Often, people who take part in clinical trials gain access to and benefit from new treatments.
- Before you participate in a clinical trial, you will be fully informed as to the risks and benefits of the trial, including any possible side effects.
- Most clinical trials are designed to test a new treatment against, or in combination with, a standard treatment to f ind out whether the new treatment has any added benefit.
- You can stop taking part in a clinical trial at any time for any reason.

Promising New Treatment Approaches: A Report from the 2018 San Antonio Breast Cancer Symposium

This section presents highlights from the 2018 San Antonio Breast Cancer Symposium, which took place December 4–8 in San Antonio, Texas. The information includes new findings on a number of currently used treatments, as well as promising new treatments that researchers continue to study in clinical trials.

Some of these new treatments are in the earliest phases of research and may not be available to the general public outside of a clinical trial. The information is intended for discussion with your doctor. He or she can let you know if these research findings affect your treatment plan and whether a clinical trial might be right for you.

Study suggests genetic testing guidelines should be updated

The National Comprehensive Cancer Network (NCCN) guidelines currently limit which breast cancer patients should undergo genetic testing, based on defined risk factors such as family history.

Results from a recent study show that three-quarters of patients who did not meet the NCCN guidelines for genetic testing had a variant for which established treatment approaches were available.

What Patients Need to Know

The study findings raise questions about whether the NCCN breast cancer guidelines should be updated to recommend genetic testing for all patients with breast cancer. Guidelines for certain other cancer types have already been changed to recommend testing for all patients.

New gene test predicts likelihood of developing breast cancer

Scientists have developed a new test, known as Single Nucleotide Polymorphism (SNP), which looks at 18 genetic variants known to affect the chances of developing breast cancer.

The SNP test is conducted on blood or saliva. The results, combined with information on breast density and other factors, gives women their percentage chance of developing breast cancer within the next 10 years and throughout their lifetime.

What Patients Need to Know

The SNP test will initially only be available for patients having BRCA gene mutations and a family history of breast cancer.

Low-dose tamoxifen safe and effective in treatment of breast intraepithelial neoplasia

Data from the phase III TAM-01 clinical trial showed that treatment with low-dose tamoxifen (5 mg per day) halved the risk of both disease recurrence and new disease for women diagnosed with breast intraepithelial neoplasia who had previously been treated with surgery.

Breast intraepithelial neoplasia is a term for a group of noninvasive conditions in which abnormal cells are found in the breast, including ductal carcinoma in situ (DCIS), lobular carcinoma in situ (LCIS) and atypical ductal hyperplasia (ADH). These conditions increase the risk of invasive breast cancer in the future.

What Patients Need to Know

The data from the trial also showed that the low-dose tamoxifen did not cause significant adverse events or an increase in menopausal symptoms. This offers women with these high-risk conditions a safe, effective and well-tolerated way to lower their risk of breast cancer.

Extending use of aromatase inhibitors studied

According to findings from a meta-analysis involving more than 22,000 women, extending aromatase inhibitor (AI) therapy from 5 years to 10 years reduces breast cancer recurrence risk, particularly in women with node involvement.

The researchers caution that the benefits of extending therapy vary based on the type of prior therapy received, and must be weighed against the increased risk of bone fracture (a side effect of treatment with AIs).

What Patients Need to Know

In related research, a phase III trial showed extending treatment with the AI anastrozole from 5 years to 10 years post-surgery resulted in significantly higher rates of disease-free survival and distant disease-free survival for certain postmenopausal patients with hormone receptor-positive breast cancer.

Delaying chemotherapy after surgery detrimental in treatment of triple-negative breast cancer

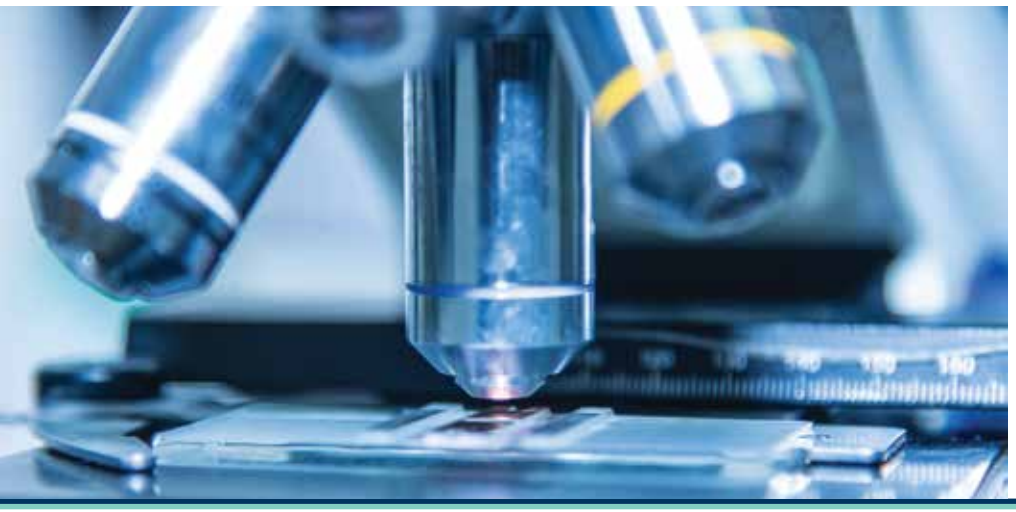
Results of a retrospective study showed that delaying treatment with chemotherapy by more than 30 days after surgery is associated with worse survival rates and outcomes in women with triple-negative breast cancer.

What Patients Need to Know

The results of prior studies have suggested that waiting longer to begin chemotherapy after surgery can cause worse overall survival and worse breast cancer-specific survival. A longer wait time was particularly detrimental for women with triple-negative breast cancer.

Adding post-surgery capecitabine to anthracycline-based chemotherapy evaluated

Results from the randomized phase III GEICAM/CIBOMA trial showed that adding post-surgery capecitabine (a chemotherapy) to anthracycline-based chemotherapy did not significantly increase overall survival in women with early-stage triple-negative breast cancer.



What Patients Need to Know

After a median follow-up of 7.3 years, the capecitabine arm of the trial had an overall survival rate of 86.2 percent versus 85.9 percent in the chemotherapy-only arm.

T-DMI compared with trastuzumab as post-surgery for HER2-positive early-stage breast cancer

The phase III KATHERINE trial compared ado-trastuzumab (T-DM1) with trastuzumab as post-surgery therapy in women with HER2-positive early-stage breast cancer who had residual invasive disease after receiving neoadjuvant (pre-surgery) chemotherapy and trastuzumab. T-DM1 is a combination of trastuzumab and a chemotherapy drug.

What Patients Need to Know

The results of the trial showed that substituting T-DM1 for trastuzumab in this setting reduced the risk of women developing an invasive recurrence of HER2-positive early-stage breast cancer by 50 percent.

Twelve months and six months of post-surgery trastuzumab compared in phase III trial

For women with early-stage HER2-positive breast cancer who are being treated with post-surgery trastuzumab, the final results of the phase III PHARE trial suggest that 12 months should remain the standard of care.

What Patients Need to Know

The trial compared 12 months and 6 months of post-surgery treatment with trastuzumab, and failed to show that 6 months had the same or better results.

Investigational drug evaluated in treatment of advanced breast cancer with PIK3CA mutation

In treatment of advanced breast cancer with a mutation in PIK3CA, data from the phase III SOLAR-1 trial showed that the investigation drug alpelisib, used in combination with the hormone therapy fulvestrant, prolongs progression-free survival (PFS), compared with fulvestrant alone.

What Patients Need to Know

PIK3CA mutations are present in approximately 40 percent of ER-positive metastatic breast cancers. These mutations result in the PI3K pathway being hyper-active, which drives cancer cell growth and increases resistance to hormonal therapies.

General Side Effects

All cancer treatments can cause side effects. It's important that you report any side effects that you experience to your health care team so they can help you manage them. Report them right away—don't wait for your next appointment. Doing so will improve your quality of life and allow you to stick with your treatment plan. It's important to remember that not all patients experience all side effects, and patients may experience side effects not listed here.

There are certain side effects that may occur across different treatment approaches. Following are tips and guidance for managing these side effects.

Digestive Tract Symptoms

Nausea and vomiting

- Avoid food with strong odors, as well as overly sweet, greasy, fried or highly seasoned food.
- Eat meals cold or at room temperature, which often makes food more easily tolerated.
- Nibble on dry crackers or toast. These bland foods are easy on the stomach.
- Having something in your stomach when you take medication may help ease nausea.

Diarrhea

- Drink plenty of water. Ask your doctor about using drinks such as Gatorade that provide electrolytes as well as liquid. Electrolytes are body salts that must stay in balance for cells to work properly.
- Over-the-counter medicines such as loperamide (Imodium A-D and others) and prescription drugs are available for diarrhea but should be used only if necessary. If the diarrhea is bad enough that you need medicine, discuss it with a member of your health care team.
- Choose foods that contain soluble fiber, like beans, oat cereals and flaxseed, and high-pectin foods such as peaches, apples, oranges, bananas and apricots.
- Avoid food high in refined sugar and those sweetened with sugar alcohols such as sorbitol and mannitol. Check food labels and watch out for ingredients ending in "ol," the common ending for these types of low-calorie sweetener.
- Low-fat food choices are less likely to cause diarrhea than fatty, greasy or fried foods. The fats you eat should come from healthy sources, such as olive oil, canola oil, avocado, olives, nuts and seeds.
- Limit or avoid lactose, especially if you are lactose-intolerant. There are plant-based milk alternatives you can try, such as soy or rice milk. If lactose is an essential part of your diet, there are dairy products with added lactase (which breaks down lactose) and dietary lactase supplements.

Loss of appetite

- Eat small meals throughout the day to help maintain your weight. This is also an easy way to take in more protein and calories. Try to include protein in every meal.
- To keep from feeling full early, avoid liquids with meals or take only small sips (unless you need liquids to help swallow). Drink most of your liquids between meals.
- Be as physically active as you can. Taking a short walk an hour or so before meals can help you feel hungry.
- Keep high-calorie, high-protein snacks on hand such as hard-boiled eggs, peanut butter, cheese, ice cream, granola bars, liquid nutritional supplements, puddings, nuts, canned tuna or trail mix.
- If you are struggling to maintain your appetite, talk to your health care team about whether appetite-building medication could be right for you.

Fatigue

Fatigue (extreme tiredness not helped by sleep) is one of the most common side effects of many cancer treatments. If you are taking a medication, your doctor may lower the dose of the drug, as long as it does not make the treatment less effective. If you are experiencing fatigue, talk to your doctor about whether taking a smaller dose is right for you.

Other tips for reducing fatigue:

- Take several short naps or breaks during the day.
- Take short walks or do some light exercise, if possible.
- Try easier or shorter versions of the activities you enjoy.
- Ask your family or friends to help you with tasks you find difficult or tiring.
- Save your energy for things you find most important.

Fatigue can be a symptom of other illnesses, such as anemia, diabetes, thyroid problems, heart disease, rheumatoid arthritis and depression. Be sure to ask your doctor if he or she thinks any of these conditions may be contributing to your fatigue.

Speaking to an oncology social worker or oncology nurse may also be helpful for managing fatigue. These professionals can work with you to manage any emotional or practical concerns that may be causing symptoms and help you find ways to cope.

Pain

To help your doctor prescribe the best medication, it's useful to give an accurate report of your pain. Keep a journal that includes information on:

- Where the pain occurs
- When the pain occurs
- How long it lasts
- How strong it is on a scale of 1 to 10, with 1 being the least amount of pain and 10 the most intense
- What makes the pain feel better and what makes it feel more intense

There are a number of options for pain relief, including prescription and over-the-counter medications. It's important to talk to a member of your health care team before taking any over-the-counter medication, to make sure they are safe and will not interfere with your treatments. Many pain medications can lead to constipation, which can make your pain worse. Your doctor can prescribe medications that help to avoid constipation.

Physical therapy, acupuncture and massage may also be of help in managing your pain. Other techniques, such as mindfulness meditation, deep breathing exercises and yoga may also be helpful. Consult with a member of your health care team before beginning any of these activities.

Bone Loss

Both hormone therapies and chemotherapy can cause bone loss, which increases a woman's risk for osteoporosis (a condition in which bones become weak and brittle, leading to a higher risk of fracture). Talk with your health care team about how exercise and changes in your diet may help keep your bones healthy.

It's also important to talk to your doctor about the medications available for bone health:

- Bisphosphonates such as zoledronic acid (Zometa and others) slow the process by which bone wears away and breaks down. These medications belong to a class of drugs called osteoclast inhibitors.
- RANK ligand inhibitors block a factor in bone development known as RANK ligand, which stimulates cells that break bone down. By blocking RANK ligand, these drugs increase bone density and strength. Currently, the only drug approved in this class is denosumab (Xgeva, Prolia). Like bisphosphonates, RANK ligand inhibitors are a type of osteoclast inhibitor.

Hot Flashes

Breast cancer treatments can lead to menopausal symptoms, such as hot flashes and night sweats. If you are experiencing these side effects, speak with your health care team about ways to cope with them. The following tips may also help:

- Identify the triggers for your hot flashes. For many women, hot flashes can be triggered by stress, a hot shower, caffeine or spicy foods.
- Change your lifestyle habits to cope with the triggers. That may mean regular exercise, using relaxation techniques and/or changing your diet.
- Dress in layers and keep ice water handy to cool off.
- Avoid synthetic materials, especially at nighttime; wear pajamas and use sheets made of cotton instead.
- Take a cool shower before going to bed.

Lymphedema

Women with breast cancer who have undergone lymph node removal and/or radiation as part of their treatment are at risk for developing lymphedema, a condition in which the body's lymphatic fluid is unable to circulate properly. The lymphatic fluid builds up in soft tissues (usually in an arm or a leg), causing painful swelling. In addition to swelling of the affected limb, the most common problems associated with lymphedema are pain, hardening of the skin and loss of mobility.

Here are some things you can do to ease the discomfort of lymphedema:

- **Get help for your symptoms as soon as possible.** Contact your health care team at the first sign of lymphedema symptoms. If left untreated, the swelling can get worse and may cause permanent damage.
- **Consider undergoing manual lymph drainage (MLD).** This is a type of massage that helps move the fluid from where it has settled. Afterward, the affected limb is wrapped in low-stretch bandages that are padded with foam or gauze.
- **Learn exercises that can help prevent swelling due to fluid build-up.** Your health care team can refer you to a program of special lymphedema exercises, taught and monitored by a physical therapist.
- **Wear a compression sleeve.** This can help drain the lymphatic fluid. It's important to always wear a compression garment when flying, even on short flights.
- **Be kind to your body.** Carrying heavy packages, luggage or shoulder bags puts stress on your affected limb and could cause additional swelling and pain.

Vaginal Dryness

Treatments for breast cancer can lead to vaginal dryness and a lowered sex drive. Use of a personal lubricant (such as Astroglide) and/or a moisturizer (such as Replens) can often help. It's important to keep an open dialogue with your intimate partner. Vaginal dryness can make sexual intercourse uncomfortable, but together you can find other ways to please each other.

If vaginal dryness persists, talk to your doctor about whether prescription medicines designed to treat the condition are right for you, such as hormone creams or suppositories (medicines inserted into the vagina). Your health care team can also advise you on regaining the desire for sex. You may wish to ask for a referral to a health care professional who specializes in these issues.

Treatment-Specific Side Effects

Chemotherapy

The side effects specific to chemotherapy depend on the type and dose of drugs given and the length of time they are used. They can include the following:

- **Hair loss.** Hair loss is often one of the more frustrating aspects of chemotherapy. When hair falls out, it can affect a woman's self-image and quality of life. Depending on the treatment, hair loss may start anywhere from one to three weeks after the first chemotherapy session. Hair usually starts to grow back after the end of treatment. It may have a different texture or color, but these changes are usually temporary.

  Many women who lose their hair during chemotherapy treatments choose to wear a head covering, whether it's a scarf, turban, hat or wig. Some insurance plans may cover part of the cost of these head coverings. If you choose to wear a wig, consider buying one before you lose much hair so that you feel more prepared and so that you will have a good match to your own hair color. You can have your wig professionally fitted and styled by a full-service wig salon; look for a salon in your community that specializes in hair loss resulting from chemotherapy.

- **Nerve damage.** Some women on chemotherapy or targeted therapies experience nerve damage; the symptoms may include difficulty picking up objects or buttoning clothing, problems maintaining balance, difficulty walking and hearing loss. Peripheral neuropathy is a form of nerve damage that may cause numbness or tingling in the hands and feet.

Often, nerve damage due to cancer treatments is temporary; it will usually get better, but it can take time. If you are coping with this side effect, take extra care when handling hot, sharp or dangerous objects. You should also use handrails on stairs and in the tub or shower.

- **Low white blood cell counts.** Chemotherapy may lead to low white blood cell counts, a condition called neutropenia. White blood cells play a key role in fighting infections, and a reduced number of these cells increases the risk of infection. Your doctor can prescribe medication designed to help increase white blood cell counts. If you develop a fever (a sign of infection), let your health care team know immediately so that you can get proper treatment.

- **Memory lapses.** After chemotherapy, some people have difficulty concentrating or thinking clearly. If you experience any of these symptoms, speak with your health care team. There are a number of things you can do to help you cope:

  ✓ **Take notes and make lists.** Carry a notepad, smartphone or tablet with you and keep track of important information and things you need to do.
  ✓ **Organize your environment.** Keep things in familiar places so you'll remember where you put them. It may help you stay focused to work, read and do your thinking in an uncluttered, peaceful environment.
  ✓ **Repeat information you're given aloud.** This can help give your memory an extra boost.
  ✓ **Keep your mind active.** Do crossword puzzles and word games, or go to a lecture on a subject that interests you.
  ✓ **Exercise, eat well and get plenty of rest and sleep.** This helps keep your memory working at its best.

- **Mouth sores (mucositis)** are also a side effect of chemotherapy. Your doctor may recommend treatments such as:

  ✓ **Coating agents.** These medications coat the entire lining of your mouth, forming a film to protect the sores and minimize pain.
  ✓ **Topical painkillers.** These are medications that can be applied directly to your mouth sores.
  ✓ **Over-the-counter treatments.** These include rinsing with baking soda or salt water or using "magic mouthwash," a term given to a solution to treat mouth sores. Magic mouthwash usually contains at least three of these ingredients: an antibiotic, an antihistamine or local anesthetic, an antifungal, a corticosteroid and/or an antacid.

Chemotherapy can also cause changes in the way food and liquids taste, including an unpleasant metallic taste in the mouth. Many people find that switching to plastic utensils helps. It may also help to avoid eating or drinking anything that comes in a can and to use enamel-coated pots and pans for food preparation.

Radiation Therapy

Changes to the skin are the most common side effects of radiation therapy; those changes can include dryness, swelling, peeling, redness and blistering. If a reaction occurs, contact your health care team so the appropriate treatment can be prescribed. It's especially important to contact your health care team if there is any open skin or painful areas, as this could indicate an infection. Infections can be treated with an oral antibiotic or topical antibiotic cream.

Targeted Therapy and Hormone Therapy

Targeted therapy drugs and hormone therapy don't have the same effect on the body as do chemotherapy drugs, but they can still cause side effects.

Side effects of certain targeted therapies can include diarrhea, liver problems (such as hepatitis and elevated liver enzymes), problems with blood clotting and wound healing and high blood pressure. Nerve damage, as outlined in the Chemotherapy Side Effects section, may also occur.

The side effects of hormone therapy are dependent on the type of therapy and include hot flashes (seen more with tamoxifen) and joint pain (seen more with aromatase inhibitors).

The Importance of Treatment Summaries

A treatment summary, sometimes called a "shadow chart," is a document that you create and keep in your possession. Maintaining your own records allows you and your family members to have instant access to the specifics of your diagnosis and treatment. A treatment summary should include:

- Your name and date of birth
- Date of diagnosis
- Name, affiliation, and contact information of the doctor who gave the diagnosis
- Prescribed therapy/therapies, including start dates, end dates and dosages when appropriate
- Dates and types of post-diagnosis testing and the results
- Other medication and supplements you are taking
- Names, affiliations, and contact information of all members of your health care team

Talk to your doctor or a member of your health care team about your intention to create a treatment summary and ask them what else they suggest be included. Take your treatment summary with you when you visit any doctor, not just your oncologist.

Communicating With Your Health Care Team

As you manage your breast cancer, it's important to remember that you are a consumer of health care. The best way to make decisions about health care is to educate yourself about your diagnosis and get to know the members of your health care team, including doctors, nurses, dietitians, social workers and patient navigators.

In addition to creating a treatment summary, here are some tips for improving communication with your health care team:

Start a health care journal. Having a health care journal or notebook will allow you to keep all of your health information in one place. You may want to write down the names and contact information of the members of your health care team, as well as any questions for your doctor. Keep a diary of your daily experiences with symptoms related to your illness or treatment. You can separate your journal or notebook into different sections to help keep it organized.

Prepare a list of questions. Before your next medical appointment, write down your questions and concerns. Because your doctor may have limited time, you should ask your most important questions first and be as specific and brief as possible.

Bring someone with you to your appointments. Even if you have a journal and a prepared list of questions or concerns, it's always helpful to have support when you go to your appointments. The person who accompanies you can serve as a second set of ears. He or she may also think of questions to ask your doctor or remember details about your symptoms or treatment that you may have forgotten.

Write down your doctor's answers. Taking notes will help you remember your doctor's responses, advice and instructions. If you cannot write down the answers, ask the person who accompanies you to do that for you. If you have a mobile device, ask if you can use it to take notes. Writing notes will help you review the information later.

Record your visit if your doctor allows it. Recording the conversation with your doctor gives you a chance to hear specific information again or share it with family members or friends.

Incorporate other health care professionals into your team. Your oncologist and oncology nurse are essential members of your health care team, but there are other health care professionals who can help you manage your care:

- Your primary care physician should be kept updated about your breast cancer treatment and any test results.
- Your local pharmacist is a great source of knowledge about the medications you are taking. If possible, have all of your prescriptions filled at the same pharmacy to avoid the possibility of harmful drug interactions.
- Make sure your oncologist knows of any other medical conditions you have or any pain you are experiencing so that he or she can consult with your primary care physician or your specialist if needed.

Remember, there is no such thing as over-communication. Your health care team wants to know about how you're feeling overall, which includes your level of pain, your energy level, your appetite and your mood.

Cancer*Care*'s Free Support Services and Programs

It can be very difficult to receive a diagnosis of breast cancer, and adjusting to the necessary changes in your life can be challenging.

Cancer*Care*® can help. We are a national nonprofit organization providing free, professional services to anyone affected by cancer. Our licensed oncology social workers can provide support and education, help navigate the complicated health care system and provide information on support groups and other resources.

To learn more about how Cancer*Care* helps, call us at 800-813-HOPE (4673) or visit www.cancercare.org.

You will likely also build your own personal support network, comprised of family and friends. In doing so, it's best to take some time to think about the people in your life and how they are best suited to help. Match the task to their strengths—ask a family member who loves to shop to pick up something for you at the store; ask a friend who's a good listener to come over for a chat.

Frequently Asked Questions

Q: What do "tumor grade" and "pathological stage" mean?

A: Tumor grade is a way of classifying tumors based on how much the cancer cells look like normal cells. This can be determined based on an examination of tumor tissue removed during a biopsy or at the time of surgery. Using a microscope, a pathologist rates the grade as 1, 2 or 3 (low, intermediate or high), which is an indication of whether the breast cancer is slow-growing, fast-growing or somewhere in-between.

Pathological stage describes the extent of the cancer within the body and is based on a pathologist's study of the tumor tissue and any lymph nodes removed during surgery. The most widely used staging system (TNM) assesses the size of the tumor in the breast (T), the number and location of lymph nodes with cancer (N) and whether the cancer has spread beyond the breast and neighboring lymph nodes (M). Starting in 2018, the TNM system added the additional measures of tumor grade, estrogen receptor status, progesterone receptor status and HER2 status.

Q: How is triple-negative breast cancer diagnosed and treated?

A: Triple-negative breast cancer tumors do not have molecular markers; they have neither receptors for estrogen or progesterone nor excess HER2 receptors on their surface. This type of breast cancer is generally diagnosed at the initial biopsy. Tissue is extracted through a special needle and analyzed under a microscope. The pathologist applies specific stains to the biopsy material on the microscope slide and evaluates the tissue sample to determine whether the tumor expresses any molecular markers. Women living with triple-negative breast cancer who have subsequent surgical biopsies may have the surgical specimens tested again for the markers, and occasionally some specimens may need to undergo more sophisticated testing of their genetic content.

Some drugs that work for hormone receptor-positive tumors are not effective for women with triple negative breast cancer. However, triple negative breast cancer often responds well to chemotherapy. Clinical trials are pointing the way to new and better treatments for triple-negative breast cancer, especially for women with this type of cancer who also have a BRCA gene mutation.

Q: My doctor suggested I see a genetic counselor. Why?

A: Genetic counseling can help women make informed decisions about genetic testing. In a genetic counseling session for breast cancer, the counselor will typically collect a detailed family and medical history and discuss genetic mutations, such as those in BRACA1 and BRCA2 genes, which can increase the chance of developing breast cancer.

Q: What is a tumor marker?

A: Tumor markers are proteins manufactured by tumors and shed into the blood. They can be measured through a blood test, and some oncologists find the measurements useful in assessing the success of treatment in women with advanced (metastatic) breast cancer. In those same women, the presence or absence of tumor markers may help guide treatment options.

Q: What is hand-foot syndrome?

A: Hand-foot syndrome (HFS) is a side effect of some types of drugs used in the treatment of breast cancer. Symptoms can include numbness, tingling, burning, itching, redness, swelling and discomfort. In severe cases, there can be cracked or peeling skin, blisters or sores and intense pain.

The risk of HFS can be lessened by following these tips during the week after each chemotherapy treatment:

- Avoid prolonged heat exposure on hands and feet.
- Avoid using hand tools and kitchen knives. The squeezing or chopping motions can cause excessive pressure and increase symptoms.
- If you are starting to notice symptoms, stay off your feet as much as possible.
- Talk to your health care team about using a 10% urea cream; a study has found that it may be helpful in preventing HFS.

It's important to talk to your health care team if HFS occurs. Your doctor may want to adjust your drug dose or change your treatment schedule until your symptoms improve. He or she may also prescribe corticosteroids to reduce inflammation or suggest that you take an over-the-counter pain reliever.

Additionally, these tips may help ease the discomfort of HFS:

- Keep your hands and feet moist by using mild skin creams. Pat the lotion into your skin; don't rub, as rubbing can cause irritation. (Also, pat your skin dry after you shower—don't rub.)
- Elevate your hands and feet and apply ice packs to help cool the sensation of burning.
- Wear loose, well-ventilated shoes.
- Stay away from harsh chemicals.

Resources

CancerCare®
800-813-HOPE (800-813-4673)
www.cancercare.org

American Cancer Society
800-227-2345
www.cancer.org

Cancer.Net
Patient information from the American Society of Clinical Oncology
888-651-3038
www.cancer.net

National Cancer Institute
800-422-6237
www.cancer.gov

Cancer Support Community
888-793-9355
www.cancersupportcommunity.org

National Coalition for Cancer Survivorship
877-622-7937
www.canceradvocacy.org

Breastcancer.org
610-642-6550
www.breastcancer.org

Living Beyond Breast Cancer
855-807-6386
www.lbbc.org

Susan G. Komen
877-465-6636
www.komen.org

Triple Negative Breast Cancer Foundation
877-880-8622
www.tnbcfoundation.org

CLINICAL TRIALS WEBSITES

EmergingMed
www.emergingmed.com

National Cancer Institute
www.cancer.gov

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