FOR PATIENTS, SURVIVORS & THEIR CAREGIVERS

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Cancer Updates, Research & Education®

ALSO INSIDE

CANCER SEES COLOR

Black and Latino patients are more likely to receive a diagnosis of and die of cancer than White patients.

curetoday.com

WINTER 2021 · VOL.20 NO.1

KEYTRUDA IS A BREAKTHROUGH IMMUNOTHERAPY.

FOR TODAY

KEYTRUDA is a potential first treatment for **3 out of 4 patients** with advanced non–small cell lung cancer (NSCLC).

KEYTRUDA is also used to treat **more patients** with advanced lung cancer than any other immunotherapy.

FOR THE FUTURE

Ongoing clinical trials are exploring if KEYTRUDA can help treat more patients.

KEYTRUDA may be your first treatment for advanced NSCLC, either in combination with chemotherapy or used alone as a chemotherapy-free option.
Ask your doctor if KEYTRUDA is right for you.

KEYTRUDA is a prescription medicine used to treat a kind of lung cancer called non–small cell lung cancer (NSCLC).

- **KEYTRUDA + CHEMOTHERAPY, NONSQUAMOUS**
  It may be used with the chemotherapy medicines pemetrexed and a platinum as your first treatment when your lung cancer has spread (advanced NSCLC) **and** is a type called "nonsquamous" **and** your tumor does not have an abnormal "EGFR" or "ALK" gene.
- **KEYTRUDA + CHEMOTHERAPY, SQUAMOUS**
  It may be used with the chemotherapy medicines carboplatin and either paclitaxel or paclitaxel protein-bound as your first treatment when your lung cancer has spread (advanced NSCLC), **and** is a type called "squamous."
- **KEYTRUDA USED ALONE, PD-L1 POSITIVE**
  It may be used alone as your first treatment when your lung cancer has not spread outside your chest (stage III) and you cannot have surgery or chemotherapy with radiation, **or** your NSCLC has spread to other areas of your body (advanced NSCLC), **and** your tumor tests positive for "PD-L1" **and** does not have an abnormal "EGFR" or "ALK" gene.
- **KEYTRUDA AFTER CHEMOTHERAPY, PD-L1 POSITIVE**
  It may also be used alone for advanced NSCLC if you have tried chemotherapy that contains platinum and it did not work or is no longer working **and**, your tumor tests positive for "PD-L1" **and** if your tumor has an abnormal "EGFR" or "ALK" gene, you have also received an "EGFR" or "ALK" inhibitor medicine that did not work or is no longer working.

PD-L1 = programmed death ligand 1;
EGFR = epidermal growth factor receptor;
ALK = anaplastic lymphoma kinase.

IMPORTANT SAFETY INFORMATION

KEYTRUDA is a medicine that may treat certain cancers by working with your immune system. KEYTRUDA can cause your immune system to attack normal organs and tissues in any area of your body and can affect the way they work. These problems can sometimes become severe or life-threatening and can lead to death. You can have more than one of these problems at the same time. These problems may happen any time during treatment or even after your treatment has ended.

Call or see your health care provider right away if you develop any signs or symptoms of the following problems or if they get worse. These are not all of the signs and symptoms of immune system problems that can happen with KEYTRUDA:

- **Lung problems:** cough, shortness of breath, or chest pain.
- **Intestinal problems:** diarrhea (loose stools) or more frequent bowel movements than usual; stools that are black, tarry, sticky, or have blood or mucus; or severe stomach-area (abdomen) pain or tenderness.
- **Liver problems:** yellowing of your skin or the whites of your eyes; severe nausea or vomiting; pain on the right side of your stomach area (abdomen); dark urine (tea colored); or bleeding or bruising more easily than normal.
- **Hormone gland problems:** headaches that will not go away or unusual headaches; eye sensitivity to light; eye problems; rapid heartbeat; increased sweating; extreme tiredness; weight gain or weight loss; feeling more hungry or thirsty than usual; urinating more often than usual; hair loss; feeling cold; constipation; your voice gets deeper; dizziness or fainting; changes in mood or behavior, such as decreased sex drive, irritability, or forgetfulness.
- **Kidney problems:** decrease in the amount of your urine; blood in your urine; swelling of your ankles; loss of appetite.
- **Skin problems:** rash; itching; skin blistering or peeling; painful sores or ulcers in your mouth or in your nose, throat, or genital area; fever or flu-like symptoms; swollen lymph nodes.
- **Problems can also happen in other organs and tissues.** Signs and symptoms of these problems may include: chest pain; irregular heartbeat; shortness of breath; swelling of ankles; confusion;

Important Safety Information is continued on the next page.

keytruda.com/lung

IMPORTANT SAFETY INFORMATION *(continued)*

sleepiness; memory problems; changes in mood or behavior; stiff neck; balance problems; tingling or numbness of the arms or legs; double vision; blurry vision; sensitivity to light; eye pain; changes in eyesight; persistent or severe muscle pain or weakness; muscle cramps; low red blood cells; bruising.

- **Infusion reactions that can sometimes be severe or life-threatening.** Signs and symptoms of infusion reactions may include chills or shaking, itching or rash, flushing, shortness of breath or wheezing, dizziness, feeling like passing out, fever, and back pain.
- **Rejection of a transplanted organ:** Your health care provider should tell you what signs and symptoms you should report and they will monitor you, depending on the type of organ transplant that you have had.
- **Complications, including graft-versus-host disease (GVHD), in people who have received a bone marrow (stem cell) transplant that uses donor stem cells (allogeneic).** These complications can be serious and can lead to death. These complications may happen if you underwent transplantation either before or after being treated with KEYTRUDA. Your health care provider will monitor you for these complications.

Getting medical treatment right away may help keep these problems from becoming more serious. Your health care provider will check you for these problems during treatment with KEYTRUDA. They may treat you with corticosteroid or hormone replacement medicines. They may also need to delay or completely stop treatment with KEYTRUDA if you have severe side effects.

Before you receive KEYTRUDA, tell your health care provider if you have immune system problems such as Crohn's disease, ulcerative colitis, or lupus; have had an organ transplant or have had or plan to have a bone marrow (stem cell) transplant that uses donor stem cells (allogeneic); have had radiation treatment in your chest area; have a condition that affects your nervous system, such as myasthenia gravis or Guillain-Barré syndrome.

If you are pregnant or plan to become pregnant, tell your health care provider. KEYTRUDA can harm your unborn baby. If you are able to become pregnant, you will be given a pregnancy test before you start treatment.

Use effective birth control during treatment and for at least 4 months after your final dose of KEYTRUDA. Tell them right away if you think you may be pregnant or you become pregnant during treatment with KEYTRUDA.

Tell your health care provider if you are breastfeeding or plan to breastfeed. It is not known if KEYTRUDA passes into your breast milk. Do not breastfeed during treatment with KEYTRUDA and for 4 months after your final dose of KEYTRUDA.

Tell your health care provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

Common side effects of KEYTRUDA when used alone include feeling tired; pain, including pain in muscles, bones or joints and stomach area (abdominal) pain; decreased appetite; itching; diarrhea; nausea; rash; fever; cough; shortness of breath; and constipation.

Common side effects of KEYTRUDA when given with certain chemotherapy medicines include feeling tired or weak; nausea; constipation; diarrhea; decreased appetite; rash; vomiting; cough; trouble breathing; fever; hair loss; inflammation of the nerves that may cause pain, weakness, and paralysis in the arms and legs; swelling of the lining of the mouth, nose, eyes, throat, intestines, or vagina; mouth sores; and headache.

These are not all the possible side effects of KEYTRUDA. Talk to your health care provider for medical advice about side effects.

Please read the adjacent Important Information About KEYTRUDA and discuss it with your oncologist.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

Having trouble paying for your Merck medicine?

Merck may be able to help. www.merckhelps.com

IT'S TRU. KEYTRUDA® (pembrolizumab) Injection 100 mg

MERCK

Important Information About KEYTRUDA® (pembrolizumab) injection 100 mg. Please speak with your healthcare professional regarding KEYTRUDA (pronounced key-true-duh). Only your healthcare professional knows the specifics of your condition and how KEYTRUDA may work with your overall treatment plan. If you have any questions about KEYTRUDA, speak with your healthcare professional. **℞ONLY**

What is the most important information I should know about KEYTRUDA?

KEYTRUDA is a medicine that may treat certain cancers by working with your immune system. KEYTRUDA can cause your immune system to attack normal organs and tissues in any area of your body and can affect the way they work. These problems can sometimes become severe or life-threatening and can lead to death. You can have more than one of these problems at the same time. These problems may happen anytime during treatment or even after your treatment has ended.

Call or see your healthcare provider right away if you develop any new or worsening signs or symptoms, including

Lung problems

- cough
- shortness of breath
- chest pain

Intestinal problems

- diarrhea (loose stools) or more frequent bowel movements than usual
- stools that are black, tarry, sticky, or have blood or mucus
- severe stomach-area (abdomen) pain or tenderness

Liver problems

- yellowing of your skin or the whites of your eyes
- severe nausea or vomiting
- pain on the right side of your stomach area (abdomen)
- dark urine (tea colored)
- bleeding or bruising more easily than normal

Hormone gland problems

- headaches that will not go away or unusual headaches
- eye sensitivity to light
- eye problems
- rapid heartbeat
- increased sweating
- extreme tiredness
- weight gain or weight loss
- feeling more hungry or thirsty than usual
- urinating more often than usual
- hair loss
- feeling cold
- constipation
- your voice gets deeper
- dizziness or fainting
- changes in mood or behavior, such as decreased sex drive, irritability, or forgetfulness

Kidney problems

- decrease in your amount of urine
- swelling of your ankles
- blood in your urine
- loss of appetite

Skin problems

- rash
- itching
- skin blistering or peeling
- painful sores or ulcers in your mouth or in your nose, throat, or genital area
- fever or flu-like symptoms
- swollen lymph nodes

Problems can also happen in other organs and tissues. These are not all of the signs and symptoms of immune system problems that can happen with KEYTRUDA. Call or see your healthcare provider right away for any new or worsening signs or symptoms, which may include:

- chest pain, irregular heartbeat, shortness of breath, swelling of ankles
- confusion, sleepiness, memory problems, changes in mood or behavior, stiff neck, balance problems, tingling or numbness of the arms or legs
- double vision, blurry vision, sensitivity to light, eye pain, changes in eyesight
- persistent or severe muscle pain or weakness, muscle cramps
- low red blood cells, bruising

Infusion reactions that can sometimes be severe or life-threatening. Signs and symptoms of infusion reactions may include:

- chills or shaking
- itching or rash
- flushing
- shortness of breath or wheezing
- dizziness
- feeling like passing out
- fever
- back pain

Rejection of a transplanted organ. Your healthcare provider should tell you what signs and symptoms you should report and monitor you, depending on the type of organ transplant that you have had.

Complications, including graft-versus-host-disease (GVHD), in people who have received a bone marrow (stem cell) transplant that uses donor stem cells (allogeneic). These complications can be serious and can lead to death. These

Continued on next page.

complications may happen if you underwent transplantation either before or after being treated with KEYTRUDA. Your healthcare provider will monitor you for these complications.

Getting medical treatment right away may help keep these problems from becoming more serious. Your healthcare provider will check you for these problems during treatment with KEYTRUDA. Your healthcare provider may treat you with corticosteroid or hormone replacement medicines. Your healthcare provider may also need to delay or completely stop treatment with KEYTRUDA if you have severe side effects.

Before receiving KEYTRUDA, tell your healthcare provider about all of your medical conditions, including if you:

- have immune system problems such as Crohn's disease, ulcerative colitis, or lupus
- have received an organ transplant
- have received or plan to receive a stem cell transplant that uses donor stem cells (allogeneic)
- have received radiation treatment to your chest area
- have a condition that affects your nervous system, such as myasthenia gravis or Guillain-Barré syndrome
- are pregnant or plan to become pregnant. KEYTRUDA can harm your unborn baby.

  Females who are able to become pregnant:

  - Your healthcare provider will give you a pregnancy test before you start treatment with KEYTRUDA.
  - You should use an effective method of birth control during and for at least 4 months after the final dose of KEYTRUDA. Talk to your healthcare provider about birth control methods that you can use during this time.
  - Tell your healthcare provider right away if you think you may be pregnant or if you become pregnant during treatment with KEYTRUDA.
- are breastfeeding or plan to breastfeed. It is not known if KEYTRUDA passes into your breast milk. Do not breastfeed during treatment with KEYTRUDA and for 4 months after your final dose of KEYTRUDA.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

How will I receive KEYTRUDA?

- Your healthcare provider will give you KEYTRUDA into your vein through an intravenous (IV) line over 30 minutes.
- In adults, KEYTRUDA is usually given every 3 weeks or 6 weeks depending on the dose of KEYTRUDA that you are receiving.
- In children, KEYTRUDA is usually given every 3 weeks.
- Your healthcare provider will decide how many treatments you need.
- Your healthcare provider will do blood tests to check you for side effects.
- If you miss any appointments, call your healthcare provider as soon as possible to reschedule your appointment.

What are the possible side effects of KEYTRUDA?
KEYTRUDA can cause serious side effects. See "What is the most important information I should know about KEYTRUDA?"

Common side effects of KEYTRUDA when used alone include: feeling tired, pain, including pain in muscles, bones or joints and stomach-area (abdominal) pain, decreased appetite, itching, diarrhea, nausea, rash, fever, cough, shortness of breath, and constipation.

Side effects of KEYTRUDA when used alone that are more common in children than in adults include: fever, vomiting, upper respiratory tract infection, headache, and low levels of white blood cells and red blood cells (anemia).

Common side effects of KEYTRUDA when given with certain chemotherapy medicines include: feeling tired or weak, nausea, constipation, diarrhea, decreased appetite, rash, vomiting, cough, trouble breathing, fever, hair loss, inflammation of the nerves that may cause pain, weakness, and paralysis in the arms and legs, swelling of the lining of the mouth, nose, eyes, throat, intestines, or vagina, mouth sores, and headache.

Common side effects of KEYTRUDA when given with axitinib include: diarrhea, feeling tired or weak, high blood pressure, liver problems, low levels of thyroid hormone, decreased appetite, blisters or rash on the palms of your hands and soles of your feet, nausea, mouth sores or swelling of the lining of the mouth, nose, eyes, throat, intestines, or vagina, hoarseness, rash, cough, and constipation.

These are not all the possible side effects of KEYTRUDA.

Call your healthcare provider for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about the safe and effective use of KEYTRUDA

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. You can ask your pharmacist or healthcare provider for information about KEYTRUDA that is written for health professionals.

Based on Medication Guide usmg-mk3475-iv-2011r036 as revised November 2020.

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is proud to be partners with a number of leading advocacy groups across the country, giving them national reach and visibility for their cutting edge initiatives, programs, content, research and thought leadership.

How Pharmaceutical Innovation Is Saving the World

NINE MONTHS.

In March 2020, the United States was in the early stages of the COVID-19 pandemic. We shut down the entire country and ground the economy to a halt to slow the spread of the virus. Think back to March and how much uncertainty we were living under.

Nine months later, the Food and Drug Administration provisionally approved two COVID-19 vaccines under emergency authorization. Before New Year's Day, millions of Americans had received the vaccine, including front-line physicians and health care providers and nursing home patients, our most vulnerable citizens.

Nine months. Take a moment to let that sink in.

There is another way — a more accurate and underappreciated way — to tell the story of the past nine months. It is a story of heroism, innovation and precise science, performed under unbelievable pressure.

Let's not mince words: The U.S. and the world must appreciate the role of the pharmaceutical industry — the researchers and physicians — who are rescuing the world from COVID-19. It's the medical breakthrough of our lifetime.

Let's review some facts.

- Since the discovery of COVID-19, here is what scientists have accomplished: They identified a novel virus, unlocked and sequenced its genetic code, used this information to create new therapies to save lives, and developed multiple safe and effective vaccines using messenger RNA technology, one that is hopefully applicable to future vaccine development.
- The U.S. has two vaccines approved for emergency use, one from Pfizer/BioNTech and another from Moderna, and the AstraZeneca/Oxford vaccine has been approved for emergency use in the U.K. In addition, there are 64 vaccines undergoing clinical trial at the moment, including 20 in phase 3 trials.
- This was the fastest vaccine development program in history, and it's not even close. Dr. David Pride, a microbiologist at the University of California, San Diego, estimates that vaccines typically take 10 to 15 years to develop. Until the COVID-19 pandemic, the fastest development timeline was four years, for the mumps vaccine.

The current step of the process — distribution of the vaccine — has been as challenging as the development phase, if not more so. Factories worldwide are working overdrive to produce hundreds of millions of vaccine doses.

Less than a month after the Pfizer vaccine was approved, more than 15.4 million doses of vaccine were distributed across the country, and more than 4.6 million people received their first dose, according to CDC data. Many patients have already received their second dose.

Although 15.4 million doses are impressive, some expected 20 million doses. But that is moving the goal line, as six months ago many observers didn't think a vaccine would be available until 2021.

Every day, more people will be vaccinated. After health care workers and our most vulnerable citizens, other front-line workers will be next. Teachers will be vaccinated so our children can return to school. And soon, all Americans will be able to receive the vaccine at their doctor's office or at a CVS or Walgreens.

Remember, we accomplished this in nine months.

MIKE HENNESSY SR.
Chairman and Founder

cure®

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Examining Racial and Ethnic Disparities in Cancer Care

OUR COUNTRY, AS WELL AS the rest of the world, is uneven in how society is treated based on many unalterable factors such as race and ethnic heritage — characteristics that permeate just about every aspect of daily life. In health care delivery, such disparities are well documented and are further complicated and magnified by associated factors such as education level, income, employment and access to care. Cancer care is among the most expensive and complicated medical deliverables and, perhaps, the most affected by racial disparities. Imbalances among racial groups that exist in many corners permeate every dimension of cancer, from lifestyle and preventive aspects to availability of cancer screening, timely diagnosis of cancer and rapid access to treatment and follow-up. Because research into this topic has increased in the past few decades, this subject has come to the forefront of government officials, the health care industry, businesses that provide and purchase health care coverage, and the public in general.

How has this information influenced policy and laws? Has it really helped level the playing field for all races and ethnicities? Are cancer outcomes starting to improve for affected racial groups?

In this issue of *CURE*®, you will learn more about these disparities and some of the underlying reasons we find ourselves in this situation. You will read about examples of and possible reasons for racial inequities in different parts of patients' cancer journeys. A deeper dive into specific ethnic and racial groups will provide some context and personalize this problem — illustrating that we all own it and need to address it as a society. As is our tradition, you will get specific facts and figures that illustrate the magnitude of the problem. For example, postoperative mortality after cancer surgery has improved over the years, but there is still a gap in death rates — it remains higher for Black patients compared with White patients, according to a large analysis using national Medicare data. Disparities in outcomes also exist for Hispanic/Latino patients with cancer.

The past year has spotlighted racial inequities not only in the U.S., but worldwide. It has also opened our eyes as to how a major health disruption — in this case, a pandemic — can aggravate the unacceptable status quo. This issue will also provide some hopeful and positive new trends on both small and large scales that we hope can move us toward greater cancer care equality. C

DEBU TRIPATHY, M.D.
Editor-in-Chief
Professor of Medicine
Chair, Department of Breast Medical Oncology
The University of Texas MD Anderson Cancer Center

MIKE KITADA

LETTERS TO THE EDITOR

TWO YEARS AGO, I was at home recovering from a hysterectomy and the removal of cancer from my body. My family and several close friends rallied around me. Once my doctor called and informed me that the results were that the cancer was positive and yet no further treatment would be necessary, I felt a huge relief. Then for a year and a half, I went in regularly for a check-up and continued on my path with her confirmation and support. This last September, I advanced even further in not having to return for a year.

Tonight, I finished reading one of the most outstanding periodicals in support of cancer diagnosis, procedures, new protocols, recovery, treatments, etc. and free to patients with cancer. One of my dear friends shared a copy of the annual *CURE® Cancer Guide*, but it took me a while to be ready to read it. When I finally picked it up, it provided me with a wealth of knowledge about cancer. No matter what you think you know about cancer, you will never really know until you walk the cancer path in your own life. Even being a caregiver, as difficult as it may be, struggles with understanding the immense emotion and stress that comes with such a diagnosis. That initial diagnosis leaves many scary doors to be opened by the patient and the unexpected may come again.

The *CURE®* magazine for fall 2020 is the most recent quarterly to come in the mail. I often wait until there is a peaceful moment in which I can open my mind to the outstanding information that it contains. With the complications of 2020, I was able to read each magazine after getting caught up on others that had piled up. The current issue came at the right time for me in facing the health challenges that are before me. It contains cancer updates, research and education. There are sections that cover current news and articles on six types of cancer. The article "Can a Blood Test Detect Cancer?" is amazing. There are over 100 types of cancer that a simple blood test can screen for. Early diagnosis and advancing protocols are key to conquering cancer.

Knowledge is power in the cancer fight. My diagnosis was early because I took my concern about a medical issue to my doctor. During the past year, I continued to struggle in recovery. Communicating with my doctors has been a great support. Understanding symptoms in the COVID-19 environment meant additional challenges. I am grateful to have telephone appointments with the 14 medical professionals that oversee my progress. They are patient, kind, thoughtful and willing to work with me on this journey. There are others whose journeys have been different from mine, and each of us who face this fight will have special needs. One key thing that we can do is to reach out to others who are beginning this journey and assure them that they are not alone.

Susan Olsen LeBlanc
Scappoose, Oregon

IN THE FIRST LINE of your feature article on blood tests to detect cancer in the fall 2020 edition of *CURE®*, it says: "Picture this: At your annual doctor's appointment when they draw your blood to check your cholesterol, thyroid and liver enzymes..."

If one is on Medicare, annual physical exams are not covered. Once you're on Medicare, you are not allowed to get routine bloodwork (ie., no cholesterol checks, no complete blood counts, etc.) or a physical unless you want to pay for it yourself. You have to have symptoms before blood tests are done.

You do a disservice to everyone on Medicare by perpetuating the myth that the physical exam that we are taught to have all our lives can continue once we're forced onto Medicare by virtue of our age. It simply is not true. This isn't the first time I've seen articles talk about physical exams and routine bloodwork that I'm no longer allowed to have. Medicare stopped all of that.

It was a routine blood test during an annual exam that indirectly found my cancer. It happened when I was 60 — before I was forced onto Medicare at 65. Had that test not happened when it did, the cancer wouldn't have been found at an early stage, if at all.

An official Medicare document states "The yearly 'Wellness' visit isn't a physical exam." This document can be read here: **https://www.medicare.gov/Pubs/pdf/10050-Medicare-and-You.pdf**. Please read it.

Effie Burton
Parker, Washington

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We want to know what you think about CURE®. *Address your comments to editor@curetoday.com. If you prefer that your comment not be published, please indicate.*

How Cold Weather Affects Patients With Cancer

Winter brings added challenges for patients with cancer. Here's what you need to take into consideration as the weather gets colder.

TAMPA BAY RADIATION ONCOLOGY

WINTER CAN BE HARD FOR many people, but for patients with cancer, slippery streets and cold weather are more than a hazard — they can also be a health risk. Learn how cold weather affects patients with cancer and how you can stay safe.

Patients with cancer are more susceptible to hypothermia

Hypothermia is a condition where the human body begins to lose heat faster than it can produce it, causing the body temperature to become dangerously low. Adverse effects of cancer treatment, such as fatigue, dehydration and anemia, can make patients more susceptible to hypothermia as they may lose heat much faster.

Frostbite is a bigger risk for patients with cancer

Some treatments can cause peripheral neuropathy, which carries numbness in the extremities as a potential adverse effect. Patients who have peripheral neuropathy are more likely to get frostbite since they can't feel how cold their fingers and hands are in cold weather.

Patients will have a higher risk of falling

Patients can have a higher risk of fracture if they are receiving treatments that affect bone density. Patients with cancer also need to be especially careful if they have thrombocytopenia, a condition associated with blood cancers that causes low platelet counts. Since platelets help blood clot, a low count can lead to bruising or serious bleeding after injury. Patients who have numbness in their feet are also more prone to falls.

Having a higher risk for complications with the flu

Cancer therapy may weaken patients' immune systems. They need to get their flu shot since they don't have enough white blood cells to fight infections. This is why patients with cancer have a higher chance of complications from the flu than a healthy person.

Tips to stay safe

Follow these tips to protect your health or that of a loved one in winter and stay safe:

- Stay inside as much as you can when temperatures are freezing or when low temperatures are accompanied by rain or high winds.
- Make sure your walkways are cleared of ice and snow.
- If you need to go outside, make sure to bundle up in layers. Put on a hat that covers your ears, especially if therapy has caused you to lose your hair. Wear heavy gloves, thick socks and warm boots with good treads.
- Protect your skin by minimizing or preventing skin exposure. Therapy can make your skin itchy, dry and cracked, especially when the humidity level drops. Use lip balm and moisturizers regularly and avoid long, hot showers and baths. Consider getting a humidifier.
- Stay hydrated and drink plenty of noncaffeinated liquids regularly.

If you'd rather avoid winter and the risks it carries for patients with cancer, you can always consider health tourism. It's the practice of traveling to a popular tourist destination with the purpose of receiving therapeutic treatment. For example, Florida has mild, pleasant winters, which make it an ideal location for health tourism! Winter won't last forever, even if you sometimes feel that way, so celebrate each sunny day!

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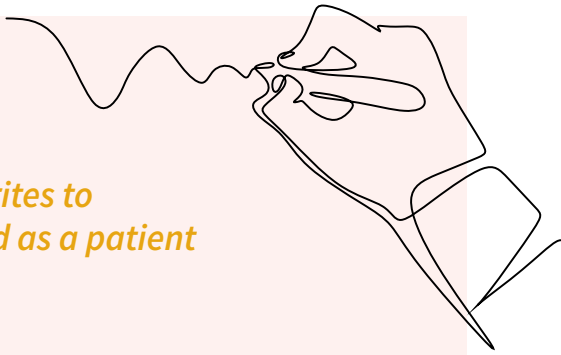
A Letter to Myself: You Were Made for This Breast Cancer Journey



Paula Schneider, president and CEO of Susan G. Komen, writes to her younger self about the lessons and challenges she faced as a patient with breast cancer. By PAULA SCHNEIDER

Dear Paula,

YOU MAY THINK THAT you have faced adversity, but now you're in for an actual life-and-death struggle.

Like your mom, you're going to be diagnosed with breast cancer. You will later lose your mom to metastatic breast cancer, just as you lost your brother to metastatic prostate cancer, and your sister will be diagnosed with melanoma. Cancer will become a central animating feature of your life.

You'll struggle to keep it together when you tell your husband and your two school-age daughters that you, too, have cancer. You'll have to learn how to give up control and accept help, even from your children. That will be hard for someone who is used to feeling large and in charge, but you'll soon discover that you feel the most empowered when you feel the most powerless.

It will be tough, taking its toll physically and emotionally. Cancer always leaves scars. You'll pull through, though, and the experience will inspire a life change.

You will quit your job and seek out an opportunity to help others. You'll apply all you have learned to the challenge of leading the fight to save lives from breast cancer.

This undertaking will present its own set of challenges, but don't worry — you were made for this. You'll meet people who will touch your heart in ways you never imagined possible, and you'll have to say goodbye to too many. You'll learn that it's OK to cry at meetings. It is not a show of weakness but a sign of purpose.

Along this journey, you'll meet kids who are raising money to honor their mothers. You'll meet patient navigators, like Susan, who will hold your hand through every step of your treatment. You'll get to know some brilliant scientists who are discovering how to help people like you. And you'll partner with innovative thinkers who want to help make significant changes to how our health care system works to improve the patient experience, accelerate discovery, and address racial and geographic disparities.

All these people will give you hope for a better future for your daughters, despite your family history.

So keep your head up and keep walking forward. You never know where the path will take you.

With love,
Me

Hope and the Patient With Cancer

A feeling of hopefulness helps inform an individual's journey and affects their quality of life.

By RICHARD E. FARMER

AS AN INDIVIDUAL WHO more than five years ago received a diagnosis of multiple myeloma, I have been struck by the reliance of some patients with cancer on clinical trials and research and the desire to "battle and fight" the disease in order to seek cure and avoid untimely death. This emphasis also applies to health care providers and researchers, many of whom are the originators of this focus. Offering hope supports that singular human need to achieve another state of being. As a need, hope is more than an emotional state.

Hope is a multifaceted need that drives an individual to achieve or craft their life in a certain direction. More than serving as a guide or road map for life, hope can influence the essence of fundamental human behavior from birth to death.

For the patient with cancer, the concept of hope can be applied in many ways. At its core, hope and the patient may be seen through the lens of the quality of life or lifestyle, a religious orientation and faith, and the belief in the human soul.

Finding Hope Through Faith

Hope can produce a quality of life that may be considered a lifestyle. Our daily behavior from birth onward is built around a series of ideas, principles and concepts that form a belief system and ultimately are organized as a lifestyle. Although the concept of lifestyle is a complicated phenomenon, grouping the many forms of individual human behavior into a set of mostly observable behaviors can have, at its core, the idea of »

hope. Hope may well be the driving force as we traverse our way through life. Part of this is the idea that hope is an amazing gift from God that underlies the very essence of a positive quality of life or standard by which we live from birth to death.

In many organized religions, hope is part of the foundation of a faith that is built around the omnipresent force commonly referred to as the concept of God. And, as some religions have espoused, the human soul is the person's window to God, guiding thoughts and beliefs about the future and, ultimately, an understanding of the hereafter. Hope also helps form three other aspects of human behavior: belief in the human soul, belief in one's own future, and belief in the hereafter. Hope, then, becomes a primary vehicle for understanding human existence.

Finding Hope Talking With Patients

So, how do we make sense out of this? My own interest in this topic grew out of my volunteer work as a moderator for a digital support group for people with blood cancers.

This group is nationally supported by the Answer Cancer Foundation (AnCan), a cancer information organization. In my moderating work with AnCan, I was struck by the participants' almost exclusive interest in medications they were taking, clinical trials they were participating in, details about their chemotherapy and related topics.

Initially, I was shocked as I listened to the conversation. As a psychologist, I had anticipated discussion questions such as "What are you feeling?" "How are you coping?" "What is your family doing to help you?" "Are you ever angry about getting cancer? If so, how do you express yourself?" To my professional amazement, these discussion points never came up; when participants asked if they were interested in talking about these issues, there was only some quiet grumbling.

The good news is that silence almost always works. After a moment or two, one brave soul said, "You know, I always wanted to know what it will feel like when 'the end' for me is near." Understandably, this generated a good deal of healthy discussion. So, from a hope perspective, perhaps what I call medication talk is really help talk organized in a way that is emotionally acceptable to the participants.

> **"From a practical point of view, the concept of hope is difficult to understand, especially in the presence of catastrophic disease."** *—RICHARD E. FARMER*

As I mentioned earlier, hope can also be viewed as a concept of quality of life or lifestyle around which some build their style of living. Virtually everything they do involves some consideration of hope. Almost every human contact and relationship, including with self, spouse, extended and close-in family, employers, friends and acquaintances, and neighbors, involves hope — hope that it will remain the same, change for the better or somehow be different. Hope is tightly woven into our very essence or being and is the principle upon which we judge and evaluate our thinking concerning the past, present and future.

From a practical point of view, the concept of hope is difficult to understand, especially in the presence of catastrophic disease. We are challenged to live beyond the confines of the disease as we know it or come to understand it. For example, consider the emotional role placed on medications at the center of disease treatment, especially cancer treatment. First, a practitioner provides a diagnostic explanation and prescribes the medication to "fight" the disease. The patient then fixates on the current medication, clinical research around new drugs and the overall effectiveness of both.

In my experience with multiple oncology physicians, the regular monthly appointments focus almost completely on the efficacy of the medications that fight the symptoms of the disease itself and the side effects of these medications. Only under rare circumstances have we had a conversation about feelings, emotional coping strategies and end-of-life expectations.

Hope is a complex concept about with each of us has a multitude of thoughts. Conceptually, hope may be characterized as a religious phenomenon involving the idea of God and eternal life. On the other hand but clearly related, hope can be considered a common part of the human ego or a person's emotional and biological structure. Finally, although hope is thought to be a universal aspect, its parts and dimensions have cultural components that differ among human beings. How one defines hope is both individualistic and group or culturally determined.

Finding Hope Throughout The Journey

Hope does not equal living per se. Some have the idea that if they go through life embracing hope, they are truly living, yet hope alone does not and cannot define living. If all our ideas, actions, behaviors, thoughts and the like are based solely on hope, then indeed we are deferring the present reality for the future, which is, by definition, hope oriented. Although living — past, present and future — does contain elements of hope, the totality of the concept is problematic because it can keep us focused only on hope elements for the future and does not constitute living in and of itself. It is a version of the childhood

statement "When I grow up, I'm going to be …"

Hope feeds the soul with a sense of identity that enables living beyond one's current situation. For many, the soul has an exceptionally large religious or spiritual component that serves as a guide throughout life.

This is especially the case for those of us with a terminal illness whose end can be and is predicted in terms of the length of time with the disease and its level, which provide a statistical determination of the average life span. Hence, the role of hope and its foundation in God becomes even more important as the patient with cancer prepares for life hereafter. Perhaps the final and most significant statement about hope involves the question about God being eternal life. As patients and others face the probability of near death, the idea that God is about eternal life gathers increasing importance and meaning. For those of us raised with a concept of God as part of our intellect and being, at the very essence of hope is an ever-strong belief that God is responsible for our hopeful belief in our daily existence and in the afterlife.

Hope is a complex issue all human beings deal with, but it is particularly relevant to those for whom illness or age make it more imperative. Hope provides a livable statement about quality of life. As an alternative to the idea of hope as a pathway for disease fighting, hope can provide a set of statements or directions to be followed for living a quality life. Although the approach of determining a mechanistic attitude is a normal human process, hope can be useful for conceptualizing a much broader approach to living. The endless possibilities usually involve other people, such as family and friends, and perhaps even volunteering to assist others in need.

Even though patients with cancer must follow a structured path of treatment for disease resolution, that path does not preclude elements with broader appeal and usefulness for the patient. In fact, an attitude of belief that the future may be predetermined because of the disease, adding dimensions such as hope, can strengthen one's approach and add richness to quality living.

To this end, then, hope is a gift and becomes the essence of an issue of quality of life. We surround ourselves with the idea that hope is a gift, one that has been nurtured by ourselves over time and often nurtured by other people in our lives. We have been taught or otherwise learned that the idea of hope provides one of the main ways to achieve happiness in life even in the context of catastrophic disease. As we move through our individual stages of development, hope is a human quality that enables us to create opportunities for positivity and peace of heart.

IMPORTANT SAFETY INFORMATION

What is XPOVIO?

XPOVIO® (selinexor) is a prescription medicine used:

- in combination with bortezomib and dexamethasone to treat adult patients with multiple myeloma who have received at least one prior therapy.

It is not known if XPOVIO is safe and effective in children less than 18 years of age.

Your healthcare provider will do blood tests before you start taking XPOVIO, and often during the first 3 months of treatment, and then as needed during treatment.

XPOVIO can cause serious side effects, including:

- **Low platelet counts.** Low platelet counts are common with XPOVIO and can lead to bleeding, which can be severe and can sometimes cause death. Your healthcare provider may prescribe platelet transfusions or other treatments for your low platelet counts. **Tell your healthcare provider right away if you have any bleeding or easy bruising during treatment with XPOVIO.**
- **Low white blood cell counts.** Low white blood cell counts are common with XPOVIO and can sometimes be severe. You may have an increased risk of getting bacterial infections during treatment with XPOVIO. If needed, your healthcare provider may prescribe antibiotics if you have signs or symptoms of infection.
- **Serious infections.** Infections are common with XPOVIO and can be serious and can sometimes cause death. This includes upper or lower respiratory tract infections, such as pneumonia, and an infection throughout your body (sepsis). **Tell your healthcare provider right away if you have any signs or symptoms of an infection such as cough, chills, or fever during treatment with XPOVIO.**
- **Neurologic side effects.** XPOVIO can cause dizziness, fainting, decreased alertness, and changes in your mental status, including problems with thinking, seeing or hearing things that are not really there (hallucinations). These problems can sometimes be severe and life-threatening. **Tell your healthcare provider right away if you get any of these symptoms. Do not drive or operate heavy or dangerous machinery until you know how XPOVIO affects you. Take precautions to prevent a fall.**
- **Nausea, vomiting and/or diarrhea.** Nausea, vomiting and/or diarrhea can occur when you take XPOVIO and can sometimes be severe. You may be at risk for becoming dehydrated. Your healthcare provider may prescribe anti-nausea or anti-diarrhea medicines.
- **Loss of appetite and weight loss.** Loss of appetite and weight loss are common with XPOVIO. Tell your healthcare provider if you have a decrease or loss of appetite and if you are losing weight.
- **Decreased sodium levels in your blood.** Decreased sodium levels in your blood are common with XPOVIO. Your healthcare provider may talk with you about your diet and prescribe IV fluids or salt tablets.
- **New or worsening cataract, cloudiness, or loss of transparency of the lens in the eye.** New or worsening cataract are common with XPOVIO. If a cataract forms, your vision may decrease, and you may need eye surgery to remove the cataract and restore your vision. **Tell your healthcare provider right away if you have symptoms of a cataract such as double vision, blurred vision, or sensitivity to light or glare.**

Common side effects of XPOVIO include:

- tiredness
- weakness
- low red blood cell count (anemia). Symptoms may include tiredness and shortness of breath
- constipation
- shortness of breath
- increased blood sugar
- changes in body salt and mineral levels in your blood
- changes in kidney and liver function blood tests

These are not all of the possible side effects of XPOVIO.

Call your doctor for medical advice about side effects. You may report side effects to the FDA at 1-800-FDA-1088.

Before taking XPOVIO, tell your healthcare provider about all of your medical conditions, including if you:

- have or have had a recent or active infection
- have or have had bleeding problems
- are pregnant or plan to become pregnant. XPOVIO can harm your unborn baby
- are taking prescription and over-the-counter medicines, vitamins, and herbal supplements

Ability to have children: XPOVIO may affect the ability of both women and men to have children. Talk to your healthcare provider if you have concerns about fertility.

Females who are able to become pregnant: Your healthcare provider will check to see if you are pregnant before you start taking XPOVIO. You should use effective birth control (contraception) during treatment with XPOVIO and for 1 week after your last dose, as XPOVIO can harm an unborn baby. Tell your healthcare provider right away if you become pregnant or think you might be pregnant during treatment with XPOVIO. Do not breastfeed during treatment with XPOVIO and for 1 week after your last dose of XPOVIO. It is not known if XPOVIO passes into your breast milk.

Males with female partners who are able to become pregnant should use effective birth control during treatment with XPOVIO and for 1 week after your last dose.

Please see the Medication Guide and the full Prescribing Information for XPOVIO.

To report SUSPECTED ADVERSE REACTIONS, contact Karyopharm Therapeutics Inc. at 1-888-209-9326 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

Karyopharm® Therapeutics

XPOVIO®
(selinexor)

NEW INDICATION
FOR PATIENTS WITH MULTIPLE MYELOMA

Your doctor may prescribe XPOVIO, the only FDA-approved medication of its kind, as early as 1st relapse in multiple myeloma.

XPOVIO® (selinexor) is **now approved** in combination with other treatments (bortezomib and dexamethasone) to treat adult patients with multiple myeloma who have received at least one prior therapy.

LEARN MORE ABOUT TREATMENT AT XPOVIO.COM

PATIENT INFORMATION

XPOVIO® (x-PO-Vee-O)
(selinexor)
Tablets

XPOVIO® (selinexor)

What is XPOVIO?

XPOVIO is a prescription medicine used in combination with the medicines VELCADE® (bortezomib) and dexamethasone to treat adults with multiple myeloma (MM) who have received at least one prior treatment for their disease.

It is not known if XPOVIO is safe and effective in children less than 18 years of age.

What is the most important information I should know about XPOVIO?

XPOVIO can cause serious side effects, including:

- **Low platelet counts.** Low platelet counts are common with XPOVIO and can lead to bleeding which can be severe and can sometimes cause death. Your healthcare provider may prescribe platelet transfusions or other treatments for your low platelet counts.
  Tell your healthcare provider right away if you have any bleeding or easy bruising during treatment with XPOVIO.
- **Low white blood cell counts.** Low white blood cell counts are common with XPOVIO and can sometimes be severe. You may have an increased risk of getting bacterial infections during treatment with XPOVIO. Your healthcare provider may prescribe antibiotics if you have signs or symptoms of infection, or certain medicines to help increase your white blood cell count, if needed.

Your healthcare provider will do blood tests before you start taking XPOVIO, and often during the first 3 months of treatment, and then as needed during treatment to monitor you for side effects.

Your healthcare provider may change your dose of XPOVIO, stop your treatment for a period of time, or completely stop your treatment if you have certain side effects during treatment with XPOVIO.

See "What are the possible side effects of XPOVIO?" for more information about side effects.

What should I tell my healthcare provider before taking XPOVIO?

Before taking XPOVIO, tell your healthcare provider about all of your medical conditions, including if you:

- have or have had a recent or active infection.
- have or have had bleeding problems.
- are pregnant or plan to become pregnant. XPOVIO can harm your unborn baby.
  Females who are able to become pregnant:
  - Your healthcare provider will check to see if you are pregnant before you start taking XPOVIO.
  - You should use effective birth control (contraception) during treatment with XPOVIO and for 1 week after your last dose.
  - Tell your healthcare provider right away if you become pregnant or think you might be pregnant during treatment with XPOVIO.

  Males with female partners who are able to become pregnant:
  - You should use effective birth control during treatment with XPOVIO and for 1 week after your last dose.
- are breastfeeding or plan to breastfeed. It is not known if XPOVIO passes into your breast milk.
  - Do not breastfeed during treatment with XPOVIO and for 1 week after your last dose of XPOVIO.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Talk with your healthcare provider before taking any new medicines.

How should I take XPOVIO?

- Take XPOVIO exactly as prescribed by your healthcare provider.
- Your healthcare provider will prescribe dexamethasone with your XPOVIO treatment. Take dexamethasone exactly as prescribed.
- Your healthcare provider will tell you how much XPOVIO to take and when to take it. Do not change your dose or stop taking XPOVIO without talking to your healthcare provider first.
- Swallow XPOVIO tablets whole with water. **Do not break, chew, crush, or divide the tablets.**
- Be sure to take any medicines prescribed by your healthcare provider before and during treatment with XPOVIO to help prevent nausea and vomiting. Tell your healthcare provider if the prescribed medicine does not control your nausea and vomiting.
- It is important for you to drink enough fluids to help prevent dehydration and to eat enough calories to help prevent weight loss during treatment with XPOVIO. Talk to your healthcare provider if this is a problem for you. **See "What are the possible side effects of XPOVIO?"**
- If you miss a dose of XPOVIO, take your next dose at your next regularly scheduled day and time.
- If you vomit after taking a dose of XPOVIO, do not take an extra dose. Take your next dose at your next regularly scheduled day and time.
- If you take too much XPOVIO, call your healthcare provider right away.

What should I avoid while taking XPOVIO?

XPOVIO can cause neurologic side effects.

- **See "What are the possible side effects of XPOVIO?" below.**
- If you have any neurologic side effects with XPOVIO, **do not drive or operate heavy or dangerous machinery until your neurologic side effects go away.**
- **Avoid falling.** Use care as needed to avoid falling due to neurologic side effects.

What are the possible side effects of XPOVIO?

XPOVIO can cause serious side effects, including:

- **See "What is the most important information I should know about XPOVIO?"**
- **Nausea and vomiting.** Nausea and vomiting are common with XPOVIO and can sometimes be severe. Nausea and vomiting may affect your ability to eat and drink well. You can lose too much body fluid and body salts (electrolytes) and may be at risk for becoming dehydrated. You may need to receive intravenous (IV) fluids or other treatments to

help prevent dehydration. Your healthcare provider will prescribe anti-nausea medicines for you to take before you start and during treatment with XPOVIO. **See "How should I take XPOVIO?"**

- **Diarrhea.** Diarrhea is common with XPOVIO and can sometimes be severe. You can lose too much body fluid and body salts (electrolytes) and may be at risk for becoming dehydrated. You may need to receive IV fluids or other treatments to help prevent dehydration. Your healthcare provider will prescribe anti-diarrhea medicine for you as needed.
- **Loss of appetite and weight loss.** Loss of appetite and weight loss are common with XPOVIO and can sometimes be severe. Tell your healthcare provider if you have a decrease or loss of appetite and if you notice that you are losing weight at any time during treatment. Your healthcare provider may prescribe medicines that can help increase your appetite or prescribe other kinds of nutritional support. Your healthcare provider will monitor your appetite and weight before you start XPOVIO and often during the first 3 months, then as needed during treatment.
- **Decreased sodium levels in your blood.** Decreased sodium levels in your blood is common with XPOVIO but can also sometimes be severe. Low sodium levels in your blood can happen if you have nausea, vomiting, or diarrhea, you become dehydrated, or if you have loss of appetite with XPOVIO. You may not have any symptoms of a low sodium level. Your healthcare provider may talk with you about your diet and prescribe IV fluids for you based on the sodium levels in your blood. Your healthcare provider will do blood tests before you start taking XPOVIO, and often during the first 2 months of treatment, and then as needed during treatment to monitor the sodium levels in your blood.
- **Serious infections.** Infections are common with XPOVIO and can be serious and can sometimes cause death. XPOVIO can cause infections including upper or lower respiratory tract infections, such as pneumonia, and an infection throughout your body (sepsis). **Tell your healthcare provider right away if you have any signs or symptoms of an infection such as cough, chills or fever, during treatment with XPOVIO.**
- **Neurologic side effects.** XPOVIO can cause neurologic side effects that can sometimes be severe and life-threatening.
  - XPOVIO can cause dizziness, fainting, decreased alertness, and changes in your mental status including confusion and decreased awareness of things around you (delirium).
  - In some people, XPOVIO may also cause problems with thinking (cognitive problems), seeing or hearing things that are not really there (hallucinations), and they may become very sleepy or drowsy.
  - Taking other medicines that can cause dizziness or mental status changes during treatment with XPOVIO may increase your risk of neurologic side effects.

Tell your healthcare provider right away if you get any of these signs or symptoms.

- **New or worsening cataract, a cloudy or loss of transparency of the lens in the eye.** New or worsening cataract are common with XPOVIO. If a cataract forms, your vision may decrease, and you may need eye surgery to remove the cataract and restore your vision. **Tell your healthcare provider right away if you have symptoms of a cataract such as double vision, blurred vision, sensitivity to light or glare.**

Your healthcare provider may change your dose of XPOVIO, stop your treatment for a period of time, or completely stop your treatment if you have certain side effects during treatment with XPOVIO.

Common side effects of XPOVIO include:

- tiredness
- low red blood cell count (anemia). Symptoms may include tiredness and shortness of breath.
- increased blood sugar
- changes in body salt and mineral levels in your blood
- changes in kidney and liver function blood tests

XPOVIO may cause fertility problems in males and females, which may affect your ability to have children. Talk to your healthcare provider if you have concerns about fertility. These are not all the possible side effects of XPOVIO. Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store XPOVIO?

- Store XPOVIO at or below 86°F (30°C).
- XPOVIO comes in a child-resistant blister pack.

Keep XPOVIO and all medicines out of the reach of children.

General information about the safe and effective use of XPOVIO.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not use XPOVIO for a condition for which it was not prescribed. Do not give XPOVIO to other people, even if they have the same symptoms that you have. It may harm them. You can ask your pharmacist or healthcare provider for information about XPOVIO that is written for health professionals.

What are the ingredients in XPOVIO?

Active ingredient: selinexor

Inactive ingredients: colloidal silicon dioxide, croscarmellose sodium, magnesium stearate, microcrystalline cellulose, Opadry 200 clear, Opadry II blue, povidone K30, and sodium lauryl sulfate.

Manufactured for and marketed by: Karyopharm Therapeutics Inc., 85 Wells Avenue, Newton, MA, 02459

For more information, call 1-888-209-9326 or go to www.XPOVIO.com.

Based on Medication Guide approved by the U.S. Food and Drug Administration, as revised in December 2020.

Karyopharm® Therapeutics

US-XPOV-01/21-00021 (01/21)

FIRSTLINE

compiled *by* CONOR KILLMURRAY and RYAN McDONALD

‘Saved by the Bell’ Actor Dustin Diamond Dies Weeks After Lung Cancer Diagnosis

DUSTIN DIAMOND

ACTOR DUSTIN DIAMOND DIED at the age of 44, after receiving a stage 4 lung cancer diagnosis in January.

His condition “had greatly declined since last week, and he was taken off breathing machines in an attempt to get him to hospice care,” Roger Paul, a spokesperson for the actor, said in a statement. “There were two people very close to him by his side when he passed away.”

Diamond is most famously known for his role as Samuel “Screech” Powers on “Saved by the Bell.”

Some of Diamond’s co-stars from the 1990s hit TV show took to Twitter to share their condolences.

“Dustin, you will be missed my man. The fragility of this life is something never to be taken for granted. Prayers for your family will continue on,” wrote Mario Lopez.

“Deeply saddened to hear of the passing of Dustin Diamond, a true comedic genius. My sincere condolences to his family and friends. Looking back at our time working together, I will miss those raw, brilliant sparks that only he was able to produce. A pie in your face, my comrade,” wrote Mark-Paul Gosselaar.

Oncologist Forgives $650,000 in Medical Debt for His Patients

DR. OMAR ATIQ, an oncologist who opened his own cancer clinic in Pine Bluff, Arkansas, in 1991 and closed it in 2020, worked with a billing company for several months to collect outstanding balances. But after watching his patients struggle to make payments, he discussed it with his family and decided to simply forgive the $650,000 owed by his 200 patients.

“I saw patients over the years who just didn’t have anything or who went bankrupt trying to pay for their treatment,” Atiq said in an interview. “In many ways it seems like a totally unfair situation.”

He made the announcement in holiday cards mailed to his patients in December 2020.

Foundation Focuses on Providing Children With Cancer Unique Hospital Socks

CANCER SURVIVOR JAKE TEITELBAUM is lifting the spirits of young patients with cancer by sprucing up their wardrobe with colorful, one-of-a-kind, nonslip hospital socks.

Teitelbaum met his friend Zamari in chemotherapy, and they bonded over their mutual dislike of the boring, ugly, beige, nonslip hospital-supplied socks that they were both wearing. As an alternative, Zamari made custom socks that helped her feel better and stand out. Together, the two started creating more designs, which they shared online with others going through cancer treatment. Later, Teitelbaum founded Resilience Gives, a foundation that sells nonslip socks co-designed by children receiving treatment for cancer and donates one pair of socks to a child in the hospital for each pair purchased.

“We started having a lot of people sending in photos of themselves wearing Zamari’s socks out and about. And for this 14-year-old who was battling non-Hodgkin lymphoma, it was this little bright spot of, ‘Wow, there are all these people out in the world thinking of me as I’m going through this journey,’” said Teitelbaum in an interview. Now partnered with the Paying It Forward Initiative, the foundation plans to donate 10,000 pairs to children’s hospitals across the country.

Debbie’s Dream Foundation Makes Cancer Survivor’s Skydiving Wish Come True

CANCER SURVIVOR KENNY RIKARD celebrated his 61st birthday and sixth year of being cancer free by jumping out of a Cessna 182 four-seater flying at 10,000 feet, thanks to Debbie’s Dream Foundation (DDF). Rikard was the first recipient of the foundation’s new Dream Maker’s Miracle Fund.

Toby Friedman, Rikard’s mother and caregiver through his treatment for stomach cancer, excitedly watched from the ground as her son lived out his dream of skydiving.

“My son found DDF when he was looking for an organization that dealt specifically with stomach cancer,” said Friedman in a DDF press release. “(DDF) brings people together from all over the world, and you can find compassion, understanding, inspiration (and) hope — and learn that you’re not alone in this fight against stomach cancer.”

Frontline Nurse Receives Diagnosis of Stage 4 Non-Hodgkin Lymphoma and COVID-19

HELENE NEVILLE TRAVELED to Albuquerque, New Mexico, to assist a long-term care facility with COVID-19 care, but when she had a fever and headache, it wasn't COVID-19 she was diagnosed with at first.

After Neville's symptoms increased, she was diagnosed with stage 4 non-Hodgkin lymphoma while in New Mexico, and she couldn't return to work until her treatment was completed. Neville has been a traveling nurse for 36 years and wanted to help on the front lines by helping to care for patients with COVID-19. Because she worked through exhaustion and extra shifts, she attributed some symptoms to long hours. When she couldn't ignore her symptoms anymore, she sought help.

"I just said, 'I don't know anybody here. I'm a traveling nurse. I didn't even sign my insurance stuff. I'm so sick, but can you take care of me?' And then I passed out right on the floor," Neville recalled in an interview. Before Neville started chemotherapy, she was diagnosed with COVID-19, but has since recovered and started chemotherapy in early December.

Marine Veteran Walks to Raise Cancer Awareness and Funds for Patients With Cancer

JIM HICKEY, A MARINE veteran, set out on his first trek 24 years ago to highlight how much cancer care costs in the United States after his father received a diagnosis of pancreatic cancer. After his father died from the disease, Hickey continued to walk to raise awareness when his brother was also diagnosed with pancreatic cancer.

Since then, he has traveled 8,500 miles to raise awareness and funds for GoFundMe pages set up for patients with cancer. Recently, Hickey heard about Justin Smithey, who was diagnosed with a brain tumor. Smithey has had to travel from his home in Colorado to Mayo Clinic in Jacksonville, Florida, to receive treatment, which is one of the reasons why Hickey is walking for him this year.

"I know that if there's someone out there and I have the ability to raise awareness by ... walking for them ... I feel like I'm being selfish (if I don't)," Hickey said in an interview.

Teri Woodhull, Prominent Volunteer for FORCE, Dies From Ovarian Cancer

AFTER A DECADE-LONG BATTLE with ovarian cancer, Teri Woodhull, an indomitable part of Facing Our Risk of Cancer Empowered (FORCE), died on Jan. 10.

Woodhull was a fixture at FORCE over the past decade, serving on the board of directors and most recently, as president, until she resigned due to her health. Woodhull also helped create FORCE's clinical trial matching program, the first matching tool specifically for patients with inherited gene mutations and hereditary cancers, allowing many to find the clinical trials they're desperately looking for.

Woodhull inherited a BRCA mutation from her mother, who died of breast cancer at age 46. What Woodhull didn't know at that time was that she also inherited an increased risk of developing ovarian cancer. Woodhull learned about FORCE after receiving a diagnosis for advanced ovarian cancer in 2010 and remained an active participant in the organization until her death.

"My personal philosophy is that although I did not choose to be on this (hereditary breast and ovarian cancer) journey, I can choose how I travel it," she said in a previous blog post on FORCE's website in 2016. "I refuse to live in fear of the 'what ifs' and choose instead to live with joy and appreciation — and part of that appreciation is choosing to be an active part of this inspiring FORCE community."

Woman Continues to Teach Virtually From Hospital While She Gets Chemo

MINNESOTA KINDERGARTEN TEACHER Kelly Klein has been undergoing chemotherapy for a recurrence of ovarian cancer, which she first received treatment for five years ago. Klein, however, is continuing to teach her class virtually amid her chemotherapy sessions, finding her students to be a source of strength during treatments.

"They're helping me be strong because it's (really) easy to go down the 'Why me?' (path)," Klein said of her 21 kindergarteners in an interview. Her students know what she is going through, and none of the parents objected to seeing nurses in the background of Klein's screen. "I want them to see that cancer isn't a death sentence," Klein added. "You can still be happy and playful and silly and funny and energized."

Toy Store Owner Donates Remaining Inventory to Children With Cancer

WHEN SMALL-BUSINESS OWNER Marie Liburdi lost her Teaching Toys toy store due to COVID-19 shutdowns, she donated her last bit of inventory to pediatric patients with cancer.

Liburdi has lost two businesses during the pandemic, but instead of trying to sell off her inventory to recoup some of her losses, she donated all of her toys — approximately $45,000 worth — to The Bottomless Toy Chest, a Michigan nonprofit that delivers toys to pediatric patients with cancer going through treatment.

"To get these toys at this time is really going to help us not only be able to continue our program, but to expand it," said Mickey Guisewite, founder and executive director of The Bottomless Toy Chest, in an interview.

Understanding the Emotional Aspects of the Cancer Journey

Although physical effects of cancer may be well known, people often overlook the emotional responses that patients with cancer experience.

By DARLENE DOBKOWSKI, M.A.

CYNTHIA HAYES RECEIVED A diagnosis of endometrial cancer five years ago, and the treatment was a "grueling experience." During her treatment, not only did she feel physical side effects, but she also felt a sense of isolation and fear of her impending death, both of which she originally thought were fatigue and depression. Once someone at her gym started sharing their cancer story with her, she knew she wasn't the only one.

"I was feeling all alone, and somebody was parroting back to me exactly what I was feeling," Hayes said. "It gave me the sense that, wow, if I'm not the only one who feels this way, why is it that I feel like I'm the only one who feels this way?"

As she spoke with more patients with cancer, she realized that this emotional experience was more common than she originally believed, which was one of the drivers for her writing her book, "The Big Ordeal: Understanding and Managing the Psychological Turmoil of Cancer," published by River Grove Books in February 2021.

"We don't do enough to talk about the fact that cancer is an emotional diagnosis," Hayes said. "There are physiological reasons why it's an emotional diagnosis, but because of the way our health care system works, the way our society works, we don't talk about emotions. We don't talk about emotional health."

For this book, Hayes collaborated with several experts — including her oncologist — to discuss the emotional side of cancer, starting with the diagnosis, into treatment and recovery, and finally progression or recurrence. Before her diagnosis, Hayes was the chief marketing officer for Montefiore Medical Center in Bronx, New York, where she was responsible for

PHOTO COURTESY OF CYNTHIA HAYES

marketing and communications. It was here where she connected with several doctors to not only run the idea of the book by them, but to work with them to write it.

Hayes wants readers to understand that their emotions are valid throughout this journey. "They don't need to judge themselves harshly because they are feeling stressed, anxious and fearful of their own mortality," she said. "Cognitive impairment, whether it is due to chemotherapy or just the overwhelming, underlying stress of coping with cancer, that's a real thing. It's not that you're making it up, shirking your responsibilities or being a lesser citizen because you are having this emotional response to cancer."

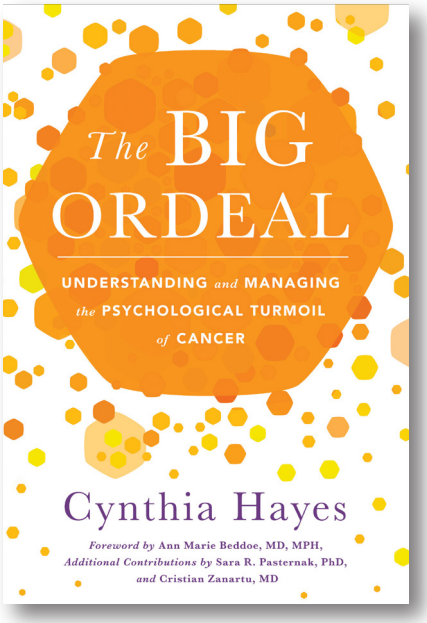
Through discussions with neuroscientists, Hayes learned that cytokines, small proteins in the body that serve as chemical messengers, play a role in changing a patient's brain chemistry during their cancer journey. Cancer itself and chemotherapy both cause increases in cytokines. Some immunotherapies are actually comprised of cytokines. Cytokines are good up to a point, Hayes said, although high levels of cytokines can lead to "sickness behavior," or the persistent desire to stay in bed and hide during treatment.

"Some of that sickness behavior is actually good because the body does have to recover from the physical onslaught of cancer, but some of that sickness behavior is what contributes to the emotional spiral that many patients find themselves in, where they are depressed and overwhelmed and (they) can't imagine that they're ever going to get well, and (they are) feeling anxious all the time and fearful," Hayes said. "That's a chemical imbalance. I really wish that I had understood that so much of what I was experiencing (during my treatment) was chemically driven."

She also connected with patients and caregivers she met through her family and friends. This then expanded to meeting people through the doctors she spoke with and even social media to form an "ever-expanding circle," Hayes said.

She emphasized the importance of including the caregivers' perspective in her book due to the critical role they play in the patient's journey.

"I wrote this book in large part for cancer patients, but also for the caregivers, because I like to say caregivers get cancer, too," Hayes said. "Everything that the cancer patient is fearing, the loved one is fearing, as well. I think it makes it very (difficult) for the relationship between a cancer patient and spouse, parent, child, whatever, given those mutual fears are unspoken."



"THE BIG ORDEAL" is available for purchase on Amazon.com and at other retailers starting February 2021.

> **"That's a chemical imbalance. I really wish that I had understood that so much of what I was experiencing (during my treatment) was chemically driven."**
>
> — CYNTHIA HAYES

Fifty percent of proceeds from the book will be donated to The Women Global Cancer Initiative (www.thewomen.org), which is focused on eliminating health care inequities in women with gynecological cancer. This organization was founded by her oncologist, Dr. Ann Marie Beddoe, and aims to bring cancer treatment to underserved parts of the world.

"I recognized that I was privileged to have excellent cancer care, to have my diagnosis come when my cancer was early and to have the successful treatment and recovery that I did because of the support network that I was able to access," Hayes said. "Not everybody is as fortunate, and I believe that there are huge disparities in our health system. This was just one way of me trying to address that as one small cog in this large global health network."

PHOTO COURTESY OF CYNTHIA HAYES

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Immunotherapy 101: What Patients Can Expect From CAR-T Cell Therapy

CAR-T cell therapy is becoming more widely available, with two drugs approved to treat specific blood cancers and more being investigated in clinical trials across cancer types. Here's what patients need to know if they're considering treatment with one of these novel immunotherapies. By JESSICA SKARZYNSKI

DR. JORDAN GAUTHIER, hematologist/oncologist at Seattle Cancer Care Alliance

CHIMERIC ANTIGEN RECEPTOR (CAR)-T cell therapy has been in development for a few decades, and while it is currently approved strictly for the treatment of certain B-cell malignancies, it is being explored in a host of additional cancer types. Yet many patients, even those eligible to receive CAR-T cell therapy now, may be unaware of the treatment strategy, its mechanics or how it could help them.

To get a deeper understanding of how this treatment is being used today, as well as the side effects associated with it, *CURE*® recently spoke with Dr. Jordan Gauthier of the Seattle Cancer Care Alliance about a new set of CAR-T therapy guidelines for patients released by the National Comprehensive Cancer Network (NCCN). Gauthier, who specializes in CAR-T-related toxicities, elaborated on what the new guidelines hope to achieve, and what patients can expect from treatment.

Q: *CURE*®: Can you give our audience a brief overview of what CAR-T cell therapy is and how it's used?

A: Gauthier: In CAR-T cell therapy, the "CAR" means chimeric antigen receptor. So, what does that mean? This is really using your immune system to attack cancer cells. And how does that work? We use one white blood cell type that we call T cells, and we engineer them in the lab to express this new receptor that we call the CAR, or chimeric antigen receptor. So, we "cook" the cells in the lab until we have enough of them,

DRAZEN / STOCK.ADOBE.COM; GAUTHTIER COURTESY BY ROBERT HOOD - FRED HUTCHINSON CANCER RESEARCH CENTER

and then we put them in a bag and we infuse them. It's like a transfusion, basically.

And after this infusion, the CAR-T cells will roam around (the body), and when they find the target on the surface of the tumor cells, they become activated. They produce a lot of molecules that activate the immune system, (which) we call cytokines, and multiply many, manyfold, and they kill the cancer cells. This new type of immunotherapy has proven very, very efficient in patients who did not respond to standard chemotherapy, for example.

Today, there are two available CAR-T cell therapy products that are Food and Drug Administration-approved, one called Yescarta (axicabtagene ciloleucel) and one called Kymriah (tisagenlecleucel). And they are approved, still in a very narrow indication, for adults with large B-cell lymphoma and (patients up to the age of 25 with) B-cell acute lymphoblastic leukemia (ALL). So there is, today, no approved product for adult patients with ALL.

This is still fairly early days, because the indication is in the relapsed or refractory (treatment-resistant) setting, which means that you cannot receive this treatment in the front line (as a first therapy). (In order to receive it,) your disease would not be responding to a first-line or second-line therapy, and then we would consider these new treatments. So, these are not standard-of-care, frontline therapies, but maybe someday in the future they will be.

Q: This type of therapy often involves just a single treatment, whereas other regimens, such as chemotherapy or radiation, might involve multiple treatments over a course of time. Could that be considered a benefit?

A: Yes, I think that's the dream. The goal is to have a one-shot type of treatment where we give the infusion and we wait 28 days. Then we look at how the disease responded and we are good to go, and there's no consolidation treatment and nothing else. That's obviously the goal.

To date, there is no additional treatment when we give CAR-T cells, and then we have actually observed very prolonged responses, but not in all patients. There's still a lot of work to do to ameliorate or improve the durability of responses.

Q: What kinds of side effects can patients expect on this treatment?

A: I would say there are four main types of side effects, but the guidelines really focus on two of them. First, I mentioned that when the CAR-T cells meet the target and become activated, it produces the molecules that activate the immune system. We call these molecules cytokines, and the clinical complication that can occur is called cytokine release syndrome (which involves the cytokines overstimulating the immune system so that it attacks healthy organs). That's a very significant side effect that can happen.

> **"This new type of immunotherapy has proven very, very efficient in patients who did not respond to standard chemotherapy."** *—DR. JORDAN GAUTHIER*

Another concern is neurologic side effects, or neurotoxicity. We call that ICANS, which means immune effector cell-associated neurotoxicity syndromes.

The other effects that are not as detailed in the guidelines, but I think are still important to mention, are the risk of infections and the risk of having low blood counts and the need for transfusions for a couple of weeks or even sometimes a couple of months after the treatment.

These are quite significant toxicities as well, but they are not really the main focus of this particular document.

Q: Can you give us more information on these new NCCN guidelines around this treatment and how they will help patients?

A: These new treatments are very, very promising in terms of efficacy, but they do come with some significant side effects. And I think it's critical to inform patients to the best of our ability as to what can truly happen: What are the main symptoms? When do they happen? How long do they last? What are the treatments for these complications? I think it makes the treatment much more tolerable for patients when, psychologically, they can anticipate and they're not caught off guard completely when something happens. So I think it's really to raise awareness regarding the side effects and improve patient education, and it's a really thorough document.

Q: When a doctor recommends CAR-T cell therapy, what kinds of questions would you recommend a patient ask?

A: Well, funny you say that, because on page 23 (of the NCCN guidelines), there is a list of possible questions that patients can draw some inspiration from if they don't know what to ask.

I think something that is not provided is an approximation of the risk. Patients may think, "How likely am I to develop these side effects?" Today, there really is no good prognostic tool, but I think most CAR-T cell physicians will be able to give you a rough estimate as to what is (the) risk of developing very serious cytokine release syndrome or neurologic toxicity. So to me, that's an interesting thing to ask.

Last, I think it's important to understand that, when some patients become confused or delirious, caregivers are sometimes even more worried than the patients themselves, who don't sometimes fully realize what's happening. So I think both should really be part of the conversation.

This interview has been edited for clarity.

Important Safety Information

TAGRISSO may cause serious side effects, including:

- **lung problems.** TAGRISSO may cause lung problems that may lead to death. Symptoms may be similar to symptoms from lung cancer. Tell your healthcare provider right away if you have any new or worsening lung symptoms, including trouble breathing, shortness of breath, cough, or fever
- **heart problems, including heart failure.** TAGRISSO may cause heart problems that may lead to death. Your healthcare provider should check your heart function before you start taking TAGRISSO and during treatment as needed. Tell your healthcare provider right away if you have any of the following signs and symptoms of a heart problem: feeling like your heart is pounding or racing, shortness of breath, swelling of your ankles and feet, feeling lightheaded
- **eye problems.** TAGRISSO may cause eye problems. Tell your healthcare provider right away if you have symptoms of eye problems which may include watery eyes, sensitivity to light, eye pain, eye redness, or vision changes. Your healthcare provider may send you to see an eye specialist (ophthalmologist) if you get eye problems with TAGRISSO
- **skin problems.** TAGRISSO may cause skin problems. Tell your healthcare provider right away if you develop target lesions (skin reactions that look like rings), severe blistering or peeling of the skin
- **inflammation of the blood vessels in your skin.** TAGRISSO may cause blood vessel problems in your skin. Tell your healthcare provider right away if you develop purple spots or redness of the skin that does not fade in color when pressed (non-blanching) on your lower arms, lower legs, or buttocks or large hives on the main part of your body (trunk) that do not go away within 24 hours and look bruised

Before taking TAGRISSO, tell your healthcare provider about all of your medical conditions, including if you:

- have lung or breathing problems
- have heart problems, including a condition called long QTc syndrome
- have problems with your electrolytes, such as sodium, potassium, calcium or magnesium
- have a history of eye problems
- are pregnant or plan to become pregnant. TAGRISSO can harm your unborn baby. Tell your healthcare provider right away if you become pregnant during treatment with TAGRISSO or think you may be pregnant
  - **Females** who are able to become pregnant should have a pregnancy test before starting treatment with TAGRISSO. You should use effective birth control during treatment with TAGRISSO and for 6 weeks after the final dose of TAGRISSO
  - **Males** who have female partners that are able to become pregnant should use effective birth control during treatment with TAGRISSO and for 4 months after the final dose of TAGRISSO
- are breastfeeding or plan to breastfeed. It is not known if TAGRISSO passes into your breast milk. Do not breastfeed during treatment with TAGRISSO and for 2 weeks after your final dose of TAGRISSO. Talk to your healthcare provider about the best way to feed your baby during this time

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, or herbal supplements. Especially tell your healthcare provider if you take a heart or blood pressure medicine

When considering treatment options for your stage 4 EGFR+ non-small cell lung cancer, ask your doctor about TAGRISSO.

TAGRISSO is a targeted therapy. Targeted therapy is not chemotherapy or immunotherapy. TAGRISSO is a once a day pill that you may be able to take at home.

When compared to 2 other EGFR targeted therapies, erlotinib or gefitinib, TAGRISSO was proven to give people more time without their cancer growing or spreading, and help them live significantly longer.

- The median progression-free survival time was 18.9 months for TAGRISSO vs 10.2 months for erlotinib or gefitinib. In the same clinical study, median overall survival time was 38.6 months for TAGRISSO vs 31.8 months for erlotinib or gefitinib

EGFR=epidermal growth factor receptor.
Median is the middle number in a list of numbers.

1 pill a day
with or without food

Learn more about the **#1 prescribed EGFR TKI*** for stage 4 EGFR+ non-small cell lung cancer (NSCLC) at **TAGRISSO.com**.

TKI = tyrosine kinase inhibitor.

*Data as of November 2020.

The most common side effects of TAGRISSO are:

- low white blood cell counts
- low platelet counts
- diarrhea
- low red blood cell counts (anemia)
- rash
- muscle, bone, or joint pain
- changes in your nails, including: redness, tenderness, pain, inflammation, brittleness, separation from nailbed, and shedding of nail
- dry skin
- mouth sores
- tiredness
- cough

Tell your healthcare provider if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of TAGRISSO. For more information, ask your healthcare provider or pharmacist.

Call your healthcare provider for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

What is TAGRISSO?

TAGRISSO is a prescription medicine used to treat adults with non-small cell lung cancer (NSCLC) that has certain abnormal epidermal growth factor receptor (EGFR) gene(s):

- to help prevent your lung cancer from coming back after your tumor(s) has been removed by surgery, **or**
- as your first treatment when your lung cancer has spread to other parts of the body (metastatic), **or**
- when your lung cancer has spread to other parts of the body (metastatic) and you have had previous treatment with an EGFR tyrosine kinase inhibitor (TKI) medicine that did not work or is no longer working

Your healthcare provider will perform a test to make sure that TAGRISSO is right for you.

It is not known if TAGRISSO is safe and effective in children.

Please see Brief Summary of Prescribing Information on the following page.

If you can't afford your medication, AstraZeneca may be able to help.

TAGRISSO® (osimertinib) 80 mg tablets are available by prescription only.

TAGRISSO is a once-daily pill. Available in 80 mg.
Not actual size.

TAGRISSO®
osimertinib
TAGRISSO.com

AstraZeneca

Patient Information
TAGRISSO® (tuh-GRISS-oh) (osimertinib) tablets

TAGRISSO® osimertinib

What is the most important information I should know about TAGRISSO?

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See **"What are the possible side effects of TAGRISSO?"** for more information about side effects.

What is TAGRISSO?

TAGRISSO is a prescription medicine used to treat adults with non-small cell lung cancer (NSCLC) that has certain abnormal epidermal growth factor receptor (EGFR) gene(s):

- to help prevent your lung cancer from coming back after your tumor(s) has been removed by surgery, **or**
- as your first treatment when your lung cancer has spread to other parts of the body (metastatic), **or**
- when your lung cancer has spread to other parts of the body (metastatic) and you have had previous treatment with an EGFR tyrosine kinase inhibitor (TKI) medicine that did not work or is no longer working.

Your healthcare provider will perform a test to make sure that TAGRISSO is right for you.

It is not known if TAGRISSO is safe and effective in children.

(continued)

Before taking TAGRISSO, tell your healthcare provider about all of your medical conditions, including if you:

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- have heart problems, including a condition called long QTc syndrome.
- have problems with your electrolytes, such as sodium, potassium, calcium or magnesium.
- have a history of eye problems.
- are pregnant or plan to become pregnant. TAGRISSO can harm your unborn baby. Tell your healthcare provider right away if you become pregnant during treatment with TAGRISSO or think you may be pregnant.
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- are breastfeeding or plan to breastfeed. It is not known if TAGRISSO passes into your breast milk. Do not breastfeed during treatment with TAGRISSO and for 2 weeks after your final dose of TAGRISSO. Talk to your healthcare provider about the best way to feed your baby during this time.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, or herbal supplements. Especially tell your healthcare provider if you take a heart or blood pressure medicine.

How should I take TAGRISSO?

- Take TAGRISSO exactly as your healthcare provider tells you to take it.
- Your healthcare provider may change your dose, temporarily stop, or permanently stop treatment with TAGRISSO if you have side effects.
- Take TAGRISSO 1 time each day.
- You can take TAGRISSO with or without food.
- If you miss a dose of TAGRISSO, do not make up for the missed dose. Take your next dose at your regular time.
- **If you cannot swallow TAGRISSO tablets whole:**
  - place your dose of TAGRISSO in a container that contains 60 mL (2 ounces) of water. Do not use carbonated water or any other liquids.
  - stir the TAGRISSO tablet and water until the TAGRISSO tablet is in small pieces (the tablet will not completely dissolve). Do not crush, heat, or use ultrasound to prepare the mixture.
  - drink the TAGRISSO and water mixture right away.
  - add 120 mL to 240 mL (4 to 8 ounces) of water into the container and drink to make sure that you take your full dose of TAGRISSO.

What are the possible side effects of TAGRISSO?

TAGRISSO may cause serious side effects, including:

- See "**What is the most important information I should know about TAGRISSO?**"

(continued)

- Severe blistering or peeling of skin – seek medical attention right away if you develop these symptoms.
- Target lesions, which are skin reactions that look like rings – seek medical attention right away if you develop these symptoms.

The most common side effects of TAGRISSO are:

- low white blood cell counts
- low platelet counts
- diarrhea
- low red blood cell counts (anemia)
- rash
- muscle, bone, or joint pain
- changes in your nails, including: redness, tenderness, pain, inflammation, brittleness, separation from the nailbed, and shedding of nail
- dry skin
- mouth sores
- tiredness
- cough

Tell your healthcare provider if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of TAGRISSO. For more information, ask your healthcare provider or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store TAGRISSO?

- Store TAGRISSO at room temperature between 68°F to 77°F (20°C to 25°C).
- Safely throw away medicine that is out of date or that you no longer need.
- **Keep TAGRISSO and all medicines out of the reach of children.**

General information about the safe and effective use of TAGRISSO.

- Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. Do not use TAGRISSO for a condition for which it was not prescribed. Do not give TAGRISSO to other people, even if they have the same symptoms you have. It may harm them. You can ask your healthcare provider or pharmacist for information about TAGRISSO that is written for a healthcare professional.

What are the ingredients in TAGRISSO?

Active ingredient: osimertinib

Inactive ingredients: mannitol, microcrystalline cellulose, low-substituted hydroxypropyl cellulose, and sodium stearyl fumarate. Tablet coating contains: polyvinyl alcohol, titanium dioxide, macrogol 3350, talc, ferric oxide yellow, ferric oxide red and ferric oxide black.

AstraZeneca

For more information, go to www.Tagrisso.com or call 1-800-236-9933.
Distributed by: AstraZeneca Pharmaceuticals LP, Wilmington, DE 19850

US-44005 1/21

This Patient Information has been approved by the U.S. Food and Drug Administration. Revised: December 2020

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Should You Receive the COVID-19 Vaccine?

With two COVID-19 vaccines authorized for emergency use by the FDA, patients with cancer undergoing treatment have to decide whether it's safe to receive the vaccine and how it might affect their therapy. By DARLENE DOBKOWSKI, M.A.

SINCE THE FOOD AND DRUG ADMINISTRATION (FDA) has granted emergency use authorization for two COVID-19 vaccines, one by Pfizer-BioNTech and one by Moderna, many patients with cancer are faced with tough decisions, such as whether to get the vaccine, which one to get and how the vaccine may affect their treatment.

To help patients with cancer who are feeling conflicted or are unsure about what to do, *CURE*® spoke with Dr. Tian Zhang, assistant professor of medicine at Duke University School of Medicine and member of the Duke Cancer Institute in Durham, North Carolina, to learn more about these vaccines, how they affect patients with cancer and how to decide what's right for you.

Q: *CURE*®: What does the emergency use authorization of the COVID-19 vaccine mean for patients with cancer?

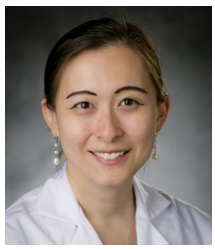
A: Zhang: Just as a preliminary disclaimer, I am a medical oncologist interpreting the vaccine data for my patients with cancer to the best of our current understanding of how the vaccine works and how our cancer therapies work.

But I do think that this emergency use authorization is truly a step forward in the COVID-19 pandemic — and a breakthrough for modern science that we've been able to generate and clinically test the COVID-19 vaccine over just about a year since the first reports of the initial infections.

So patients with cancer already have a preexisting condition. And in many large subsets of patients, we've seen more severe COVID-19 infections or higher mortality rates in patients who have cancer and develop COVID-19. Therefore, to me, the approval of the vaccine and the ability to potentially prevent COVID-19 infection is truly paramount to keeping our patients with cancer safe. And although the vaccine trials do not specifically include patients with cancer, I do think that the majority of patients with cancer will have similar immune responses to hopefully develop protective immunity against the (virus that causes COVID-19).

Q: Should all patients with cancer receive the vaccine or only patients with certain types of cancer?

A: That's a really good question. Patients who have had definitive surgery or radiation for localized cancers are probably the most similar to the normal population, and those patients should definitely undergo vaccination. »



DR. TIAN ZHANG, assistant professor of medicine at Duke University

For patients who are receiving systemic treatments — and these are for patients who often will have cancer that has spread to a different organ — it may depend slightly on the nature of the systemic treatment. … Targeted treatments with small-molecule inhibitors as well as immune checkpoint inhibitors are probably fine and shouldn't impact the protective immune response from the vaccines.

Chemotherapy (is) truly cytotoxic (meaning, toxic to cells). Chemotherapy is generally more immune suppressive, but not specifically suppressive of lymphocytes. Those are the B and T cells necessary for protective immune response from a vaccine. And so those patients undergoing chemotherapy should probably have a discussion with their oncologist about the better timing during a chemo cycle to receive the vaccine for the more optimal immune response.

The main question, then, is for patients who have a B-cell lymphoma or plasma-cell multiple myeloma, so their systemic treatments are truly suppressing those lymphocyte populations that are specifically necessary to generate an immune response. And so for those patients, I think, the data (are) less clear about whether and how they will be able to generate an immune response to the COVID-19 vaccine. When in doubt, I think patients should ask their treating oncologist about whether it's safe and the right timing of the vaccine for them.

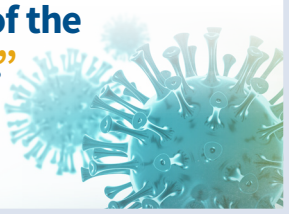
Q: You mentioned patients with cancer who could receive the vaccine and patients who should discuss it with their physicians before proceeding, but are there any patients who would simply not be good candidates for this vaccine?

A: The FDA label of the vaccine does specifically say patients who have had anaphylactic reactions to prior vaccinations as well as to any components of the vaccine, (which are) listed quite clearly in the FDA label as mRNA, lipids, potassium chloride and sodium chloride, or basically salt, potassium phosphate, sodium phosphate and sucrose. So if patients have had prior truly anaphylactic reactions, they should probably be either carefully monitored during vaccination and the time frame after or they could opt to not receive it for the time being while we await more data.

Q: Do you think this emergency use authorization from the FDA will allow patients to come back into the office for oncology appointments? And if so, when?

A: Our in-person visits have been ebbing and flowing basically depending on the incidence of COVID-19 in a certain geographic area. So I think that answer kind of depends on where people are practicing. But in general, I think when oncologists and nurses in the outpatient centers have been vaccinated, that will provide a safer environment for everyone coming in and out of the cancer center. And that safe environment will be even further enhanced when patients are also vaccinated. So, you know, from best estimates, I would hope that this would happen in the next three to six months.

> **"When in doubt, I think patients should ask their treating oncologist about whether it's safe and the right timing of the vaccine for them."**
>
> ***— DR. TIAN ZHANG***



Q: So let's focus now on the blog post you wrote for the Kidney Cancer Association, in which you mentioned that patients with kidney cancer undergoing targeted treatments or immunotherapy may still be candidates for the vaccine. Do you mind going into more detail about that?

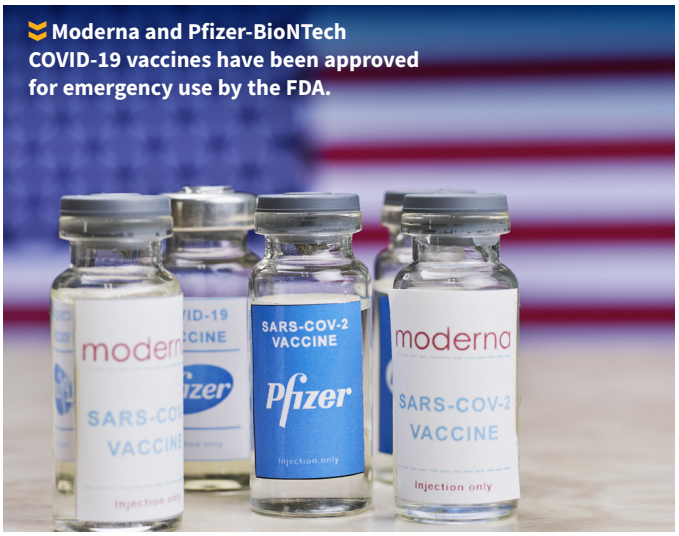
A: Patients with kidney cancer in our front-line settings are often getting what we call anti-VEGF (vascular endothelial growth factor) treatments that are targeted against angiogenesis (forming new blood vessels from preexisting vessels) — what I commonly term blood-vessel blockers for our patients. Those patients probably should not have any immune-suppressive effects (from) their treatments so their response to the COVID-19 vaccine will likely be almost as good (as patients not undergoing treatment for kidney cancer). We don't have direct data to say, but based on best estimates, these patients may have a good response to generate a protective immunity against COVID-19.

For patients who are on immunotherapies for kidney cancer, these immunotherapies are generally checkpoint inhibitors, (which block proteins called checkpoints that sometimes keep T cells from killing cancer cells). This is more to activate the T cell response against (the cancer). So in general, for patients who have kidney cancer who are on these targeted immunotherapies, these should not impact their immune response to the COVID-19 vaccine.

There are some … rare kidney cancers that are treated with chemotherapies and cytotoxic chemotherapies. So for those patients, I think there should be a discussion about when during (chemotherapy) would be best and optimal for a patient to have a protective immunity response against the vaccine.

Q: If a patient is currently undergoing cancer treatment and concerned about the vaccine potentially negatively impacting the treatment they're receiving, what advice would you give them?

A: (Because our patients with cancer and preexisting conditions are at risk) of severe COVID-19 infections and (even) dying from COVID-19 … I would think the benefit of receiving the vaccine outweighs the risk. In thinking about the



Moderna and Pfizer-BioNTech COVID-19 vaccines have been approved for emergency use by the FDA.

Pfizer vaccine data, there was about a 94% vaccine efficacy compared to the placebo. And so certainly, the protection that the vaccine potentially has outweighs the risk of the side effects. ... We can specifically talk some more about patients with lymphomas or multiple myeloma, (for which) their cancer-targeting treatments are specifically inhibiting B-cell populations. But in most cases of solid tumors especially, the vaccine response should not change how they respond (to) anti-cancer treatment.

Q: What advice would you give patients with all cancer types who are on the fence about whether to receive the vaccine or hold off?

A: Sure, and this is where I think patients with cancer are a particularly vulnerable population because they already have a preexisting condition. Depending on where their cancer is, it might impact their lungs or their ability to really combat the virus, and patients who develop severe pneumonias may have more severe courses based on their prior malignancy. And so I do think that it may be a case-by-case, individual decision. But in most cases, the benefit of receiving a vaccine to prevent potentially severe COVID-19 infections or possible death ... outweighs the risks of the vaccine itself.

Q: Are there any other negative effects, potential drug-drug interactions or even other side effects with the vaccine that would specifically affect patients with cancer?

A: I've thought very hard about this question. And the only one that I (came up with) — and it's somewhat hypothetical — is that patients who are undergoing treatment targeted against B-cell lymphomas or multiple myeloma plasma cells ... may or may not amount the right immune response to the COVID-19 vaccine. (They) are a small but significant population, (and) further discussion with their oncologist should determine if and when they should receive it.

Q: As more vaccines receive this emergency use authorization or are approved by the FDA, how can patients decide which vaccine is best for them?

A: There's a beautiful review in *Nature* about these vaccines. (There are) about 140 preclinical studies of vaccines, (with) 20 vaccines currently in phase 1, about a dozen in phase 1 to 2 and about 10 in phase 3 trials. And as of Dec. 16, the Pfizer-BioNTech vaccine is the only one that's fully approved in the U.S., but the Moderna one is set for FDA review this week. (Since then, the Moderna vaccine has been authorized for emergency use by the FDA.)

So there's no direct head-to-head comparisons of the vaccines, but if there's similar vaccine efficacy of each compared with placebo, I think that patients should probably choose the one that is available for them the fastest, the one that they can receive the earliest.

Both vaccines (require) two doses. The booster shot (for Moderna's vaccine) is four weeks after the first dose and Pfizer's is three weeks after the first dose.

Q: It somewhat goes without saying that it's crucial for all patients, whether they have cancer or not, to stay on that vaccination schedule?

A: Yes, I do think that booster is going to be necessary. And, you know, there could be a lag time of patients presenting with symptomatic COVID-19. But, certainly, that booster dose seems to be further protective.

Q: Is there anything else you'd like to mention about this topic?

A: These vaccines are intramuscular injections and likely will generate a type of antibody that's more systemic called IgG antibodies. So these antibodies are not the ones on the mucosal surface, which are more IgA antibodies. So patients still could theoretically harbor the (virus) and pass it to others. And there are other patients who, as you mentioned, can't or won't receive the vaccine. That's why I think we should all still wear masks, avoid large gatherings and practice good hand hygiene until the time when we seem to have eliminated the COVID-19 threat.

We also don't know about long-term loss of immunity and when patients and people will need booster vaccinations. There are many vaccines that adults receive booster vaccines for during their lifetimes, and potentially COVID-19 will be one of those. And I think that depends on long-term follow-up for these patients who have generously participated on the studies in terms of following their antibody titers and when we think that these patients might lose their immunity.

I think there's still a lot to learn as we follow these patients longer. But overall, with the approval of the vaccine, there is this glimmer of hope that sometime in the coming year, hopefully patients and people will all be protected through these vaccines. And hopefully we will all be safer and healthier. C

This interview has been edited for clarity and conciseness.

Advocating for Herself Amid Treatment for a Rare Cancer

One patient with breast implant-associated anaplastic large cell lymphoma spoke out for herself throughout therapy — and encourages other patients do the same. By BETH FAND INCOLLINGO

MANY PATIENTS DEFER TO their oncologists for advice on managing cancer. Roxane Vermeland, however, was committed to making her own treatment decisions every step of the way.

Vermeland developed breast implant-associated anaplastic large cell lymphoma (BIA-ALCL), a type of cancer not yet well understood, after undergoing mastectomy and reconstruction due to breast cancer. Because all her doctors had limited experience treating BIA-ALCL, she felt it was crucial to study clinical diagnosis and treatment guidelines and discuss them with her care team.

In part due to her persistence, Vermeland is now cancer free, and she encourages others with the disease to also advocate for themselves.

BIA-ALCL has been linked to textured breast implants filled with either saline or silicone — in particular, Allergan's Natrelle Biocell brand — and as of Nov. 5, 2020, has been diagnosed in 1,136 patients, 36 of whom have died, according to the Food and Drug Administration (FDA). In response to a July 2019 FDA request, Allergan, which has since been purchased by AbbVie, issued a worldwide recall of those products.

ROXANE VERMELAND and her husband, CRAIG, who's been her support.

PHOTO COURTESY OF VERMELAND

On Sept. 28, 2020, the FDA urged the makers of breast implants to supplement their labeling to include a boxed warning and a patient decision checklist focusing on health problems that can arise from the implants, in particular, two major health issues: BIA-ALCL and breast implant illness, an autoimmune condition that can result in brain fog, fatigue, rash, and muscle or joint pain.

Vermeland considers that a victory for patients but remains committed to creating more awareness around the issue. "We do believe that many more women will be diagnosed properly by generating much-needed attention around this cancer," she says.

COPING WITH IMPLANT ISSUES

In November 2012, Vermeland was shocked to learn she had breast cancer in both her breasts, with infiltrating ductal and ductal carcinoma in situ T1c in one and T1b in the other. Vermeland underwent surgery at Rush Copley Medical Center in Aurora, Illinois, on Dec. 14, 2012, and had expanders put in at the advice of her plastic surgeon so reconstructive surgery could be performed later; she was not, however, informed of the risks of getting another cancer.

On Jan. 14, 2013, Vermeland began five months of harsh chemotherapy that included Cytoxan (cyclophosphamide), Adriamycin (doxorubicin), Taxotere (docetaxel) and Neupogen (filgrastim). "I cried every time I went because I knew how sick it was going to make me," Vermeland says, adding that her side effects were ongoing and included hand-foot syndrome (swelling, redness and pain on the soles of the feet and/or palms of the hands), breast cellulitis (infection of the skin and tissue from bacteria), body aches, neuropathy (weakness, numbness, tingling or pain in the hands or feet) and weight loss.

In October 2013, almost a year after her diagnosis, Vermeland had smooth saline implants made by Mentor placed by her plastic surgeon, but problems cropped up right away. "They just wouldn't stay in place," she says. "I went into surgery probably two more times for him to straighten them and do some fat grafting, but they always looked terrible."

In April 2014, her plastic surgeon offered to replace them with Allergan's Natrelle 410 textured implants that

> **"We do believe that many more women will be diagnosed properly by generating much-needed attention around this cancer."**
>
> *— ROXANE VERMELAND*

PHOTO COURTESY OF VERMELAND

he recommended highly, assuring Vermeland and her husband that the product would not put her at risk of developing a new cancer.

SEARCHING FOR ANSWERS

In July 2015, the area around Vermeland's implant filled with fluid. Her plastic surgeon tried to improve their appearance with fat grafting, but he never tested the fluid to determine if it could be associated with cancer. It wasn't until July 2018, when her left breast swelled to triple the size of her right that Vermeland did some research online and learned about BIA-ALCL.

Although her plastic surgeon said that her breasts looked fine, Vermeland requested an MRI and that he test the fluid spotted during the imaging for CD30, a protein that can signal the presence of BIA-ALCL. The fluid was drained by a radiologist, who was instructed to put in a drain — but did not have orders to test the fluid. While on the operating table, Vermeland needed to advocate for herself again by requesting he call her plastic surgeon for orders, which he did. The fluid was tested by flow cytometry and immunochemistry in labs at Rush Copley Medical Center in Aurora, Illinois, and at Mayo Clinic in Rochester, Minnesota.

Vermeland went into septic shock a week after her drain was removed due to an infection from her left breast implant. Her plastic surgeon was called immediately to remove her left implant. Her husband asked her plastic surgeon to remove not just the implant but also the surrounding capsule made of scar tissue that forms around implants during healing. He told the doctor that this would allow Vermeland to avoid a second surgery later and prevent the spread of cancer that could occur if the capsule was disturbed but not removed.

Despite the suggestions, the surgeon only removed the left implant and multiple samples of the capsule, which were tested for CD30. This left Vermeland in fear for her life.

To make matters worse, she had trouble getting any physician to disclose her test results. "Both (the surgeon and my oncologist) knew nothing about that cancer type," she says.

FACING STAGE 4

After receiving a diagnosis of BIA-ALCL on Aug. 11, 2018, Vermeland underwent a positron emission tomography (PET) scan on Aug. 23, 2018, at Mayo Clinic that identified effected mammary lymph nodes, which were false positive due to surgery a few weeks prior. This led to their removal on Aug. 24, 2018, along with the other implant with the capsule, the remaining capsule from left implant and part of Vermeland's ribs to get to the mammary nodes. She was given a negative result for CD30.

Her next PET scan three months later showed more mammary nodes lighting up, which biopsy results proved positive. After multiple second opinions, Vermeland chose removal of the nodes through cryoablation at Mayo Clinic to potentially bypass chemotherapy. Unfortunately, more nodes were affected, requiring more biopsies and several other PET scans at The University of Texas MD Anderson Cancer Center in Houston, all of which were either negative or inconclusive.

In July 2019, after a PET scan and a few more biopsies, she was told she was in remission. However, Vermeland was convinced otherwise because she could still feel an enlarged node along with persistent chest wall pressure.

"It was the worst thing," she says. "I was supposed to be happy, and it was so sad for me because I felt the results just were not correct. My family was telling me to move on, thinking I (was) being too pessimistic. I was confused what to do."

At her next PET scan in November 2019, doctors saw positive nodes throughout her body, including her lungs. Vermeland had advanced to stage 4 disease. »

VERMELAND and her husband, **CRAIG**, play golf in their spare time.

Hematologists at Mayo Clinic wanted to treat her with a multichemotherapy regimen known as CHOP (cyclophosphamide, vincristine, prednisone, Adriamycin) plus Adcetris (brentuximab vedotin), but Vermeland was against it. At the First World Consensus Conference on BIA-ALCL that she attended in October 2019, Vermeland had learned that Adcetris, an antibody-drug conjugate that targets CD30-positive cells, can be used alone to treat the disease.

Past treatment guidelines recommended giving CHOP (or that regimen with Adcetris replacing vincristine) as the preferred treatment for BIA-ALCL that had spread.

After lengthy discussions and a second opinion from MD Anderson Cancer Center, she completed treatment with Adcetris at an affiliate of Northwestern Medicine in Geneva, Illinois.

"I had a lot of side effects including neuropathy, and I was in the (emergency room) a bunch of times," she recalls. "But after I got my second PET scan during treatment on June 8, 2020, it showed I was in remission. It was unbelievable. My oncologists at all clinics were in awe. I was the miracle child."

ADVISING OTHERS

Vermeland has these suggestions for other patients undergoing mastectomy: Find a plastic surgeon who is well informed about all kinds of implants, is familiar with the symptoms of both BIA-ALCL and breast implant illness, is willing to test for CD30 and knows how to remove both implants and capsules.

For patients who suspect they have BIA-ALCL, Vermeland warns that most health insurers won't pay for testing or implant removal unless the patient has survived breast cancer.

According to Allergan, it is not recommended that asymptomatic women remove their Biocell implants, and the FDA recommends against this as well. Those who do choose explant will receive a free pair of smooth implants from the company, although it will not pay for surgery.

Women with Allergan implants and a confirmed case of BIA-ALCL receive $7,500 from the company, but they must sign a document releasing the company from liability, Vermeland says. The company did not respond to a request for comment on the issue.

Some women are suing Allergan, claiming that Biocell implants contain unsafe particles and contaminants, according to an article on aboutlawsuits.com. The women allege that they may have avoided BIA-ALCL if Allergan had been more forthcoming about the dangers of the implants, the article states.

Vermeland also points out that breast implant illness is not covered by insurance because it's not recognized as a medical condition, although patient advocates want the FDA to change that. She notes that Diana Zuckerman, president of the National Center for Health Research, can help patients get insurance to pay for this by identifying the best codes to use when filing claims.

Still, Vermeland says, "We need funding to help these women. They are doing GoFundMe pages to get their breast implants removed."

CREATING CHANGE

Giving patients the care they deserve requires action, Vermeland says. She suggests that efforts should start with studies of patients who have BIA-ALCL, the therapies they've received and their health outcomes so treatment guidelines can be continually updated.

In addition to the guidance it recently issued, the FDA created a registry of patients with BIA-ALCL in 2012 called PROFILE (thepsf.org/PROFILE). Still, "it's just not enough," Vermeland says. She wants the FDA to force Allergan to pay for the removal of its textured implants in any patients who want the procedure.

In addition, Vermeland and three other women started a Facebook group, the BIA-ALCL Global Patient-Clinician Site, aimed at patients, doctors and advocates. "We hope to contribute to the diagnosis and treatment of women with the disease and to the prevention of more cases in the future," she says. "As we say very frequently these days: 'Not our daughters.'"

PHOTO COURTESY OF VERMELAND

CANCER

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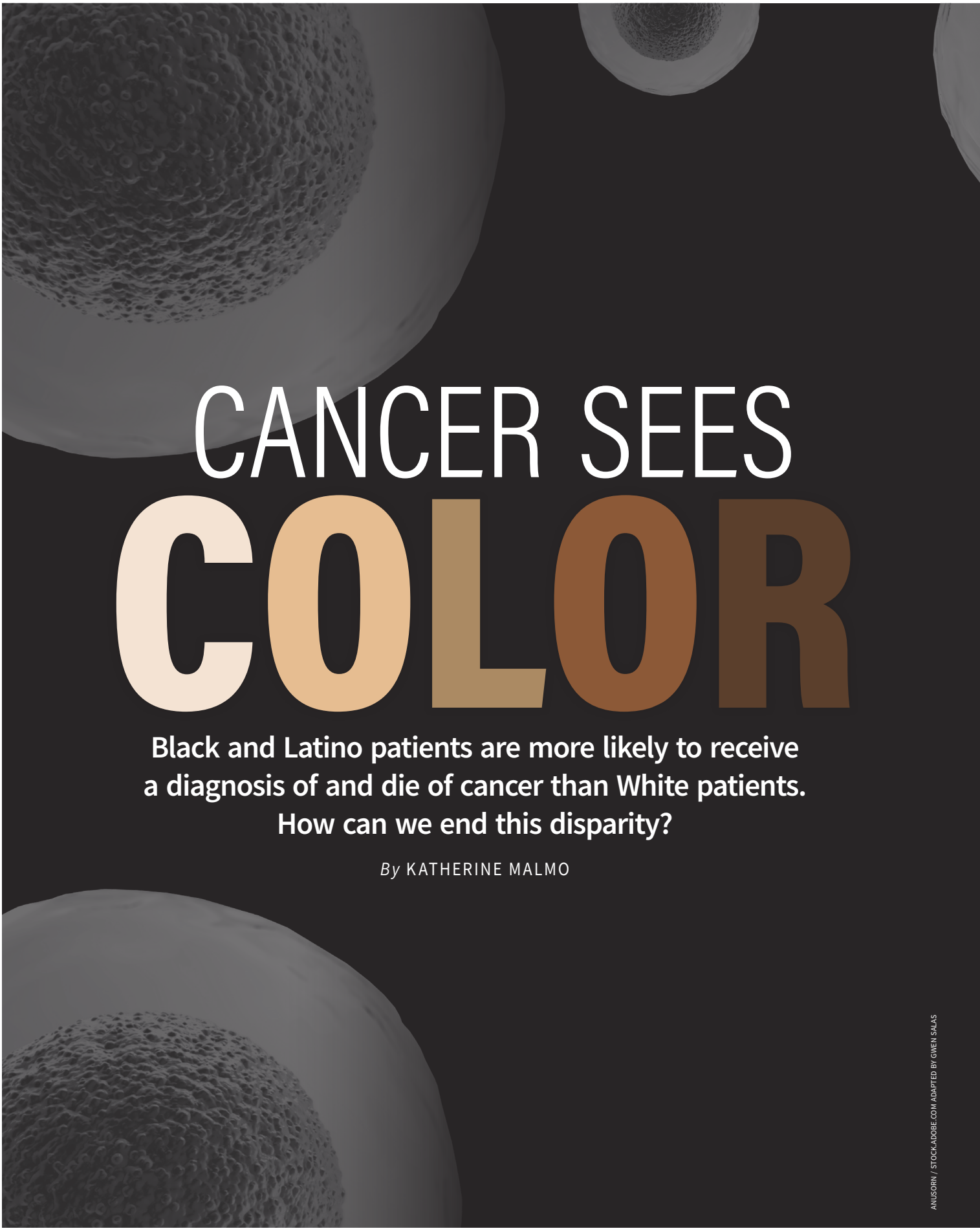
CANCER SEES COLOR

Black and Latino patients are more likely to receive a diagnosis of and die of cancer than White patients. How can we end this disparity?

By KATHERINE MALMO



ANUSORN / STOCK.ADOBE.COM ADAPTED BY GWEN SALAS

Here's the grim truth of the matter: According to the National Cancer Institute, Black people are more likely to die of most cancers than any other racial group.

Despite improvements in cancer outcomes across the population in recent years, racial disparities remain. Dr. Luis Raez, chief scientific officer and medical director of Memorial Healthcare System's Memorial Cancer Institute in Pembroke Pines, Florida, says the problem persists partly because it's too complex for a single explanation or solution.

"It's a social problem, it's a biological problem, it's a system problem," Raez says. "And so we need to tackle the problem from all corners, and hopefully one day we'll improve the health care of all patients."

Temi Omaghomi, a Black 23-year-old compliance analyst diagnosed with ductal carcinoma in situ in June 2020, experienced this form of racism when she did not receive the same level of breast cancer care as her White counterparts. »

> **“Diagnosis was a really hard time, and I didn’t feel like I was being treated as I should have been.”**
> *— TEMI OMAGHOMI*

» **TEMI OMAGHOMI,** who received a diagnosis of ductal carcinoma in situ, experienced racism throughout her journey.

“Diagnosis was a really hard time, and I didn’t feel like I was being treated as I should have been,” Omaghomi says. “But it wasn’t until I found an online support group — and the White women told me what the doctors should have been testing and scanning for — that I realized what I was missing. And nobody even talked to me about fertility. Nobody offered me a therapist or a dietitian. These things were offered to others but not to me.”

So how do we ensure that Omaghomi and people of all races have the same access to high-quality cancer care and the best possible rates of recovery?

THE PROBLEM

Disparities in cancer treatment can be measured in a variety of ways: The number of new cases, existing cases, death rates, survival, stage at diagnosis, etc. Regardless of how you ask the question, the answer is still tragic.

According to a 2020 Cancer Disparities Progress Report by the American Association for Cancer Research (AACR):

- Black men are 111% more likely to die of prostate cancer than White men.
- Black women are 39% more likely to die of breast cancer than White women.
- Asian Pacific Islanders are twice as likely as White Americans to die of stomach cancer.

Darcie Green, executive director of Latinas Contra Cancer, a nonprofit organization in San Jose, California, that provides services to the underserved Latino population around issues of cancer, says there isn’t a single problem but “a fabric of problems that lead to preventable, predictable, adverse health outcomes.”

DISPARITIES IN HEALTH CARE ACCESS

According to the National Cancer Institute, patients who have low incomes, low health literacy or lack health insurance, transportation to a medical facility or paid medical leave are less likely to have cancer screening tests than patients who don’t face these obstacles.

“Nobody needs to die of cervical cancer,” Green says. “It’s slow growing and can be detected early and prevented. But Latinas are still disproportionately impacted by it, and that’s largely because we face barriers to care in the area of cervical cancer screenings and HPV vaccines for younger Latinas.”

And the challenges continue, even after receiving a diagnosis.

“When you are diagnosed with cancer, it can be disruptive and scary for anyone,” Green says. “But if you’re in a household that is already food or housing insecure, plus now you’ve lost your income and have inadequate health insurance, this will negatively impact your health.”

JEN BRAVO

"Rosemary,"* a 48-year-old Hispanic woman with kidney cancer who is living in the U.S. without legal permission and only had insurance that covered medical emergencies, experienced these hardships last year. In January 2020, she went home from cancer surgery with a new pain in her rib cage that didn't go away.

"I wasn't able to go back to work because something felt weird," she said. "It felt like the doctor had moved my organs and not put them back in the right place."

Her husband was deported, and her daughter was away at college. Eventually Rosemary moved in with her sister, but was unable to pay rent and did not qualify for many assistance programs because of her documentation status. A year later, she is still struggling to recover her health.

SOCIAL FACTORS

Rick Kittles, founding director of the Division of Health Equities at City of Hope, a cancer research and treatment center near Los Angeles, says about 40% of adult cancers can be prevented by lifestyle changes such as reducing or eliminating tobacco, for example.

"Some people say your ZIP code is a bigger predictor of disease than your genetic code," Kittles says. "Some neighborhoods lack access to a gym or YMCA, grocery stores and quality school programs. And because some of these communities have been overrun with drugs or crime, people may not feel safe going out or riding bikes. So these communities look different, and their outcomes are different than those communities that are safer and have better access to things like physical activity and quality foods."

RACISM AND CULTURAL MISTRUST

Green says they encourage their clients at Latina Contra Center to overcome this mistrust and advocate for themselves. She notes that many of them have to push to be heard in a way she doesn't hear about as often from White patients.

Dr. Miranda Lam, radiation oncologist at Dana-Farber/Brigham and Women's Cancer Center and Harvard Medical School in Boston, conducted a study that examined disparities in death rates between Black and White patients after cancer surgery. Lam says there have been policy efforts to encourage hospitals to focus on quality improvement, which may have led to improved cancer outcomes overall. Unfortunately, higher mortality among Black patients with cancer (compared with White patients) still persists.

"The majority of recent efforts have not directly addressed a component of structural racism that may be underpinning the gap in outcomes," Lam says. "Critical race scholars have argued that racism produces significantly higher rates of morbidity and mortality and decreased overall well-being."

THE SOLUTIONS

Maimah Karmo, founder and CEO of Tigerlily Foundation, an organization that provides education, awareness, advocacy and support for young women with breast cancer, thinks a world without disparity should be the goal. "(COVID-19) touched the entire world," she says. "And all the world's focus and energy and money went into finding the vaccine, and look what happened? We found one — in less than six months, and multiple global organizations are working to create other vaccines. Think of the level of money, corporate commitment, time and diversion of focus to immediately put out the fires of this pandemic. Why not put that kind of focus on ending barriers to care for Black people? … How many more deaths do we need before Black people get the right care?"

One study of the Department of Veterans Affairs (VA) health care system found that Black men were slightly less likely than non-Hispanic White men to die of prostate cancer in the 10 years following diagnosis. Some say this is because Black men were less likely to experience treatment delays in the VA's system, but others say that the study did not factor in patients who left the VA system to get care elsewhere. The study was unable to conclusively show that equal access to medical care is the only reason disparities were not seen.

ACCESS TO MEDICAL CARE

One way to remove the obstacles to medical care is to send cancer screening systems to communities and clinical trials »

ROSEMARY, whose name has been changed, developed new pain after her cancer surgery early 2020.

BRIAN KLEMM

« **ROSEMARY** received assistance from Latinas Contra Cancer, which helped her pay for rent and obtain emotional support.

into the home, for example, but these are bandages for the bigger problem.

“We need to move toward a universal system of health care where you can eliminate the stressors of different payors and where all patients get adequate care regardless of income or ZIP code,” Green says.

SOCIAL FACTORS

One way to prevent avoidable cancers is to increase patient education and health literacy in Black and Hispanic populations. A lot of information can be found through nonprofit and advocacy organizations like the Leukemia & Lymphoma Society, Tigerlily Foundation and Latinas Contra Cancer.

“We want patients to ask questions and to be curious because it’s their body and they’re coming to the table with something too,” Green says. “Make sure to bring up any concerns, no matter how small.”

Raez, who says that 35% of Memorial Cancer Institute’s patients is made up of minorities, relies on patient navigators to help make appointments and resolve insurance and financial problems.

Getting to the root of this problem, however, involves ending socioeconomic disparities in the United States. This would help people in disadvantaged neighborhoods live healthier lives and reduce the incidence of preventable cancer. A report on the complexity of this topic by AACR calls for new strategies in education and intervention and a deeper look into how to solve socioeconomic disparities.

RACISM AND CULTURAL MISTRUST

At Tigerlily Foundation, Karmo is working to tackle racism in the medical system head-on with a variety of programs designed to educate patients and the medical community.

After Omaghomi discovered the support group and Tigerlily Foundation, she found a new doctor who talked her through everything she needed to know and all her treatment options.

Her advice for other newly diagnosed people of color? “First, it’s hard, but breathe and take it one step at a time,” she says. “There are some things you can control and some that you can’t. So let go of what you can’t control. Surround yourself with support groups, and keep looking until you find a doctor you feel comfortable with and understand.”

BRIAN KLEMM

CLINICAL TRIAL ENROLLMENT

Raez believes one way to increase clinical trial enrollment is to have more professionals of color in the research field, which could help patients with trust and language barriers.

But more needs to be done.

"When researchers are competing for grants, they should be required to provide a specialized outreach plan that ensures they have certain demographics in their trial," Green says. "The grant money should depend on meeting those numbers."

Kittles believes part of the solution rests in the hands of academic medical centers. "I firmly believe many of these ivory tower academic institutions can increase diversity in clinical trials by offering more charity care to patients who are underinsured or unable to pay," he says.

Raez has a slightly different take, saying that the drug companies should choose to operate their clinical trial programs in public hospitals, even though some patients who are homeless or underinsured may not return for follow-ups.

"They say the (Food and Drug Administration) cannot mandate that minorities must be enrolled in clinical trials, but why not?" Raez says. "If 30% of the population of this country is minority, then why should the FDA approve the use of a drug that is tested entirely on the non-Hispanic White population? How do you think it's going to work for the other 30%?"

MOVING FORWARD

Latinas Contra Cancer started helping Rosemary with housing after her first surgery in March 2020. Then in December 2020, she underwent another surgery to remove an ovarian cyst, and a day later, she started showing symptoms of COVID-19. She tested negative before the surgery, but then tested positive after the surgery. She believes she contracted it during the operation. Because of this, she was unable to recover at her sister's place (where she'd been living) and unable to pay for a hotel.

"I felt like I was going crazy," she says. "I was lonely, I lost my job, I had no place to stay. I tried to get help from other organizations, but they needed paperwork and documentation I didn't have. I didn't even want to look for help anymore. But then I called Latinas Contra Cancer, and Darcie (Green) got me money for rent and gave me a number to call to talk to someone and get emotional support."

Rosemary is still struggling, but organizations like Latinas Contra Cancer and Tigerlily are there to help those failed by the medical system.

"We have to get back to our humanity," Karmo says. "We forget this is about humans, not subjects, case numbers or statistics, and that by action or inaction, we are impacting people's lives. Sometimes the weapon people use is silence. How many more people need to die before this changes and we end barriers to care once and for all?"

*Name changed for anonymity.

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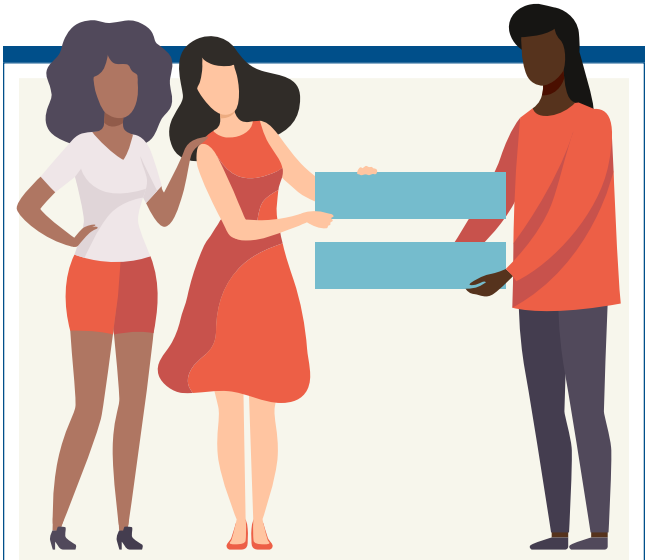

Programs Educate Patients, Medical Community to Reduce Inequities

Tigerlily Foundation, an organization that provides education, awareness, advocacy and support for young women with breast cancer, offers the following programs:

- **The #InclusionPledge** — A transparent and tangible framework across stakeholders, holding organizations accountable to make outcomes that will result in dismantling systemic barriers; co-creating solutions resulting in health equity for Black women; and end disparities in our lifetime.
- **Advocate Now to Grow, Empower and Lead (ANGEL) Advocacy Training** — Young women are trained to know the facts about breast cancer, clinical trials, genetics, health literacy and racial disparities to work as empowered advocates in their communities and with stakeholders nationally to change outcomes.
- **Know More Disparities and Pull Up a Seat Events** — A bi-directional initiative with sessions where patients, advocates and doctors of color discuss issues that patients of color face in a safe space, followed by an event where advocates educate White allies on what they've shared and learned, and work together to co-create solutions.

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Bringing Clinical Trials Closer *to* HOME

Local access to national cancer studies allows patients to receive promising new treatments in the most convenient setting possible: Their own community.

By MARILYN FENICHEL

When Sue Schroder, 72, received a diagnosis of follicular lymphoma in late 2009, she pushed through the numbing shock she felt and then faced her diagnosis head-on. Rolling up her sleeves, she dived into the research, exploring her options and bouncing ideas off family members. After getting a second opinion, she decided to enter a clinical trial.

Her decision was made easier because the trial was available in her hometown of Grand Rapids, Michigan.

"I received treatment through the Cancer and Hematology Centers of Western Michigan at both the Spectrum Health Lemmen-Holton Cancer Pavilion and at the Mercy Health Saint Mary's Lacks Cancer Center," says Schroder. "These are the same places I would have gone if I hadn't been part of a trial. They were 10 minutes from my home, which made a big difference, especially after I became more debilitated from the treatment. I also had my close friends available to go with me to my appointments and to offer moral support and relaxation when I needed to get away from everything that I was living through." »

SUE SCHRODER was able to participate in a clinical trial 10 minutes away from her home.

The clinical trial consisted of chemotherapy along with a monoclonal antibody treatment called Rituxan (rituximab) given during each session. This regimen was followed by one shot of radioactive material plus four years of maintenance therapy with Rituxan alone — two years longer than standard of care at that time.

By all accounts, the trial was a success. Ninety-four percent of trial participants were without disease progression at the two-year mark. The only downside of the trial was that four years on Rituxan proved to be too long for many patients due to the cumulative toxicities, she found out from her research nurse.

At 10 years, Schroder shows no evidence of disease. She attributes her favorable outcome to her local hospital's affiliation with the Cancer Research Consortium of West Michigan (CRCWM), which is made up of 11 hospitals currently running about 140 new trials and monitoring an additional 250 ongoing trials. The consortium, part of the National Cancer Institute's Community Oncology Research Program (NCORP), makes it possible for Schroder and other patients like her to participate in national clinical trials and receive the same potentially lifesaving care as patients living closer to the National Cancer Institute (NCI) and academic medical centers.

NCORP is just one way that national cancer clinical trials can be brought to smaller communities. Health systems and cancer centers have developed other models too. Some large health systems, such as Jefferson Health in Philadelphia, have expanded their reach to outlying communities, offering state-of-the-art trials at several different centers. The University of Texas MD Anderson Cancer Center in Houston has expanded on this concept by providing its clinical trial protocols to institutions nationwide within its Cancer Network. Each approach has been structured differently, but all of them have a common goal: Offer clinical trials to patients in the hope of providing the highest-quality care in the most convenient setting possible.

NCORP CASTS A WIDE NET

For many hospitals and cancer centers, the opportunity to participate in studies developed by NCI is a big draw. NCORP is a large program and is currently funding 46 sites, 14 of which are in minority and underserved communities. It also offers a range of trials, from examining new treatment options and screening techniques to preventive strategies and ways to improve the cancer delivery system.

"Clinical trials are complex to run, and we are able to take some of the burden off the sites," explains Dr. Worta McCaskill-Stevens, a medical oncologist and director of NCORP. "We provide the infrastructure for the trial and cover the cost of the intervention, which allows the medical team to focus on their patients."

AMANDA MONTGOMERY

CRCWM is a good case in point. "We would not be able to fulfill our regulatory and financial obligations without NCI support," says Connie Szczepanek, director of CRCWM. "But the relationship is definitely a two-way street. NCI relies on community involvement to collect much-needed data. More than 35% of enrollment in NCI studies takes place in community sites."

Dr. Richard Deming, principal investigator for Catholic Health Initiatives' NCORP grant, agrees. Deming oversees a large NCORP grant that has 53 sites nationwide and is also medical director of the Des Moines, Iowa, site, MercyOne Cancer Center. Deming adds that since 85% of patients with cancer are treated at community hospitals, bringing trials to the community makes sense for everyone.

"Allowing community cancer programs to enroll patients has shown that in addition to benefiting patients, it also allows the trials to scale-up quickly, accelerating the speed at which results become available," Deming says.

Although a common perception is that clinical trials mostly study new treatments, they actually cover many different aspects of cancer care. "We're currently involved in a screening study, where we're comparing two-dimensional to three-dimensional mammography," says Deming. "This is one of the few clinical trials in 25 years that focused on screening technologies to determine which is most effective for patients."

Other types of trials include an examination of financial toxicity, a growing problem among patients with cancer. Deming and his colleagues across many sites are evaluating how cost affects patients' quality of life and how concern about finances affects adherence to treatment. Other trials include investigating compliance with oral treatments, which patients take at home, and how to better manage side effects of treatment, such as neuropathy (nerve damage in the hands and feet that result in weakness, numbness and a tingling feeling).

Valeria Mason, 61, of Alleman, Iowa, is currently participating in a neuropathy trial that is occurring simultaneously with her chemotherapy and targeted therapy for HER2-positive breast cancer. The drugs in her treatment regimen are known for causing neuropathy, so Mason was recruited for the trial to assess the extent of neuropathy over the course of her treatment.

"I was fortunate in that I only had mild neuropathy," recalls Mason. "But I was happy to participate to help other women going through similar treatments. Plus, the research team came to my therapy sessions, so I didn't have to travel or have extra appointments to be a part of the work."

Deming notes that many patients feel like Mason does, eager to participate in clinical trials to advance science, even if the outcome may not ultimately help them. "They see it as an altruistic delight to want to help themselves and others," he says.

Along with patients and institutions, policymaking oncology organizations such as the American Society of Clinical Oncology and the Association of Community Cancer Centers have also become aware of the value of clinical trials in the community. Their growing interest »

VALERIA MASON is currently participating in a trial while undergoing treatment for breast cancer.

DEBBIE ARRINGDALE

The Human Face *of* Clinical Trials

LINNEA OLSON OF AMESBURY, Massachusetts, has been living with lung cancer for 16 years. She attributes her survival to the six clinical trials in which she has participated. All of those trials took place at Massachusetts General Hospital, part of the Dana-Farber/Harvard Cancer Center (DF/HCC) research consortium.

Olson's saga began in 2001, when she had a cough, chest pain, and overall weakness and fatigue. At first, doctors didn't consider lung cancer because she wasn't a smoker, but a case of intractable pneumonia finally led to an accurate diagnosis in 2005. Olson was hoping that surgery and chemotherapy would put her in remission. They didn't.

She was tested for genetic mutations but did not have EGFR, the only one for which there was a targeted therapy at the time. She hung on until 2008, when she was found to be ALK positive.

"The timing was fortuitous," recalls Olson, now 61. "The clinical trial had just opened up at Massachusetts General Hospital. At that point, they only gave me three to five months to live."

The phase 1 clinical trial was testing Xalkori (crizotinib), the first available ALK inhibitor. Olson was only the fourth person in the world to receive this drug.

"I started to feel better almost immediately," says Olson. "I had a 70% resolution, which lasted for almost three years."

Since then, Olson has tried new ALK inhibitors as they've become available in clinical trials. She had five good years with Lorbrena (lorlatinib), although in her last year, chemotherapy was added to the mix. Currently, she is on a clinical trial testing a new antibody treatment.

Mass General, a well-established research hospital, has the capacity to conduct complex phase 1 to 3 trials. Although satellite facilities outside Boston are part of the DF/HCC network, most aren't set up to conduct clinical trials like those Olson has participated in.

"Down the road, we hope to be able to provide the requisite infrastructure to those community cancer centers," says Dr. Ryan Sullivan, an investigator at Mass General. "But for patients (with) difficult-to-treat diseases, having the option to go to an academic medical center able to conduct innovative, high-risk clinical trials is lifesaving."

in this approach has led large cancer centers to develop innovative models specifically designed to meet the needs of their diverse patient populations.

BRINGING CLINICAL TRIALS TO PATIENTS

Large cancer centers are known for their exemplary treatment, but most are located in large cities. The traditional model for clinical trials has been for patients to travel to those centers, but it has becoming increasingly clear that this approach is no longer working for patients.

"We've noticed that over the past few years, patients are actively looking for clinical trials, especially those who have exhausted standard treatments. We had already been growing our network of collaborators, which include 20 institutions in 16 states, by sharing expertise and resources. It was a natural next step to bring them into our clinical trials program," says Dr. Michael Kupferman, senior vice president of clinical and academic network development at MD Anderson Cancer Center in Houston. "We now have 13 cancer network sites with 65 ongoing protocols, for which nearly 1,700 patients have been recruited."

But clinical trials are complex, so getting a new site up to speed is no easy task. Support in operational capabilities and regulatory and safety oversight, as well as access to data, are just a few issues that must be addressed. Most of the trials, which are usually large phase 2 or 3 trials, were designed by MD Anderson investigators and focus on the most common cancers, including breast, lung, genitourinary and gastrointestinal cancers. Some trials are open that target rare tumors and certain mutations as well. Studies range from investigating new types of radiation for breast cancer to testing new targeted therapies to prevention trials focused on tobacco cessation.

"We have been on a remarkable journey with our collaborators," says Kupferman. "In addition to easing the burden for patients, we've been able to work closely with local physicians, educating them on the latest in cancer care. We were among the first to grow clinical trials to scale, and we plan to continue to do so."

The Seattle Cancer Care Alliance (SCCA) has a similar model in place, with SCCA's main campus serving as the hub of its five satellites in the surrounding community and its five-state network. The clinical trials in the community are managed by experts from SCCA, who help with start-up, recruitment and overall management. One of the values of this model is that underserved communities have an opportunity to participate in clinical trials.

"The desire to work in these communities has been a huge force in our push to expand our networks," says Dr. Jennie Crews, medical director of community sites and research integration for the SCCA Affiliate Network. "For example, one ongoing trial is conducting genetic testing for men with metastatic prostate cancer. After patients take a saliva swab and send it to designated labs, investigators can determine the frequency of certain genetic markers in this

LINNEA OLSON credits her participation in six local clinical trials to her survival from lung cancer.

AMY BUELOW

population. This has proven to be a successful study (that was) relatively easy to conduct in the community."

Another health system, the Sidney Kimmel Cancer Center in Philadelphia, part of Jefferson Health, has gone beyond providing the community access to its clinical trials; it also uses population science to tailor the trials to the needs of its network, which include four Sidney Kimmel Cancer Center Advanced Care Hubs in downtown Philadelphia; Abington, a nearby suburb; Torresdale, in northeast Philadelphia; and Washington Township in New Jersey.

"For example, northeast Philadelphia has a high smoking population, so to better serve that community, lung cancer screening and trials are a priority," explains Karen Knudsen, executive vice present of oncology services at Jefferson Health and enterprise director for its Sidney Kimmel Cancer Center. "In Abington, there is a high level of cervical and ovarian cancer, making this community an excellent candidate for our women's cancer trials."

Knudsen is passionate about her belief that providing access to clinical trials in the community is essential. "They are our best chance to improve outcomes and eliminate disparities," she said.

Although the COVID-19 pandemic has made getting medical care difficult, it has also prompted a few improvements to clinical trials. "We've relaxed the consent process, allowing patients to complete the paperwork online," says Crews. "We've also allowed patients to use local labs to avoid unnecessary travel. Not only have these innovations been safer for patients, they also have expedited these important parts of the clinical trial process." McCaskill-Stevens concurs, adding that telehealth, which gives patients easy access to their physicians, will likely play a greater role in clinical trials in the future.

By all accounts, the future of clinical trials appears to lie in the community. Other institutions adopting a network model include Dana-Farber/Harvard Cancer Center in Boston, City of Hope in Los Angeles and Moffitt Cancer Center in Tampa, Florida. This growing movement means that more patients than ever will have access to state-of-the-art care.

"For both patients and providers, there is great joy in being part of the pursuit of knowledge," says Deming. "Clinical trials enhance and elevate the overall quality of care and show the communities involved that their health system is committed to excellence."

Coping With Cancer Treatment's Effects on Skin

By STACY WILLINGHAM

As she walked into Memorial Sloan Kettering Cancer Center, Erin Hazelton was struck by the appearance of the woman in front of her. Hazelton was at the New York, New York, cancer center to begin treatment for stage 2 invasive ductal carcinoma.

"I walked into the center right after another woman, and when I heard her give her date of birth (to the receptionist), I realized that she was only a couple of years older than me, but she looked like she was my mother's age," recalled Hazelton, who received her diagnosis in 2018. "When you (get a diagnosis) at age 37 (like I did), it's scary. So much of my identity was tied up in how I looked. I was terrified."

Although many cancers are unseen, different types of treatment can lead to painful, visible side effects. After starting treatment, Hazelton experienced skin side effects including universal hair loss; facial wrinkles and loss of collagen; melasma (dark/discolored patches) on her face; dry skin; seeping wounds; scars; and radiation tattoos. »

CARLA TEN EYCK

"In addition to the regular side effects of chemotherapy, which can be devastating to quality of life, newer targeted therapies and immunotherapies have additional side effects of the skin that can be very frequent and very specific," says Dr. Nicole LeBoeuf, a dermatologist at Brigham and Women's Hospital and director of the skin toxicities program at Dana-Farber Cancer Institute in Boston, Massachusetts.

DIFFERENT TREATMENTS, DIFFERENT EFFECTS

According to LeBoeuf, systemic cancer treatments can generally be grouped into three categories, and the types of side effects patients could experience will depend on the patient's treatment regimen and cancer type.

The first category is cytotoxic, or classic, chemotherapy, which most commonly causes side effects including alopecia, or hair loss; painful rashes on the hands and feet; and general rashes elsewhere on the body that can lead to swelling, pain and itchiness.

Hazelton's initial regimen included Adriamycin (doxorubicin), a chemotherapy drug known as "the red devil" because of its harsh side effects, followed up with Taxol (paclitaxel). "I lost all my hair — eyelashes, eyebrows, everything — and my skin looked like I had aged a good 15 to 20 years toward the end of it," Hazelton says. "My cheeks had wrinkles because the collagen wasn't being renewed; I had melasma, which I hadn't expected, that was made worse by the sun."

She also experienced skin-related side effects from radiation and scars from her lumpectomy. "My skin started slowly breaking down over the course of my radiation, and at the end of six weeks, I had seeping wounds," Hazelton says. "My nipple looked like it was going to separate from my body."

The second category of treatment that can lead to skin side effects are targeted therapies, which are linked to the specific drug used for that patient's treatment. "The most commonly talked-about skin side effect of targeted therapy is called a papulopustular, or an acne-like, rash from EGFR inhibitors, or drugs that target the epidermal growth factor receptor mutation. This mutation is found in lung cancers, head and neck cancers, some colon cancers and, rarely, in breast cancer," LeBoeuf says. "In fact, 85% of patients who are treated with drugs that target that particular genetic mutation will develop that rash."

ERIN HAZELTON'S hair started to grow back post-treatment.

Another common skin side effect from targeted therapies is hand-foot skin reaction, which causes painful calluses and blisters on pressure points. "These blisters can occur from doing very normal activities," LeBoeuf says. "Something as simple as going to the grocery store can make a patient's feet look like they've just run a marathon. Someone who works on a keyboard may experience painful blisters on their fingertips when they type."

Severe skin side effects such as these can prevent patients from resuming everyday activities and make them more likely to discontinue their cancer treatment, leading to a worse prognosis.

The third category of treatment leading to skin side effects is immunotherapy, a type of treatment that boosts the body's natural defenses, or immune system, to fight the cancer. "Immunotherapy is a beast because once you unleash the immune system, you can turn on any and all skin diseases that would happen outside the cancer setting. Anything that could possibly happen in the field of dermatology has been triggered by activating the immune system," LeBoeuf says. "It is amazing and it is groundbreaking…but it can also lead to autoimmune disease in any organ."

The most common skin-related side effects of immunotherapies include psoriasis, with bumpy red patches covered in white scales; vitiligo, or whitish patches from lost pigment; and lichen planus, an autoimmune disease that can cause swelling and irritation of the skin, hair, nails and mucous membranes.

Sometimes the adverse immune events that are activated through immunotherapy persist after the treatment has ended. "Our approach to these side effects is always to try to uncouple the toxicity from the effects of the drug on the cancer, then target the side effects as specifically as possible," LeBoeuf says. "This leaves the rest of the immune system intact to fight the cancer."

DEVISING A SKIN-SAVING PLAN

Given the variety of possible side effects and the degree to which it may affect a given individual, it can be hard for patients to know which ones to expect and how to manage them if they arise during and after treatment.

Dr. Anisha Patel, an associate professor of dermatology at The University of Texas MD Anderson Cancer Center in Houston, recommends that patients follow good hair, skin and nail habits before starting treatment: "Moisturize often, avoid perfumed products, and decrease the use of lacquer on your nails," she says.

Patients who have a history of skin conditions prior to their cancer diagnosis are more likely to see worsening during treatment. "If you already have eczema, psoriasis, or acne, those things are more likely to be exaggerated," Patel says. "If you have a preexisting skin condition, that should be taken care of before your therapy starts, as well."

PHOTO COURTESY OF ERIN HAZELTON

> **“I lost all my hair — eyelashes, eyebrows, everything — and my skin looked like I had aged a good 15 to 20 years toward the end of it.”** — *ERIN HAZELTON*

HAZELTON applied shea butter and other moisturizing products daily during treatment to manage side effects.

CARLA TEN EYCK

During treatment, certain practices can help prevent the most common side effects. For example, wearing ice-cold gloves and socks and using scalp cooling treatments to restrict blood vessels reduces the chances of hair loss and hand-foot syndrome.

Patients should also take steps at home to minimize side effects. Wearing sunscreen, avoiding direct sun exposure and wearing a hat when outdoors can prevent photosensitivity side effects, Patel says.

To manage her symptoms, Hazelton applied organic shea butter daily and wore gloves and socks to bed to keep her skin as moisturized as possible. “My nails were actually amazing during treatment because I was moisturizing them so religiously,” she says. “Whatever your skin can drink up during that time that is nontoxic, contains no preservatives and has no scents will help.”

For patients who are undergoing targeted therapy or immunotherapy, dealing with side effects can be more complicated. “In general, the newer cancer therapies (like immunotherapy) have very specific side effects, which may require specific treatment,” Patel says. “Patients have to go into it with the mindset that they will have some sort of side effect and ask their treatment team what to expect and what they can do to minimize it.”

LeBoeuf recommends that patients seek the advice of a dermatologist, who can work with the medical oncologist to manage skin side effects. “Whenever possible, if a specific dermatologic diagnosis can (be) made, then the most appropriate treatment can be instituted as quickly as possible,” LeBoeuf says. “If you treat the side effect specifically, based on dermatologic literature, then often, patients will recover and can continue their cancer treatment, as well.”

Both Patel and LeBoeuf urge that the mental and emotional side effects of treatment-related skin conditions receive as much attention as the physical side effects. “Often, patients are embarrassed or they feel »

HAZELTON kept a positive attitude throughout her journey despite her treatment experience.

like they shouldn't be concerned about a side effect that isn't life-threatening," LeBoeuf says. "But the reality is, if a side effect affects your quality of life, increases your stress or changes your course of treatment, it can also affect your ability to fight the cancer. So be open, ask for help and advocate for referrals if you feel you aren't getting the treatment you need." Maintaining skin health can also prevent secondary problems such as infections or ulcers and can minimize scarring.

Taking one day at a time helped Hazelton maintain a positive mindset. "Thinking 'Am I going to burn during radiation?' or 'What's my scar going to look like?' doesn't help you mentally. Just approach it as it comes," she says.

Patients might be surprised to learn that there is a silver lining to skin-related side effects: "Skin side effects to some of the newer targeted and immune therapies is correlated to having a better tumor response," Patel says. "It is correlated to the body's immune system being revved up to fight the cancer."

BOUNCING BACK

Post treatment, patients should be advised about options to help restore the health of their skin, hair and nails. "What happens after the treatment isn't talked about as much," Dr. Anthony Rossi, a dermatologist and surgeon specializing in skin cancer, lasers and cosmetic surgery at Memorial Sloan Kettering Cancer Center, says. "Radiation can cause chronic changes in the skin; surgery, obviously, leaves a lot of scars, and high-dose steroids can leave stretch marks that last forever."

To combat these side effects, Rossi and his team at Memorial Sloan Kettering are working on what they call "restorative oncodermatology," which, he says, aims "to restore patients who go through cancer treatment and help them get back the form and function of their skin."

Through the use of treatments such as topical retinoids, topical skincare, chemical peels, lasers, botulinum neurotoxin (such as Botox) and platelet-rich plasma (or PRP) injections — an experimental therapy that uses injections of the patient's own blood platelets to prompt hair growth — Rossi reports that many survivors are seeing life-changing results. "There is definitely a cosmetic aspect that people want to improve… but these treatments help with skin functionality and overall quality of life, most importantly," he says.

Hazelton has received chemical peels and laser treatments to reduce her wrinkles and melasma, as well as used over-the-counter eyelash serums to help her hair grow back.

"I thought my life was over when I got my diagnosis. I thought I would never look the same or feel the same … but there are people out there to help you fix these physical things that remind you of your sickness," she says. "A lot of people bounce back more than they expect they will. … Your body really does recover; you just have to give it a chance."

CARLA TEN EYCK

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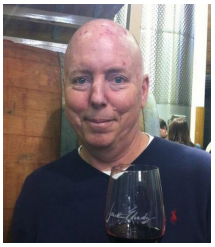
What's Next After Hedgehog Therapy Fails for Basal Cell Carcinoma?

A patient with recurrent BCC discusses his cancer journey, his latest challenge and how he's now prioritized quality of life over quantity. By DARLENE DOBKOWSKI, M.A.

BASAL CELL CARCINOMA (BCC) is the most common type of skin cancer, with approximately 8 in 10 skin cancers being BCC. This type of cancer originates in the lower part of the epidermis in sun-exposed areas such as the head, neck and face. It typically grows slowly, but if left untreated, can progress to other areas of the body in addition to the bone.

This form of skin cancer is associated with disturbances in hedgehog signaling, which involves certain cells and is critical for skin repair. Hedgehog pathway inhibitors have recently been approved as first-line therapy for patients with advanced BCC and other difficult-to-treat scenarios. Although this novel class of inhibitors has been shown to be safe and effective for locally advanced BCC and metastatic BCC, it may not be the right fit for every patient.



JEFFREY WITTIG

CURE® spoke with Jeffrey Wittig, a 62-year-old patient with recurrent BCC who has had skin cancer in one form or another since his 40s. He was treated with hedgehog therapy for BCC, which is now creeping toward his brain. Despite this outcome, he emphasizes the importance of perseverance throughout this process.

Q: *CURE*®: Can you tell us how your journey with BCC began?

A: Wittig: It began a number of years ago, probably more than 15, with small things that were scraped and burned, and (it got) progressively worse to the point where major things were being removed — large skin grafts, forehead flap. I had radiation in 2012 on the bone in my nose because the BCC had spread to the bone. And then from 2012 to now, (it got) progressively worse to the point that I had a partial rhinectomy four years ago and then a complete rhinectomy three years ago. I had my nose reconstructed at Dana-Farber (Cancer Institute). I guess that would tell you how bad it's gotten and what the journey has been.

Q: When you were originally diagnosed with BCC, at what stage were you diagnosed?

A: I've had 41 surgeries, so you'd have to be more specific. What I have now is recurrent BCC. It's a strange cancer that's very slow moving. In my case, they don't believe it has metastasized yet, so I'm not sure if there's a stage that they could put on that. They just know that it's marching forward toward my brain at this point. It's gone from my sinus cavity up through my sinus into the ethmoid (cavity) and is perforating bone there as we speak. So the outlook right now is not very good. My prognosis based on my most recent discussion with my oncologist is the "we're so sorry" speech because they can't do much more at this point.

I had gone back onto Erivedge (vismodegib), which is a hedgehog inhibitor, for 51 days. I started in October, and I continued until New Year's Eve. The toxicity just built up immediately again. Before that, … I took 227 consecutive doses of Erivedge, then I had taken the whole summer off from Erivedge. I melted down on June 11 last summer from toxicity. And that's when I stopped taking it for the summer. I went from 128 pounds back up to 165 pounds, which was lovely. I had a great summer, best summer ever. All the side effects went away and my appetite came back. And I've actually got little tufts of hair growing here and there now, which had all been gone because (that's) one of the side effects. My MRIs at the time looked clean, but what they found in the last one in September was they had been looking in the wrong place. If they went back six months and looked where the cancer is now, they could actually see a little spot there. They said, "Oops, sorry." So I thought I was good for months and months, and evidently, I was not. So that was a little — I don't know the accurate word to describe that — but it was a little disappointing, let's just say frustrating.

I met with my doctors at Dana-Farber on January 5, 2021, when I had an MRI and blood work. The results are still not good. If anything, (it) looks a little bigger. My doctor basically talked to me about the odds and the ramifications of trying this immunotherapy, which I wasn't particularly interested in doing, having read all the side effects, which remind me very much of what I'm experiencing still from the hedgehog therapy. If you don't do anything, nothing's going to happen and nothing is going to change, and that's the path (I'm) heading down. … My wife and I talked about it. … We quickly came to an agreement that nothing ventured, nothing gained, so let's go with the immunotherapy.

Q: What other therapies, if any, did you undergo, and how was it decided for you to be on hedgehog therapy?

A: Because of the location of the recurrent BCC that I have now, previous to (hedgehog therapy), I'd had blue light therapy, which is topical. I've had radiation. I had different

ILLUSTRATION BY RAY PELESKO

variations of blue light (therapy) where you sit out in the sun for three hours after they administer this chemo to your head and it basically burns all your head off.

In terms of medicine, the hedgehog (therapy) is the first medication that (I've) taken (because) it was determined that we can't treat this any other way. The options right now for me surgically are none, basically. They can remove my right eye, my right orbital bone, my right cheekbone, my right cheek, my nose and my forehead with a significant amount of bone, which will leave me horribly disfigured. Then they can't promise that they will have gotten the cancer. So to me, that's really not an option from a surgical standpoint.

My wife and I have spoken about this at great lengths. (For) the surgery that I had for my nose, they took a vein and a piece of bone from my arm and skin, and they removed my whole nose and built a new nose out of this piece of bone, which is screwed into my skull. And they overlaid that with the skin and the vein. They used a vein and snaked it from the graft that they took and brought it down through my face and down into my neck to feed that. It was a pretty significant surgery. It was 19 hours of operation, and I was at Dana-Farber for eight days or (so). And it took me about a year to recover from that with physical therapy and (from) just emotional shock because it's pretty invasive and daunting. So I had a couple good years with the new nose. Then we went back and they said, "The cancer's back in your sinus." So (it was in) the area that they'd spent all their time reconstructing (so) somehow, there's something somewhere. (BCC) is very invasive. They describe it to me as sort of a spiderweb of tiny cells that are all dancing to their own beat. They all march wherever they feel like going, and mine seems to be marching north right now toward my brain. So that's the hand that I've been dealt.

Q: How did your cancer team work with you throughout this entire process and how supportive were they?

A: Well, it runs beyond that. I have a dermatologist and a surgeon up (in Maine). I still go to the dermatologist every couple of months because I still have things on my head. I've had all three skin cancers. I've had squamous (cell carcinoma) and melanoma numerous times. I'm still getting residual squamous (cell carcinoma) in my head. Fortunately, I haven't had any melanomas in a couple years. I see my dermatologist here, she gets the (pathology) results, she sends me to … my plastic and hand surgeon, and he does my little surgeries. I call them little ones, but anytime you can be awake and laugh with everybody, that's a good surgery, not a rough one. So I have those people up here. It's sort of my core team.

My (primary care provider) through this whole event … has been critical. There are many spokes on this wheel, and she's been the hub because insurance companies want your doctor to send them this or that. I've literally had probably 10 or 12 doctors in the past 10 years, and it's very difficult to coordinate 10 different doctors independently. So she's been the coach for me, my cheerleader and the hub of this wheel to gather all the information and send it to people as needed. So that is part of my health team up here.

The Dana-Farber team is fabulous because of the patient portal and being able to send messages or pictures. After my surgery, a piece of bone fell out of my nose. It looked like a little piece of fish bone. If you're having a lovely meal out, you're having fish and you pull this bone out of the salmon, it's that big. I'm a writer, so I'm writing and this thing goes "clink" on the table. I held it up, I took a picture of it and sent it. (My doctor) laughed and said, "Don't worry about the detritus of the surgery. That's fine." Just getting instant feedback like that, and I could email him and he'd email me back in less than an hour because I have his personal email. I have (the Dana-Farber team's personal cell phone (numbers). I can text these doctors, and I get a call back in 15 minutes if I need it.

« **WITTIG** with his wife, who has helped him make decisions along the way.

Q: What advice would you give patients in a similar situation to you — when hedgehog therapy isn't quite working for them to treat BCC?

A: I would do what I did, which is go until you don't think you can go anymore because I think it ultimately did help me extend my time here to a significant degree. If I had thrown in the towel a few years ago, I probably wouldn't be here right now. So I guess that and really discussing things. … I told my oncologist, my dermatologist and my radiologist that I'm not really concerned about quantity at this point, but quality. If I've got two years, how can we make this the best two years? My goal at this point is not to wrap this up with a big bow and call it all good because I know that's not true. Let's be realistic about this and pragmatic.

I guess the advice that I give everybody as a patient (is that) the hardest part for a patient is just showing up. Everybody else has the tough job. What do we do for this guy? What can I do in surgery for him? As a patient, I just have to put one step in front of the other and move forward. People are always cheering me on and (telling me), "You're so brave." It's certainly not that at all. Just keep going. C

This interview has been edited for clarity and conciseness.

LIBTAYO®
(cemiplimab-rwlc)
Injection 350 mg

In patients with CSCC that has spread or cannot be cured by surgery or radiation:

LIBTAYO helps your immune system fight advanced CSCC

In 1 clinical trial of 137 patients with CSCC that had spread or could not be cured by surgery or radiation treated with LIBTAYO*:

46% **63 out of 137 patients** saw an improvement in their advanced CSCC.

Responses to LIBTAYO lasted 6 months or longer in **50 out of 63 patients (79%)** and 12 months or longer in **34 out of 63 patients (54%)**.

In the same clinical trial, in a separate group of 56 patients with CSCC that had spread who took LIBTAYO at the recommended dose†:

41% **23 out of 56 patients** saw an improvement in their advanced CSCC.

Responses to LIBTAYO lasted 6 months or longer in **15 out of 23 patients (65%)**.

In this trial, responses lasted between 2 months and more than 2 years (24.2+ months); plus sign (+) denotes ongoing at last assessment.

*Patients were dosed by body weight.
†LIBTAYO 350 mg over a 30-minute infusion every 3 weeks.
CSCC=cutaneous squamous cell carcinoma.

LIBTAYO Surround® offers support and resources to patients prescribed LIBTAYO.
If you think LIBTAYO may be right for you, talk to your doctor.

What is LIBTAYO?

LIBTAYO (Lib-TIE-oh) is a prescription medicine used to treat people with a type of skin cancer called cutaneous squamous cell carcinoma (CSCC) that has spread or cannot be cured by surgery or radiation.

It is not known if LIBTAYO is safe and effective in children.

Important Safety Information

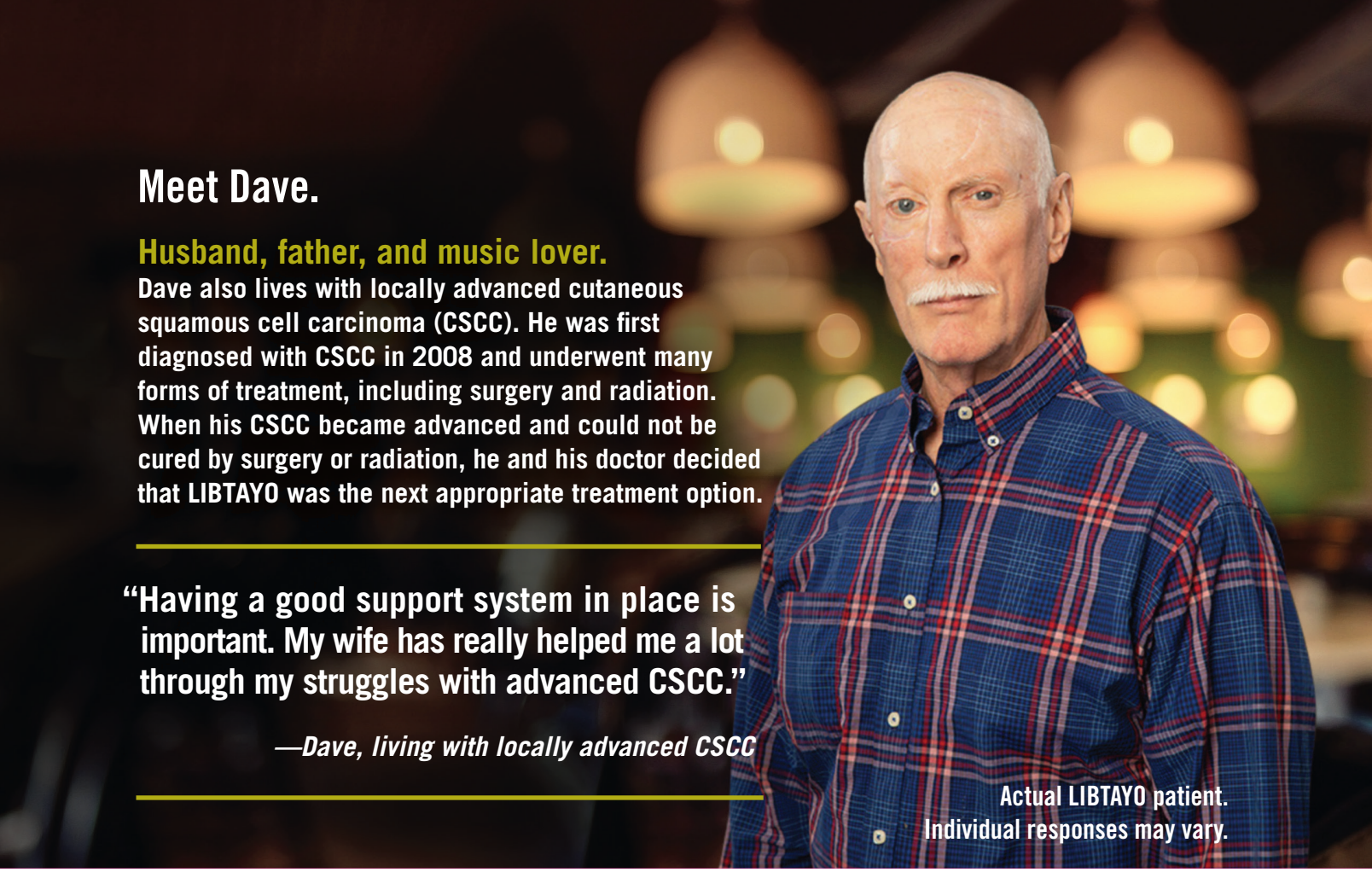
What is the most important information I should know about LIBTAYO?

LIBTAYO is a medicine that may treat a certain type of skin cancer by working with your immune system. LIBTAYO can cause your immune system to attack normal organs and tissues in any area of your body and can affect the way they work. These problems can sometimes become severe or life-threatening and can lead to death. You can have more than one of these problems at the same time. These problems may happen anytime during treatment or even after your treatment has ended.

Call or see your healthcare provider right away if you develop any new or worse signs or symptoms, including:

- **Lung problems:** cough, shortness of breath, or chest pain
- **Intestinal problems:** diarrhea (loose stools) or more frequent bowel movements than usual, stools that are black, tarry, sticky or have blood or mucus, or severe stomach-area (abdomen) pain or tenderness
- **Liver problems:** yellowing of your skin or the whites of your eyes, severe nausea or vomiting, pain on the right side of your stomach area (abdomen), dark urine (tea colored), or bleeding or bruising more easily than normal
- **Hormone gland problems:** headache that will not go away or unusual headaches, eye sensitivity to light, eye problems, rapid heartbeat, increased sweating, extreme tiredness, weight gain or weight loss, feeling more hungry or thirsty than usual, urinating more often than usual, hair loss, feeling cold, constipation, your voice gets deeper, dizziness or fainting, or changes in mood or behavior, such as decreased sex drive, irritability, or forgetfulness
- **Kidney problems:** decrease in your amount of urine, blood in your urine, swelling of your ankles, or loss of appetite
- **Skin problems:** rash, itching, skin blistering or peeling, painful sores or ulcers in mouth or nose, throat, or genital area, fever or flu-like symptoms, or swollen lymph nodes
- **Problems can also happen in other organs and tissues. These are not all of the signs and symptoms of immune system problems that can happen with LIBTAYO. Call or see your healthcare provider right away for any new or worsening signs or symptoms, which may include:** chest pain, irregular heartbeat, shortness of breath or swelling of ankles, confusion, sleepiness, memory problems, changes in mood or behavior, stiff neck, balance problems, tingling or numbness of the arms or legs, double vision, blurry vision, sensitivity to light, eye pain, changes in eyesight, persistent or severe muscle pain or weakness, muscle cramps, low red blood cells, or bruising
- **Infusion reactions that can sometimes be severe.** Signs and symptoms of infusion reactions may include: chills or shaking, itching or rash, flushing, shortness of breath or wheezing, dizziness, feel like passing out, fever, back or neck pain, or facial swelling.

Please see additional Important Safety Information and Brief Summary of full Prescribing Information on the following pages.



Meet Dave.

Husband, father, and music lover.

Dave also lives with locally advanced cutaneous squamous cell carcinoma (CSCC). He was first diagnosed with CSCC in 2008 and underwent many forms of treatment, including surgery and radiation. When his CSCC became advanced and could not be cured by surgery or radiation, he and his doctor decided that LIBTAYO was the next appropriate treatment option.

"Having a good support system in place is important. My wife has really helped me a lot through my struggles with advanced CSCC."

—Dave, living with locally advanced CSCC

Actual LIBTAYO patient.
Individual responses may vary.

To learn more about Dave and other patient stories, visit MeaningfulStories.com

Important Safety Information (continued)

Call or see your healthcare provider right away if you develop any new or worse signs or symptoms, including (continued):

- **Rejection of a transplanted organ.** Your healthcare provider should tell you what signs and symptoms you should report and monitor you, depending on the type of organ transplant that you have had.
- **Complications, including graft-versus-host disease (GVHD), in people who have received a bone marrow (stem cell) transplant that uses donor stem cells (allogeneic).** These complications can be serious and can lead to death. These complications may happen if you underwent transplantation either before or after being treated with LIBTAYO. Your healthcare provider will monitor you for these complications.

Getting medical treatment right away may help keep these problems from becoming more serious. Your healthcare provider will check you for these problems during your treatment with LIBTAYO. Your healthcare provider may treat you with corticosteroid or hormone replacement medicines. Your healthcare provider may also need to delay or completely stop treatment with LIBTAYO if you have severe side effects.

Before you receive LIBTAYO, tell your healthcare provider about all your medical conditions, including if you:

- have immune system problems such as Crohn's disease, ulcerative colitis, or lupus
- have received an organ transplant
- have received or plan to receive a stem cell transplant that uses donor stem cells (allogeneic)
- have a condition that affects your nervous system, such as myasthenia gravis or Guillain-Barré syndrome
- are pregnant or plan to become pregnant. LIBTAYO can harm your unborn baby

  Females who are able to become pregnant:
  - Your healthcare provider will give you a pregnancy test before you start treatment.
  - You should use an effective method of birth control during your treatment and for at least 4 months after your last dose of LIBTAYO. Talk with your healthcare provider about birth control methods that you can use during this time.
  - Tell your healthcare provider right away if you become pregnant or think you may be pregnant during treatment with LIBTAYO.
- are breastfeeding or plan to breastfeed. It is not known if LIBTAYO passes into your breast milk. Do not breastfeed during treatment and for at least 4 months after the last dose of LIBTAYO.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

The most common side effects of LIBTAYO include tiredness, rash, diarrhea, muscle or bone pain, and nausea. These are not all the possible side effects of LIBTAYO. Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088. You may also report side effects to Regeneron Pharmaceuticals and Sanofi at 1-877-542-8296.

What is LIBTAYO?

LIBTAYO is a prescription medicine used to treat people with a type of skin cancer called cutaneous squamous cell carcinoma (CSCC) that has spread or cannot be cured by surgery or radiation.

It is not known if LIBTAYO is safe and effective in children.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Please see Brief Summary of full Prescribing Information on the following pages.

REGENERON | SANOFI GENZYME

IMPORTANT PATIENT INFORMATION ABOUT LIBTAYO® (cemiplimab-rwlc) INJECTION

Please speak with your healthcare provider regarding LIBTAYO. Only your healthcare provider knows the specifics of your condition and how LIBTAYO may work with your overall treatment plan. If you have any questions about LIBTAYO (pronounced Lib-TIE-oh), speak with your healthcare professional. Prescription Only.

What is the most important information I should know about LIBTAYO? LIBTAYO is a medicine that may treat a certain type of skin cancer by working with your immune system. LIBTAYO can cause your immune system to attack normal organs and tissues in any area of your body and can affect the way they work. These problems can sometimes become severe or life-threatening and can lead to death. You can have more than one of these problems at the same time. These problems may happen anytime during treatment or even after your treatment has ended.

Call or see your healthcare provider right away if you develop any new or worse signs or symptoms, including:

Lung problems.
- cough
- shortness of breath
- chest pain

Intestinal problems.
- diarrhea (loose stools) or more frequent bowel movements than usual
- stools that are black, tarry, sticky, or have blood or mucus
- severe stomach-area (abdomen) pain or tenderness

Liver problems.
- yellowing of your skin or the whites of your eyes
- dark urine (tea colored)
- severe nausea or vomiting
- bleeding or bruising more easily than normal
- pain on the right side of your stomach area (abdomen)

Hormone gland problems.
- headache that will not go away or unusual headaches
- urinating more often than usual
- eye sensitivity to light
- hair loss
- eye problems
- feeling cold
- rapid heartbeat
- constipation
- increased sweating
- your voice gets deeper
- extreme tiredness
- dizziness or fainting
- weight gain or weight loss
- changes in mood or behavior, such as decreased sex drive, irritability, or forgetfulness
- feeling more hungry or thirsty than usual

Kidney problems.
- decrease in your amount of urine
- swelling of your ankles
- loss of appetite
- blood in your urine

Skin problems.
- rash
- painful sores or ulcers in mouth or nose, throat, or genital area
- itching
- skin blistering or peeling
- swollen lymph nodes
- fever or flu-like symptoms

Problems can also happen in other organs and tissues. These are not all of the signs and symptoms of immune system problems that can happen with LIBTAYO. Call or see your healthcare provider right away for any new or worsening signs or symptoms which may include:
- Chest pain, irregular heartbeat, shortness of breath or swelling of ankles
- Confusion, sleepiness, memory problems, changes in mood or behavior, stiff neck, balance problems, tingling or numbness of the arms or legs
- Double vision, blurry vision, sensitivity to light, eye pain, changes in eyesight
- Persistent or severe muscle pain or weakness, muscle cramps
- Low red blood cells, bruising

Infusion reactions that can sometimes be severe. Signs and symptoms of infusion reactions may include:
- chills or shaking
- dizziness
- itching or rash
- feel like passing out
- flushing
- fever
- shortness of breath or wheezing
- back or neck pain
- facial swelling

Rejection of a transplanted organ. Your healthcare provider should tell you what signs and symptoms you should report and monitor you, depending on the type of organ transplant that you have had.

Complications, including graft-versus-host disease (GVHD), in people who have received a bone marrow (stem cell) transplant that uses donor stem cells (allogeneic). These complications can be serious and can lead to death. These complications may happen if you underwent transplantation either before or after being treated with LIBTAYO. Your healthcare provider will monitor you for these complications.

Getting medical treatment right away may help keep these problems from becoming more serious. Your healthcare provider will check you for these problems during your treatment with LIBTAYO. Your healthcare provider may treat you with corticosteroid or hormone replacement medicines. Your healthcare provider may also need to delay or completely stop treatment with LIBTAYO if you have severe side effects.

What is LIBTAYO? LIBTAYO is a prescription medicine used to treat people with a type of skin cancer called cutaneous squamous cell carcinoma (CSCC) that has spread or cannot be cured by surgery or radiation. It is not known if LIBTAYO is safe and effective in children.

Before you receive LIBTAYO, tell your healthcare provider about all your medical conditions, including if you:
- have immune system problems such as Crohn's disease, ulcerative colitis, or lupus
- have received an organ transplant
- have received or plan to receive a stem cell transplant that uses donor stem cells (allogeneic)
- have a condition that affects your nervous system, such as myasthenia gravis or Guillain-Barre syndrome
- are pregnant or plan to become pregnant. LIBTAYO can harm your unborn baby.

  Females who are able to become pregnant:
  - Your healthcare provider will give you a pregnancy test before you start treatment with LIBTAYO.
  - You should use an effective method of birth control during your treatment and for at least 4 months after the last dose of LIBTAYO. Talk to your healthcare provider about birth control methods that you can use during this time.
  - Tell your healthcare provider right away if you become pregnant or think you may be pregnant during treatment with LIBTAYO.
- are breastfeeding or plan to breastfeed. It is not known if LIBTAYO passes into your breast milk. Do not breastfeed during treatment and for at least 4 months after the last dose of LIBTAYO.

Continued on following page

IMPORTANT PATIENT INFORMATION ABOUT LIBTAYO® (cemiplimab-rwlc) INJECTION

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

How will I receive LIBTAYO?

- Your healthcare provider will give you LIBTAYO into your vein through an intravenous (IV) line over 30 minutes.
- LIBTAYO is usually given every 3 weeks.
- Your healthcare provider will decide how many treatments you will need.
- Your healthcare provider will do blood tests to check you for side effects.
- If you miss any appointments, call your healthcare provider as soon as possible to reschedule your appointment.

What are the possible side effects of LIBTAYO?
LIBTAYO can cause serious side effects, including:

- **See "What is the most important information I should know about LIBTAYO?"**

The most common side effects of LIBTAYO include tiredness, rash, diarrhea, muscle or bone pain, and nausea.

These are not all the possible side effects of LIBTAYO.
Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about the safe and effective use of LIBTAYO. Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. If you would like more information about LIBTAYO, talk with your healthcare provider. You can ask your healthcare provider for information about LIBTAYO that is written for health professionals.

REGENERON | SANOFI GENZYME

This is a brief summary of the most important information about LIBTAYO. For more information, talk with your healthcare provider, call 1-877-542-8296, or go to www.LIBTAYO.com

Monotherapy for Non-Small Cell Lung Cancer: One Survivor's Story

This young mother and athlete discusses receiving a shocking diagnosis of stage 4 lung cancer and her incredible response to treatment with a single, targeted drug. By DARLENE DOBKOWSKI, M.A.

IN SEPTEMBER 2016, Tabitha Paccione was an active 35-year-old who competed in endurance events like Tough Mudder and 10K races in addition to caring for her 11-year-old son and 8-year-old daughter. She was also a full-time first-grade teacher, so when she developed a persistent cough, she attributed it to her profession. She visited her primary care provider several times for the cough over a 10-month period, and the focus shifted from bronchitis prevention with antibiotics and cough medicine to an inhaler and steroids for allergies after a chest X-ray came back completely clear.

"It still was getting bad, and at this point, it was pretty bad," says Paccione. "There were nights when I would wake up and I would be choking. I just couldn't control myself."

At her third primary care visit, the doctor told her that it must be acid reflex, which Paccione thought could be a stretch but trusted her doctor regardless. Over time, her cough was accompanied by tremendous back pain, which she originally thought were muscle spasms from weightlifting. Her primary care provider prescribed Paccione muscle relaxers and pain medicine to alleviate the pain.

The straw that broke the camel's back, Paccione says, was when she became breathless after walking up four stairs during a date night with her husband.

"At that point, I (thought), 'OK, there's something desperately wrong because I run 10Ks, and now I'm going up four stairs and I can't catch my breath. And so that kind of scared us," Paccione says.

She also noticed that she was becoming increasingly tired after working four-hour workdays as a summer school teacher. She was taking eight-hour naps after coming home, yet still felt awful. Because she felt something was seriously wrong, she pushed for her doctor to perform testing.

Test results showed that she had a 5-centimeter mass in her left lung and stage 4 lung cancer, which had spread to other areas including her brain, bones, liver and lymph nodes.

"It was devastating because, honestly, other than those few symptoms that could be attributed to other things, I felt fine," Paccione says. "There's no way I could have lung cancer. I never had any history of cancer on either side of my family. I was healthy. I've never smoked a day in my life. And, I mean, I was young. How do I have stage 4 lung cancer?"

TABITHA PACCIONE, husband, ANTHONY; son, DYLAN; and daughter, BROOKLYN.

PHOTO COURTESY OF TABITHA PACCIONE

NO TIME TO WASTE

Paccione had biomarker testing performed at the advice of her doctor because the cancer was progressing so quickly. At that time, it typically took three weeks for the results. Because her doctor was worried how much the cancer could progress during that time, Paccione underwent one round of chemotherapy (carboplatin and Taxol [paclitaxel]). Once her biomarker testing came back and indicated that she was ALK positive (meaning her ALK gene had fused with another gene, resulting in a mutation that can cause cancer, and is found in about 5% of non-small cell lung

cancer), Paccione's doctor decided to treat her with the targeted therapy Xalkori (crizotinib), developed for patients with metastatic non-small cell lung cancer.

Compared with chemotherapy, during which Paccione experienced side effects such as hair loss and severe neuropathy, Xalkori provided her with a more positive experience.

"My hair grew back. I was able to go back to work. I felt great," says Paccione. "I had energy again. I wasn't suffering from any neuropathy anymore. … I felt really lucky to be able to be on the targeted therapy because the side effects were so much more manageable."

After taking Xalkori for three months, Paccione underwent her first post-therapy scan, which showed that she was having a complete response to the therapy, with a 60% reduction in the primary mass and responses in her lung, lymph nodes, liver and bones. Because the brain metastases showed no improvement (Xalkori cannot penetrate the blood-brain barrier), Paccione also underwent two rounds of stereotactic radiation.

"But as far as my body was concerned, it was a complete improvement," says Paccione. "I went from not being able to say a complete sentence because I would not be able to breathe and (would) cough uncontrollably, waking up in the night, sometimes throwing up because I couldn't stop coughing, to not coughing at all, being able to walk again and breathe, and not being completely out of breath after taking a few steps. It was shocking because you always hope for the very best, but you're also very cautious as to what you allow yourself to (hope) until it happens."

Paccione emphasized the importance of a strong medical team, which she attributes to her treatment success. "You're in the fight of your life, so you need to make sure your medical team is right," she says. "(My doctors) are just phenomenal not only in the sense that they're just very brilliant and very well versed in lung cancer, but emotionally and mentally, I feel safe with them. I know that they're going to fight for me."

TARGETING BRAIN METASTASES

Paccione was treated with Xalkori for exactly one year before switching to Alecensa (alectinib) in October 2017 in an attempt to penetrate the blood-brain barrier, since the metastases in her brain kept returning. Her next scan showed that all the brain lesions had disappeared, enabling Paccione to forego the next treatment option: brain radiation.

Paccione is still taking Alecensa, four pills twice per day. This treatment allows her to work full time and participate in the lives of her children, who are now 16 and 12. As thankful as she is for her positive response to the treatment, Paccione understands that everyone may not have the same experience.

"The side effects are minimal, and I know this is different for everyone," Paccione says. "I will stress that not every single person feels exactly like I do. It's different for everybody, but I have great energy. I can breathe. I don't cough anymore. Sometimes I get tired, but I think that just comes with the territory of being a mom, too, and doing everything else."

> **"These treatments are saving our lives. They're giving us time. Lung cancer is not a death sentence anymore. Thanks to all the research and to (this) monotherapy … we have more time."** — *TABITHA PACCIONE*

LESS WORRY, MORE LIVING

Compared with chemotherapy, this monotherapy allowed Paccione to not be sick and in bed. "Maybe (you) have the quantity of life when you're on chemo, but the quality really isn't there," says Paccione. "You can't sleep at night. You can't really eat anything because you're nauseous. You're tired all the time. And you can't go out and do anything because you're so susceptible to (getting) sick."

Paccione credits the research to develop this monotherapy for giving her the opportunity to watch her son play water polo and to attend birthday parties with her daughter.

"These treatments are saving our lives. They're giving us time," says Paccione. "Lung cancer is not a death sentence anymore. Thanks to all the research and to (this) monotherapy … we have more time. When I was diagnosed in 2016, I was told that I would have between three and six months. And so I spent so much time worrying about the future and worrying about whether I needed to write these birthday cards to my kids for all the years that I wouldn't be around. Thanks to these therapies, it's been four years."

In October 2019, Paccione was told she was in remission — something she thought would not be possible. After everything she's gone through, and the perspective it brings, Paccione advises and encourages every patient and survivor to share their stories to help others. Hearing someone else's story early on in her own journey with lung cancer would have been beneficial, says Paccione.

"When I was diagnosed, I didn't know anyone that had lung cancer, and it's an overwhelming … isolating feeling," she says. "But I remember the very first time I met one of my friends that has cancer. I remember looking at her and thinking, 'Oh my gosh, look at her. She has three kids, she's working and she's advocating. One day, I really want to be like that.' Now here I am, and the only reason I share my story is because I want to give that next lung cancer survivor the help that they need to push forward and to live their lives."

Drug Combo Extends Survival in Relapsed/Refractory Chronic Lymphocytic Leukemia

Treatment with Venclexta plus Rituxan demonstrated improved progression-free and overall survival over five years, potentially offering patients a significant period of time without treatment after initial therapy.

By DARLENE DOBKOWSKI, M.A.

PATIENTS WITH RELAPSED or refractory chronic lymphocytic leukemia (CLL) treated with Venclexta (venetoclax) and Rituxan (rituximab) had a sustained progression-free survival and overall survival benefit at five years compared with those treated with bendamustine and Rituxan, according to a long-term analysis of the MURANO trial presented at the 62nd American Society of Hematology Annual Meeting and Exposition.

"Overall, sustained undetectable (minimal residual disease, or the small number of cancer cells remaining in a patient during or after treatment), progression-free survival and overall survival benefits provide further support for the use of a fixed-duration (combination of Venclexta and Rituxan) in patients with relapsed/refractory CLL," said Dr. Arnon P. Kater, leader of tumor immunology at the Cancer Center Amsterdam, during a virtual presentation of the data.

In the MURANO trial, 389 patients with relapsed/refractory CLL were randomly assigned either Venclexta with Rituxan (194 patients) or bendamustine with Rituxan (195 patients).

At a follow-up of 59.2 months, patients who received Venclexta with Rituxan continued to show sustained progression-free survival (time during and after treatment when cancer does not get worse) compared with those who received bendamustine with Rituxan. The median progression-free survival in the Venclexta-Rituxan group was 53.6 months, significantly more than 17 months in the bendamustine-Rituxan group.

Of the 130 patients who completed two full years of therapy with Venclexta and Rituxan, progression-free survival at 36 months after treatment completion was estimated at 51.1%. In addition, five-year overall survival was estimated at 82.1% for the Venclexta-Rituxan group versus 62.2% for the bendamustine-Rituxan group.

Patients assigned Venclexta with Rituxan who reached the end of treatment without disease progression and had undetectable minimal residual disease (83 patients) — which is important for deep, durable responses — showed improved overall survival compared with those who had minimal residual disease (35 patients). Survival estimates three years after the end of treatment was 95.3% for those with undetectable minimal residual disease and 85% for those with minimal residual disease.

The median progression-free survival in the Venclexta-Rituxan group was

53.6 months

vs.

17 months

in the bendamustine-Rituxan group.

In patients with undetectable minimal residual disease, 32 did not have disease progression and continued to have undetectable minimal residual disease out to five years. In addition, four patients had disease progression without prior confirmed conversion to minimal residual disease, and 47 patients converted to minimal residual disease, with a median conversion time of 19.4 months from the end of treatment. Of the 47 patients who converted to minimal residual disease, 19 developed disease progression at a median time of 25.2 months. Importantly, these 19 patients had more rapidly increasing rates of minimal residual disease after completing treatment compared with those with minimal residual disease, yet they remained free from disease progression.

During this presentation, Kater noted that the longer a patient maintains undetectable minimal residual disease, the less likely they'll convert to minimal residual disease

Several high-risk factors, such as having three or more subtle genetic abnormalities (unmutated immunoglobulin heavy chain gene, presence of del(17p) and genomic complexity) were associated with an increased risk of disease progression in patients with undetectable minimal residual disease at the end of treatment. Patients without these high-risk factors "were more likely to maintain undetectable (minimal residual disease) or experience (minimal residual disease) conversion without progressive disease at this follow-up," said Kater during the presentation.

Researchers also investigated the growth rate of minimal residual disease in 102 patients assigned Venclexta with Rituxan and 104 patients assigned bendamustine with Rituxan. The Venclexta-Rituxan group showed a longer mean doubling time (the time for cancer cells or a tumor to double in size) compared with the bendamustine-Rituxan group.

"I'm pretty much myself a believer that, if you can, fixed duration is actually better. And (there are) three reasons for this," said Kater in an interview with *CURE*®. "First one is the costs. … The second one is, indeed, side effects, and although all those novel targeted agents, especially (when compared) to chemotherapy, give much less severe complications, (they're) still complications. … Most important, the third one is we know for sure that if you take a drug until relapse, that at that moment, this drug doesn't work anymore. … Still, we have to test it, (but) if you give (the drug) and you stop at a certain amount of time, you can actually repeat the same very effective drugs later on." C

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Keep inspiring

Because CLL/SLL shouldn't define you

Ask your doctor about CALQUENCE for CLL/SLL

Learn more at CALQUENCE.com

CLL=chronic lymphocytic leukemia; SLL=small lymphocytic lymphoma.

Select Safety Information

CALQUENCE is a prescription oral treatment for adults with chronic lymphocytic leukemia or small lymphocytic lymphoma. May cause serious side effects including: serious infections, bleeding problems, decrease in blood cell count, new cancers, and heart rhythm problems. Some may lead to death. Tell your doctor if you experience infections such as flu-like symptoms; unexpected bleeding such as blood in your stool or urine; or heart rhythm problems such as fast or irregular heartbeat. Use sun protection when outside.

If you cannot afford your medication, AstraZeneca may be able to help. Visit AstraZeneca-us.com to find out how.

Please see Brief Summary of Prescribing Information on adjacent pages.

CALQUENCE®
(acalabrutinib) 100 mg capsules

PATIENT INFORMATION
CALQUENCE® (KAL-kwens) (acalabrutinib) capsules

CALQUENCE®
(acalabrutinib) 100 mg capsules

What is CALQUENCE?

CALQUENCE is a prescription medicine used to treat adults with:

- Chronic lymphocytic leukemia (CLL) or small lymphocytic lymphoma (SLL).

It is not known if CALQUENCE is safe and effective in children.

Before taking CALQUENCE, tell your healthcare provider about all of your medical conditions, including if you:

- have had recent surgery or plan to have surgery. Your healthcare provider may stop CALQUENCE for any planned medical, surgical, or dental procedure.
- have bleeding problems.
- have or had heart rhythm problems.
- have an infection.
- have or had liver problems, including hepatitis B virus (HBV) infection.
- are pregnant or plan to become pregnant. CALQUENCE may harm your unborn baby and problems during childbirth (dystocia).
  - If you are able to become pregnant, your healthcare provider may do a pregnancy test before you start treatment with CALQUENCE
  - Females who are able to become pregnant should use effective birth control (contraception) during treatment with CALQUENCE and for at least 1 week after the last dose of CALQUENCE.
- are breastfeeding or plan to breastfeed. It is not known if CALQUENCE passes into your breast milk. Do not breastfeed during treatment with CALQUENCE and for at least 2 weeks after your final dose of CALQUENCE.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Taking CALQUENCE with certain other medications may affect how CALQUENCE works and can cause side effects. Especially tell your healthcare provider if you take a blood thinner medicine.

How should I take CALQUENCE?

- Take CALQUENCE exactly as your healthcare provider tells you to take it.
- Do not change your dose or stop taking CALQUENCE unless your healthcare provider tells you to.
- Your healthcare provider may tell you to decrease your dose, temporarily stop, or completely stop taking CALQUENCE if you develop certain side effects.
- Take CALQUENCE 2 times a day (about 12 hours apart).

(continued)

- Take CALQUENCE with or without food.
- Swallow CALQUENCE capsules whole with a glass of water. Do not open, break, or chew capsules.
- If you need to take an antacid medicine, take it either 2 hours before or 2 hours after you take CALQUENCE.
- If you need to take certain other medicines called acid reducers (H-2 receptor blockers), take CALQUENCE 2 hours before the acid reducer medicine.
- If you miss a dose of CALQUENCE, take it as soon as you remember. If it is more than 3 hours past your usual dosing time, skip the missed dose and take your next dose of CALQUENCE at your regularly scheduled time. Do not take an extra dose to make up for a missed dose.

What are the possible side effects of CALQUENCE?

CALQUENCE may cause serious side effects, including:

- **Serious infections** can happen during treatment with CALQUENCE and may lead to death. Your healthcare provider may prescribe certain medicines if you have an increased risk of getting infections. Tell your healthcare provider right away if you have any signs or symptoms of an infection, including fever, chills, or flu-like symptoms.
- **Bleeding problems (hemorrhage)** can happen during treatment with CALQUENCE and can be serious and may lead to death. Your risk of bleeding may increase if you are also taking a blood thinner medicine. Tell your healthcare provider if you have any signs or symptoms of bleeding, including:
  - blood in your stools or black stools (looks like tar)
  - pink or brown urine
  - unexpected bleeding, or bleeding that is severe or you cannot control
  - vomit blood or vomit that looks like coffee grounds
  - cough up blood or blood clots
  - dizziness
  - weakness
  - confusion
  - changes in your speech
  - headache that lasts a long time
  - bruising or red or purple skin marks
- **Decrease in blood cell counts.** Decreased blood counts (white blood cells, platelets, and red blood cells) are common with CALQUENCE, but can also be severe. Your healthcare provider should do blood tests to check your blood counts regularly during treatment with CALQUENCE.

(continued)

- **Second primary cancers.** New cancers have happened in people during treatment with CALQUENCE, including cancers of the skin or other organs. Your healthcare provider will check you for skin cancers during treatment with CALQUENCE. Use sun protection when you are outside in sunlight.
- **Heart rhythm problems (atrial fibrillation and atrial flutter)** have happened in people treated with CALQUENCE. Tell your healthcare provider if you have any of the following signs or symptoms:
  - fast or irregular heartbeat
  - dizziness
  - feeling faint
  - chest discomfort
  - shortness of breath

The most common side effects of CALQUENCE include:

- headache
- diarrhea
- muscle and joint pain
- upper respiratory tract infection
- bruising

These are not all of the possible side effects of CALQUENCE.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store CALQUENCE?

- Store CALQUENCE at room temperature between 68°F to 77°F (20°C to 25°C).

Keep CALQUENCE and all medicines out of the reach of children.

General information about the safe and effective use of CALQUENCE.

Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. Do not use CALQUENCE for a condition for which it was not prescribed. Do not give CALQUENCE to other people, even if they have the same symptoms you have. It may harm them. You can ask your healthcare provider or pharmacist for more information about CALQUENCE that is written for health professionals.

What are the ingredients in CALQUENCE?

Active ingredient: acalabrutinib

Inactive ingredients: silicified microcrystalline cellulose, pregelatinized starch, magnesium stearate, and sodium starch glycolate.

Capsule shell contains: gelatin, titanium dioxide, yellow iron oxide, FD&C Blue 2, and black ink.

AstraZeneca

For more information, go to www.CALQUENCE.com or call 1-800-236-9933.
Distributed by:
AstraZeneca Pharmaceuticals LP, Wilmington, DE 19850
CALQUENCE is a registered trademark of the AstraZeneca group of companies.

US-34063 11/19

This Patient Information has been approved by the U.S. Food and Drug Administration. Revised: 11/2019 US-34063 11/19

Age May Not Affect Outcomes from Metastatic Renal Cell Carcinoma Treatment Despite Increased Toxicity in Older Patients

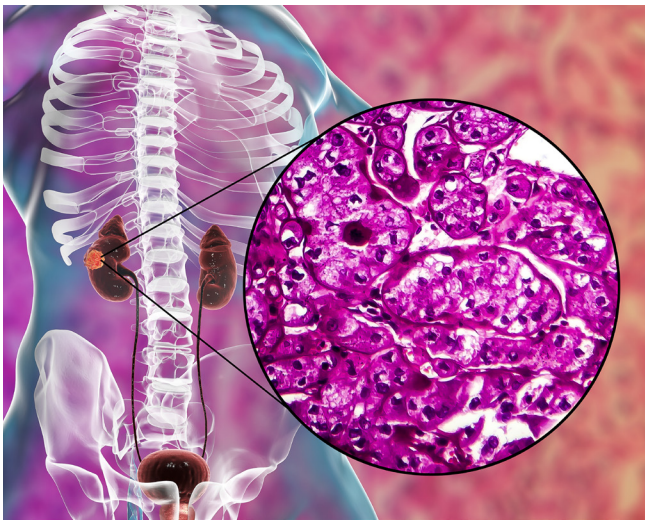
Study shows that although patients older than 75 experienced more therapy-related side effects, age did not impact progression-free and overall survival. By DARLENE DOBKOWSKI, M.A.

OLDER PATIENTS — SPECIFICALLY those at least 65 years old — with metastatic renal cell carcinoma (cancer that spread from the kidneys to other parts of the body) were more likely to experience side effects when treated with first-line tyrosine kinase inhibitors, mTOR inhibitors or checkpoint immunotherapy compared with younger patients, although this increased toxicity did not impact outcomes in older patients.

These agents, in one way or another, block the action of certain enzymes and protein kinases that perform several cell functions, such as growth, signaling and division, potentially halting the growth of cancer cells.

"Proactive dose modification/interruption and patient and physician awareness may help to reduce toxicity while maintaining efficacy," wrote the study authors in the paper published in the *Journal of Geriatric Oncology*.

Researchers analyzed data from 838 patients with metastatic renal cell carcinoma who were treated with first-line tyrosine kinase inhibitors (87%), mTOR inhibitors (5%) or checkpoint immunotherapy (8%). Patients were analyzed in subgroups by age: younger than 65 (42%), 65 to 74 (39%) and 75 or older (19%). End points assessed in this study include progression-free survival, defined as the time from the start of therapy to disease progression or all-cause death; overall survival, defined as the time from the start of therapy to all-cause death; and time to treatment discontinuation, defined as the time from the start of therapy to discontinuation for any reason including disease progression, toxicity, death or another cause.



KATERYNA_KON / STOCK.ADOBE.COM

Renal cell carcinoma can spread from the kidneys to other areas.

Patients age 75 and older took lower toxicity-adjusted doses of the tyrosine kinase inhibitor Votrient (pazopanib; 300 mg) compared with those 65 to 74 years old (400 mg) and patients younger than 65 (600 mg). This effect was also seen with another tyrosine kinase inhibitor, Sutent (sunitinib malate; 25 mg, 37.5 mg and 50 mg, respectively).

Patients older than 75 received two doses of checkpoint immunotherapy, and younger patients received more doses; patients 65 to 74 years old and those younger than 65 years received five doses each.

Dose reductions or interruptions occurred in 76% of patients age 75 and older, in 55% of those 65 to 74 years old and in 41% of patients younger than 65. Older patients also had a shorter mean time to dose reduction or interruption at 0.5 months compared with patients 65 to 74 years old (1.9 months) and those younger than 65 (3.4 months).

After adjusting data for prognostic risk scores and the microscopic anatomy of the disease, the findings determined that age did not affect progression-free survival, overall survival and time to treatment discontinuation.

"Data most (inevitably indicate) that older patients ought not to be restricted in their access to both therapeutic options and several treatments in succession," the study authors wrote. "Present data (reveal) the message that (side effects) and the consequences hereof were not necessarily unfavorable. Treatment efficacy depends on the proactive toxicity-adjusted dosage of drugs."

The study authors also elaborated on several patient-based factors for doctors to consider when making treatment decisions. "Each patient's point of view must be taken into account not only managing short-term goals, but also long-term goals, concerns, expectations and needs," they wrote, adding that "decisions about cancer treatment should not only take age into account, but crucially their disease-related condition, resulting in individualized patient-centered interventions."

Patients With HCC Respond Positively to Opdivo With Yervoy When Nexavar Is Not an Option

Results of this trial led to an accelerated FDA approval of Opdivo (nivolumab) and Yervoy (ipilimumab) in March to treat this specific patient population.

By DARLENE DOBKOWSKI, M.A.

TREATMENT WITH OPDIVO (nivolumab) plus Yervoy (ipilimumab) was manageably safe and resulted in a promising response in patients with advanced hepatocellular carcinoma (HCC) previously treated with Nexavar (sorafenib).

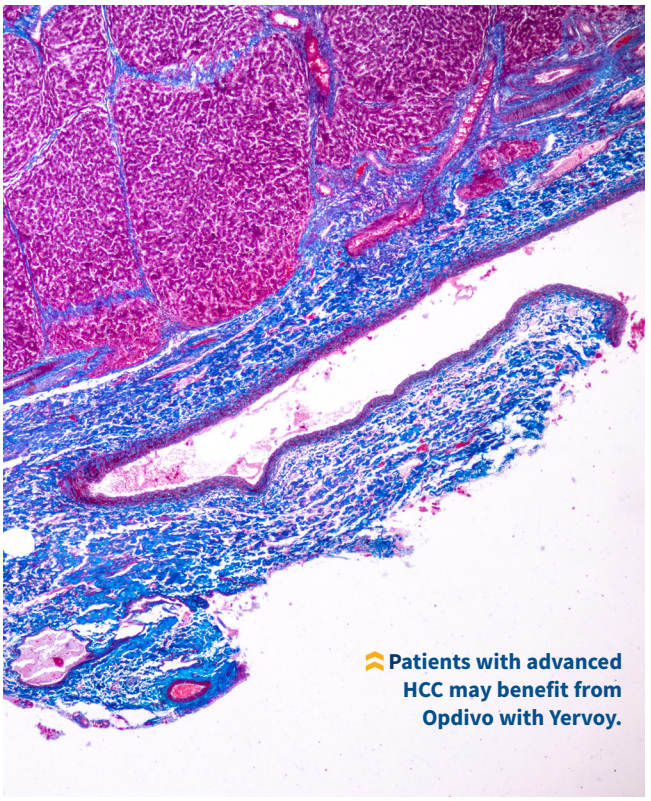
"Based on the results of this study, (1 mg/kg of) nivolumab plus (3 mg/kg of) ipilimumab every three weeks followed by (240 mg of) nivolumab every two weeks or 480 mg every four weeks received accelerated approval in the United States as a second-line therapy for HCC," the study authors wrote. "Investigation of this combination is underway as a first-line therapy in patients with HCC."

The combination of Opdivo and Yervoy was previously proven to be effective in treating other tumor types including non-small cell lung cancer, renal cell carcinoma, microsatellite instability-high/mismatch repair-deficient metastatic colorectal cancer and melanoma. The CheckMate 040 trial, whose findings were published in *JAMA Oncology*, focused on the safety and efficacy of this treatment in patients with advanced HCC who were either intolerant of or had issues with Nexavar.

This phase 1/2 randomized clinical trial included 148 patients (median age, 60 years; 81% men) from 31 centers in 10 countries or territories in Europe, Asia and North America. Patients were randomly assigned to one of three arms:

- **Arm A:** 1 mg/kg of Opdivo with 3 mg/kg of Yervoy every three weeks at four doses total,
- **Arm B:** 3 mg/kg of Opdivo with 1 mg/kg of Yervoy every three weeks at four doses total or
- **Arm C:** 3 mg/kg of Opdivo every two weeks with 1 mg/kg of Yervoy every six weeks.

Patients in arm A and arm B were then given 240 mg of Opdivo intravenously every two weeks after completion of their assigned regimens. The goals (or outcomes) of this trial included tolerability, safety and objective response rate (a measurable response to a treatment). In addition, tumors were assessed every six weeks until 48 weeks by CT or MRI, which was then conducted every 12 weeks until disease progression. Follow-up was conducted for a median of 30.7 months.



Patients with advanced HCC may benefit from Opdivo with Yervoy.

The objective response rate was 32% in arm A, 27% in arm B and 29% in arm C. Although the median duration of response was not achieved in arm A, it was achieved in arm B (15.2 months) and arm C (21.7 months).

Side effects related to the assigned treatment occurred in 94% of patients in arm A, 71% of those in arm B and 79% of patients in arm C. One treatment-related death occurred in arm A as a result of grade 5 pneumonitis, or lung tissue inflammation.

"To our knowledge, this is the first report of nivolumab-ipilimumab combination therapy in the treatment of advanced HCC," the study authors wrote. "Nivolumab plus ipilimumab provided a robust clinical benefit in patients treated with sorafenib."

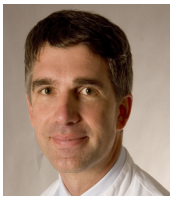
SINHYU / STOCK.ADOBE.COM

Adding Tukysa to Regimen for Metastatic HER2-Positive Breast Cancer Does Not Decrease Quality of Life

Follow-up to the HER2CLIMB study indicates that long courses of the targeted drug plus Herceptin and Xeloda can be safely given. By BETH FAND INCOLLINGO

THE ADDITION OF THE targeted drug Tukysa (tucatinib) to a two-drug regimen of Herceptin (trastuzumab) and the chemotherapy Xeloda (capecitabine) for patients with HER2-positive metastatic breast cancer – including disease that has spread to the brain – increases survival in heavily pretreated patients and does not affect quality of life, according to recent follow-up data from the HER2CLIMB study.

The follow-up findings indicate that long courses of the three-drug regimen can be given safely, said lead study author Dr. Volkmar Mueller, head of the oncology outpatient clinic at the University Medical Center Hamburg-Eppendorf in Hamburg, Germany, during a presentation at the European Society for Medical Oncology Virtual Congress 2020.



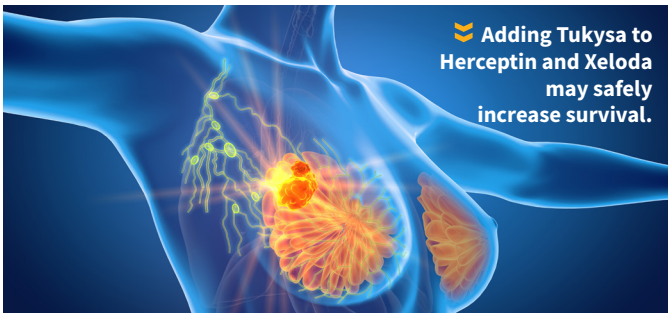
DR. VOLKMAR MUELLER

Tukysa inhibits the activity of proteins known as kinases, helping to prevent the growth of cancer cells. Metastatic breast cancer is disease that has spread beyond the breast to other parts of the body, including the brain in some cases. HER2-positive breast cancer expresses high amounts of the protein human epidermal growth factor receptor 2 (HER2) and is treatable with drugs that target this protein, such as Herceptin.

The Food and Drug Administration's approval of Tukysa was based on data from the HER2CLIMB study. Findings showed that the drug, given with Herceptin and Xeloda, lengthened life and delayed disease progression compared with only Herceptin plus Xeloda in patients with metastatic, HER2-positive breast cancer with or without brain metastases who had previous treatment with another anti-HER2 drug.

The trial demonstrated that two years after the start of treatment, 45% of patients receiving the three-drug regimen were alive, compared with 27% of patients on the two-drug regimen. Average length of life from the start of treatment was 21.9 months in the triplet group versus 17.4 months in the doublet group. Findings from the trial also showed that the triplet combination had a manageable safety profile similar to that of the Herceptin-Xeloda pairing. Adding Tukysa to the regimen did not increase the percentage of patients requiring hospitalization, Mueller noted.

The researchers conducted a follow-up to the HER2CLIMB study because patients with HER2-positive metastatic breast cancer, particularly those with brain metastases, have limited treatment options and an increased likelihood of reporting deterioration in their health-related quality of life. Because disease progression is one factor that can negatively impact quality of life,



Adding Tukysa to Herceptin and Xeloda may safely increase survival.

maintaining quality of life in these patients is a key goal of treatment. Hence, the investigators wanted to explore the impact of the more effective triplet combination on health-related quality of life, which was a secondary goal of HER2CLIMB.

Patients included in the follow-up had HER2-positive metastatic breast cancer and had received previous treatment with three anti-HER2 drugs: Herceptin, Perjeta (pertuzumab) and Kadcyla (ado-trastuzumab emtansine). Nearly half (48%) had brain metastases at baseline.

To assess health-related quality of life, the researchers administered a questionnaire to 331 HER2CLIMB participants who evaluated their status in five areas: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. The patients were asked to rate the severity of the problems they encountered in each category as none, slight, moderate, severe or extreme. Patients filled out the surveys periodically throughout their treatment, which in some cases lasted more than six months and tended to be longer in patients receiving the drug triplet. They were questioned again 30 days after completing therapy. Among the respondents, 218 received the triplet therapy and 113 received only Herceptin plus Xeloda.

In all five categories, most patients in both treatment groups reported slight or no problems. Moderate, severe or extreme problems were reported infrequently and in similar numbers in each treatment group. No clinically meaningful differences in health-related quality of life were observed between the two treatment groups. Mean questionnaire scores were similar between the groups and stable throughout therapy. No decline in the categories or questionnaire scores was seen while patients were receiving therapy. Said Mueller: "These results, together with the HER2CLIMB primary analysis, demonstrate that this regimen not only provides significant and clinically meaningful activity, but also maintains quality of life in patients with and without brain metastases."

INDICATIONS

KISQALI® (ribociclib) is a prescription medicine used in combination with:

- an aromatase inhibitor to treat pre/perimenopausal or postmenopausal women with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative breast cancer that has spread to other parts of the body (metastatic), as the first endocrine-based therapy; or
- fulvestrant to treat postmenopausal women with HR-positive, HER2-negative metastatic breast cancer as the first endocrine-based therapy or with disease progression following endocrine therapy

It is not known if KISQALI is safe and effective in children.

IMPORTANT SAFETY INFORMATION

What is the most important information I should know about KISQALI?

KISQALI may cause serious side effects, including:

Lung problems. KISQALI may cause severe or life-threatening inflammation of the lungs during treatment that may lead to death. Tell your health care provider right away if you have any new or worsening symptoms, including:

- trouble breathing or shortness of breath
- cough with or without mucus
- chest pain

Severe skin reactions. Tell your health care provider or get medical help right away if you get severe rash or rash that keeps getting worse; reddened skin; flu-like symptoms; skin pain/burning; blistering of the lips, eyes, or mouth; or blisters on the skin or skin peeling, with or without fever.

Heart rhythm problems (QT prolongation). KISQALI can cause a heart problem known as QT prolongation. This condition can cause an abnormal heartbeat and may lead to death. Your health care provider should check your heart and do blood tests before and during treatment with KISQALI. Tell your health care provider right away if you have a change in your heartbeat (a fast or irregular heartbeat), or if you feel dizzy or faint.

Liver problems (hepatobiliary toxicity). KISQALI can cause serious liver problems. Your health care provider should do blood tests to check your liver before and during treatment with KISQALI. Tell your health care provider right away if you get any of the following signs and symptoms of liver problems:

- yellowing of your skin or the whites of your eyes (jaundice)
- dark or brown (tea-colored) urine
- feeling very tired
- loss of appetite
- pain on the right side of your stomach area (abdomen)
- bleeding or bruising more easily than normal

Low white blood cell counts (neutropenia). Low white blood cell counts are very common when taking KISQALI and may result in infections that may be severe. Your health care provider should check your white blood cell counts before and during treatment with KISQALI. Tell your health care provider right away if you have signs and symptoms of low white blood cell counts or infections such as fever and chills.

Your health care provider may tell you to decrease your dose, temporarily stop, or completely stop taking KISQALI if you develop certain serious side effects during treatment with KISQALI.

Live longer with KISQALI.

In clinical trials, combination treatment with KISQALI extended the length of time women were alive from the start of treatment—also called overall survival (OS). It also extended progression-free survival, which is the length of time a treatment puts cancer growth on pause.

In premenopausal women, the median OS was not reached for KISQALI + a nonsteroidal aromatase inhibitor (NSAI) + goserelin vs 40.7 months for an NSAI + goserelin. KISQALI + an NSAI + goserelin delayed disease progression for a median of 27.5 months vs 13.8 months for an NSAI + goserelin.

In postmenopausal women, median OS was not reached for KISQALI + fulvestrant vs 40 months for those taking fulvestrant alone. KISQALI + fulvestrant delayed disease progression for a median of 20.5 months vs 12.8 months for fulvestrant alone.

Ask your doctor if KISQALI can help you live longer and visit KISQALI.com.

What should I tell my health care provider before taking KISQALI?

Before you take KISQALI, tell your health care provider if you:

- have any heart problems, including heart failure, irregular heartbeats, and QT prolongation
- have ever had a heart attack
- have a slow heartbeat (bradycardia)
- have problems with the amount of potassium, calcium, phosphorus, or magnesium in your blood
- have fever, chills, or any other signs or symptoms of infection
- have liver problems
- have any other medical conditions
- are pregnant, or plan to become pregnant. KISQALI can harm your unborn baby
  - If you are able to become pregnant, your health care provider should do a pregnancy test before you start treatment with KISQALI.
  - Females who are able to become pregnant and who take KISQALI should use effective birth control during treatment and for at least 3 weeks after the last dose of KISQALI.
  - Talk to your health care provider about birth control methods that may be right for you during this time.
  - If you become pregnant or think you are pregnant, tell your health care provider right away.
- are breastfeeding or plan to breastfeed. It is not known if KISQALI passes into your breast milk. Do not breastfeed during treatment with KISQALI and for at least 3 weeks after the last dose of KISQALI

Please see Summary of Important Information on the following page.

Tell your health care provider about all of the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. KISQALI and other medicines may affect each other, causing side effects. Know the medicines you take. Keep a list of them to show your health care provider or pharmacist when you get a new medicine.

What should I avoid while taking KISQALI?

Avoid eating grapefruit and avoid drinking grapefruit juice during treatment with KISQALI since these may increase the amount of KISQALI in your blood.

The most common side effects of KISQALI include:

- neutropenia
- nausea
- infections
- fatigue
- diarrhea
- leukopenia
- vomiting
- hair loss
- headache
- constipation
- rash
- cough

KISQALI may cause fertility problems if you are male and take KISQALI. This may affect your ability to father a child. Talk to your health care provider if this is a concern for you.

Tell your health care provider if you have any side effect that bothers you or that does not go away.

These are not all of the possible side effects of KISQALI. For more information, ask your health care provider or pharmacist. Call your doctor for medical advice about side effects. You are encouraged to report negative side effects of prescription drugs to the FDA.

Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

SUMMARY OF IMPORTANT INFORMATION

What is KISQALI® (ribociclib)?

KISQALI is a prescription medicine used in combination with:

- an aromatase inhibitor to treat pre/perimenopausal or postmenopausal women with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative breast cancer that has spread to other parts of the body (metastatic), as the first endocrine-based therapy; or
- fulvestrant to treat postmenopausal women with HR-positive, HER2-negative metastatic breast cancer as the first endocrine-based therapy or with disease progression following endocrine therapy

It is not known if KISQALI is safe and effective in children.

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- trouble breathing or shortness of breath
- cough with or without mucus
- chest pain

Severe skin reactions. Tell your health care provider or get medical help right away if you get severe rash or rash that keeps getting worse; reddened skin; flu-like symptoms; skin pain/burning; blistering of the lips, eyes, or mouth; or blisters on the skin or skin peeling, with or without fever.

Heart rhythm problems (QT prolongation). KISQALI can cause a heart problem known as QT prolongation. This condition can cause an abnormal heartbeat and may lead to death. Your health care provider should check your heart and do blood tests before and during treatment with KISQALI. Tell your health care provider right away if you have a change in your heartbeat (a fast or irregular heartbeat), or if you feel dizzy or faint.

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- yellowing of your skin or the whites of your eyes (jaundice)
- dark or brown (tea-colored) urine
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- loss of appetite
- pain on the right side of your stomach area (abdomen)
- bleeding or bruising more easily than normal

Low white blood cell counts (neutropenia). Low white blood cell counts are very common when taking KISQALI and may result in infections that may be severe. Your health care provider should check your white blood cell counts before and during treatment with KISQALI. Tell your health care provider right away if you have signs and symptoms of low white blood cell counts or infections such as fever and chills.

Your health care provider may tell you to decrease your dose, temporarily stop, or completely stop taking KISQALI if you develop certain serious side effects during treatment with KISQALI.

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- have ever had a heart attack
- have a slow heartbeat (bradycardia)
- have problems with the amount of potassium, calcium, phosphorus, or magnesium in your blood
- have fever, chills, or any other signs or symptoms of infection
- have liver problems
- have any other medical conditions
- are pregnant, or plan to become pregnant. KISQALI can harm your unborn baby
  - If you are able to become pregnant, your health care provider should do a pregnancy test before you start treatment with KISQALI.
  - Females who are able to become pregnant and who take KISQALI should use effective birth control during treatment and for at least 3 weeks after the last dose of KISQALI.
  - Talk to your health care provider about birth control methods that may be right for you during this time.
  - If you become pregnant or think you are pregnant, tell your health care provider right away.
- are breastfeeding or plan to breastfeed. It is not known if KISQALI passes into your breast milk. Do not breastfeed during treatment with KISQALI and for at least 3 weeks after the last dose of KISQALI

What other medications might interact with KISQALI?

Tell your health care provider about all of the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements (especially St. John's wort). KISQALI and other medicines may affect each other, causing side effects. Know the medicines you take. Keep a list of them to show your health care provider or pharmacist when you get a new medicine.

What should I avoid while taking KISQALI?

Avoid eating grapefruit and avoid drinking grapefruit juice during treatment with KISQALI since these may increase the amount of KISQALI in your blood.

What laboratory tests do I need if I am prescribed KISQALI?

Your doctor should check your heart rhythm, liver, and blood before you start KISQALI and periodically during your treatment with KISQALI. Your doctor may eventually stop checking some of these tests. If you are able to become pregnant, your health care provider should do a pregnancy test before you start treatment with KISQALI.

The most common side effects of KISQALI include:

- neutropenia
- nausea
- infections
- fatigue
- diarrhea
- leukopenia
- vomiting
- hair loss
- headache
- constipation
- rash
- cough

KISQALI may cause fertility problems if you are male and take KISQALI. This may affect your ability to father a child. Talk to your health care provider if this is a concern for you.

Tell your health care provider if you have any side effect that bothers you or that does not go away.

These are not all of the possible side effects of KISQALI. For more information, ask your health care provider or pharmacist. Call your doctor for medical advice about side effects. You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

General information about the safe and effective use of KISQALI

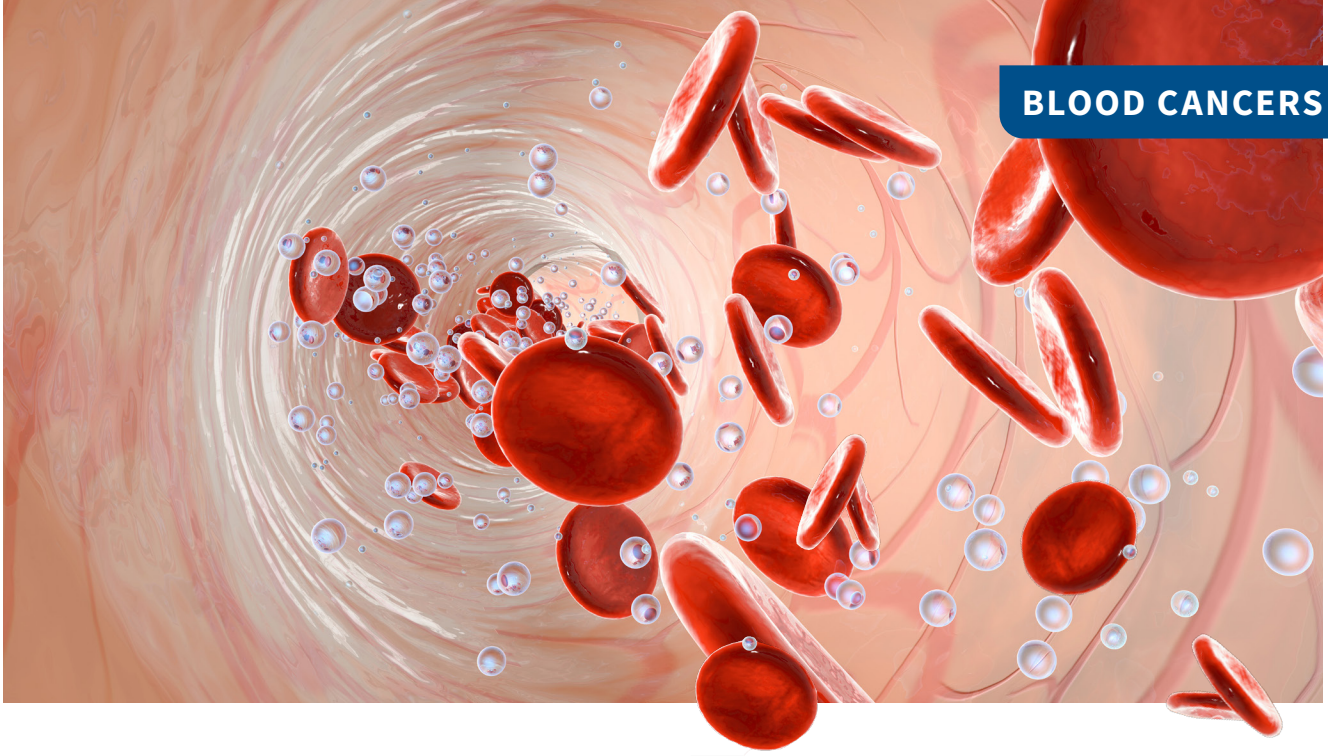
Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. Do not use KISQALI for a condition for which it was not prescribed. Do not give it to other people, even if they have the same symptoms you have. It may harm them. You can ask your health care provider or pharmacist for more information about KISQALI.

For more information, go to www.kisqali.com or call 1-844-KIS-QALI (1-844-547-7254).

NOVARTIS

KISQALI® ribociclib 200 mg tablets

Novartis Pharmaceuticals Corporation
East Hanover, New Jersey 07936-1080



SPECTRAL-DESIGN / STOCK.ADOBE.COM

Kymriah Safely Treats ALL and NHL in Real-World Setting

Safety and efficacy observed in this study for patients with non-Hodgkin lymphoma and acute lymphoblastic leukemia reflect findings from previous trials. By DARLENE DOBKOWSKI, M.A.

CHIMERIC ANTIGEN RECEPTOR (CAR) T-CELL THERAPY with Kymriah (tisagenlecleucel) safely and effectively treated children and young adults with relapsed/refractory acute lymphoblastic leukemia (ALL), in addition to adults with non-Hodgkin lymphoma, according to study findings published in *Blood Advances*.

"Although median follow-up is shorter in the (post-market requirement) study compared with the pivotal trials, there now exists substantial experience in the short-term follow-up safety and efficacy outcomes of tisagenlecleucel," the study authors wrote.

Study authors assessed data from 511 patients from 73 centers from the post-market requirement study, of whom 410 had available follow-up data. Patients were either children or young adults with relapsed or refractory ALL (255 patients; median age at infusion, 13.2 years; 58.8% men) or adults with non-Hodgkin lymphoma (155 patients; median age at infusion, 65.4 years; 53.5% men), all of whom were treated with Kymriah.

Several outcomes were included in this study, such as the incidence and severity of cytokine release syndrome, or the release of small proteins from immune cells into the blood, which may result from CAR-T cell therapy. Duration of response was defined as the period between the date of first complete or partial remission to relapse, progression or death. Event-free survival in patients with ALL was the time between Kymriah infusion and all-cause death, treatment failure or relapse. Progression-free survival in patients with non-Hodgkin lymphoma was defined as the time from Kymriah infusion to all-cause death or disease progression. Overall survival was considered the time between the Kymriah infusion and all-cause death. Follow-up was conducted for a median of 13.4 months in patients with ALL and 11.9 months in those with non-Hodgkin lymphoma.

The complete remission rate for patients with ALL was 85.5%. For 12 months, patients with ALL had a duration of response of 60.9%, event-free survival of 52.4% and overall survival of 77.2%.

In patients with non-Hodgkin lymphoma, the best overall response rate was 61.8%, which included an initial complete remission rate of 39.5%. Duration of response during a six-month period was 55.3%. In addition, patients with non-Hodgkin lymphoma had a progression-free survival rate of 38.7% and an overall survival rate of 70.7%.

Cytokine release syndrome of grade 3 or more, which requires supportive care and Actemra (tocilizumab) either with or without corticosteroids, occurred in 11.6% of all patients. Neurotoxicity, or damage to the peripheral nervous system or the brain, was reported in 7.5% of all patients.

The National Pancreas Foundation

Know Your Options

On behalf of the National Pancreas Foundation, Dr. Andrew M. Lowy offers background on treatments and outcomes for pancreatic cancer.

By KRISTIE L. KAHL

AS WITH MANY CANCERS, the sooner pancreatic cancer is diagnosed, the better. In particular, this may affect at what point chemotherapy is introduced as a therapeutic option.

And thanks to promising new treatments in the pipeline, patients with the disease will soon have more options besides surgery and chemotherapy. "The only way we can advance in this mission is to study the new treatments that we are developing," said Dr. Andrew M. Lowy in an interview with *CURE*®.

Lowy, professor of surgery, chief of the Division of Surgical Oncology and clinical director for cancer surgery at the Moores Cancer Center at University of California San Diego Health, spoke about current standards of care for pancreatic cancer, as well as options being evaluated for the future.

Q: *CURE*®: How does early detection play a role in treatment?

A: Lowy: Early detection is critical for achieving the best outcomes in pancreatic cancer, as it is in really all cancers. One of the big problems and challenges we face in pancreatic cancer is still our inability to diagnose most patients at an early stage. But when we do diagnose patients with, for instance, stage 1 pancreatic cancer, we can cure more than half of them.

Q: Why is there a need to consider treatment at a high-volume cancer center?

A: Well, pancreatic cancer is a complex disease, for many reasons. … Patients (with pancreatic cancer) face a number of issues that range from managing their therapy, whether it be chemotherapy, radiation therapy or surgery, to managing these other medical aspects. Multiple providers are involved, and you really need a team approach … so they're familiar with all the issues that patients with pancreatic cancer face.

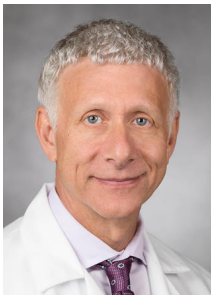
Q: Can you explain what neoadjuvant therapy is and how it improves outcomes?

A: Neoadjuvant means getting your treatment, usually chemotherapy, before you have an operation. So for patients whose tumors are operable, the traditional means of caring for them has been to remove the tumor and then give them therapy afterward. While that's the traditional approach, it's become clear that that approach has a lot of disadvantages, as compared to giving chemotherapy upfront.

The thing to understand is that pancreas surgery is very complex. Despite the fact that we've gotten better at it, it is associated with a high complication rate. (It can take patients time) to recover from the operation to be able to get their chemotherapy. We know that the best outcomes are achieved when people get chemotherapy in addition to surgery. And so, by giving chemotherapy before the operation, when people are still in good shape before they have to undergo a surgical recovery, it ensures that we get that chemotherapy delivered.

The next thing that's important is by giving the therapy when the cancer is present, we can get an assessment of whether the treatment is actually working, and that can allow us to continue therapy if it's being effective or to consider changing therapies before or after surgery to something that may be more effective.

The last part that I'll talk about is that, unfortunately, a certain percentage of patients, when they present, have disease ... somewhere else in their body, most often the liver. (In this instance), we don't want to (operate) on those patients because those operations are not helpful. … We don't want to do surgery on people unless we think the operation is really going to help. So by giving chemotherapy ahead of time, we are selecting out those folks who have a better chance of benefiting from the operation because in the time we're giving treatment, some of those people who have disease in their liver, it will show up as we rescan them, and then we know they're not a good candidate to have their operation.



"We don't want to do surgery on people unless we think the operation is really going to help." *— DR. ANDREW M. LOWY*

Q: What are the standards of care for pancreatic cancer right now?

A: Like all cancers, the treatment selection is based on stage. However, what's different about pancreatic cancer is, because it's such an aggressive disease, every patient essentially will get chemotherapy at some point in their care.

We just talked about the earlier-stage patients who have operable disease, (for whom) we often will give chemotherapy before their operation. Patients who have tumors that are metastatic — meaning (the cancer has) spread to another organ or it's inoperable because it's involved in critical blood vessels, for instance — will get treated with chemotherapy. Two main standard regimens are used most often for this disease. One is called FOLFIRINOX (folinic acid, fluorouracil, irinotecan and oxaliplatin) and the other regimen consists of two drugs, gemcitabine and nab-paclitaxel (Abraxane).

Q: What kind of treatments are on the horizon for pancreatic cancer?

A: The exciting thing is that more drugs are being tested for pancreatic cancer than in any time in history. And the drugs span a variety of different classes.

The one big area of intense investigation is immunotherapy. … So far, we haven't had success with most current immunotherapies for (patients with pancreatic cancer). And there are a lot of reasons for that, which are fairly complicated. In short, what we're trying to understand is how we can make the immune system recognize pancreatic cancer by using combinations of immuno-modulating drugs. There's a whole bunch of them that work on different parts of the immune system that are in clinical trials.

Another interesting area is tumor metabolism. Cancer cells have a different way of getting energy than do our normal cells. And there are drugs being developed that are trying to block the pathways that pancreatic cancer cells use to acquire and use their energy. Some of those drugs are even in very late-stage trials. And if we're lucky, and they show efficacy, they could be approved as soon as next year.

And then finally, there are targeted therapies, which are drugs designed to target specific alterations or vulnerabilities in cancer cells that are often identified by (studying the tumor of an individual patient), rather than being broadly applicable like chemotherapy.

Q: What is your biggest piece of advice for patients considering their treatment options?

A: First of all, I think that being at a high-volume center is always a good idea, or at least to get an opinion from a center if that's available to you. It's never a bad idea to get multiple opinions to make sure that you're comfortable with the treatment plan that's being presented to you. And organizations like the National Pancreas Foundation (NPF) provide information to patients, which can help educate them about the disease and answer questions. (It's also important for patients to realize): You're not alone. NPF and other organizations are available to support you, help you through the journey and make it as easy as possible for you to deal with this difficult disease.

SHARE YOUR STORY!

Whether you are a patient, survivor, caregiver or health care provider, we want to publish your stories about cancer and the people, places and moments of the experience. They can be funny, poignant or practical. Send stories to **editor@curetoday.com,** or share on our Facebook page at **facebook.com/curemagazine**. Submissions should be no more than 600 words and include your name, phone number and email.

LOWY COURTESY OF UC SAN DIEGO HEALTH

Many Mutations. Many Cancers.

One Community.

FORCE improves the lives of the millions of individuals and families facing hereditary breast, ovarian, pancreatic, prostate, colorectal and endometrial cancers.

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If your cancer, or the cancer in your family, could be caused by an inherited gene mutation, visit the FORCE website for resources and support.

FacingOurRisk.org

Toll-free Helpline: 866-288-RISK (7475)
info@FacingOurRisk.org

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