

Research Round Up

NEWS FOR PATIENTS FROM THE 2015 ASCO ANNUAL MEETING



2015 ASCO Annual Meeting

Illumination & Innovation
transforming data into learning

BLOOD CANCERS

Obinutuzumab Controls Growth of Slow-Growing Non-Hodgkin Lymphoma

In an ongoing study, researchers found that adding a new targeted therapy to chemotherapy controls non-Hodgkin lymphoma (NHL) growth for more than twice as long as only chemotherapy. The patients who participated in this study had indolent, or slow-growing, NHL. The standard first treatment for this common type of NHL is a combination of bendamustine (Treanda) and rituximab (Rituxan). For most patients, rituximab eventually stops working to control NHL growth.

Like rituximab, obinutuzumab (Gazyva) is a type of targeted therapy. Targeted therapy is a treatment that targets the cancer’s specific genes, proteins, or the tissue environment that contributes to cancer growth and survival. Specifically, obinutuzumab targets a protein on lymphoma cells that causes some cells to die and makes others more sensitive to chemotherapy.

As part of this study, 396 patients with different

types of NHL received either bendamustine only or bendamustine plus obinutuzumab followed by obinutuzumab given by itself. Researchers found that obinutuzumab controlled NHL growth for more than twice as long as bendamustine (about 29 months compared with 14 months).

What this means for patients

“The overall goal of treatment for indolent lymphoma is to increase the amount of time patients remain symptom-free and in remission. The fact that this new approach doubled average remission time marks a major step forward for our patients,” said lead study author Laurie Helen Sehn, MD, MPH, a medical oncologist at the BC Cancer Agency in Vancouver, Canada. “Obinutuzumab may offer patients the chance to stay well for a significantly longer period of time, putting off the need for additional chemotherapy.”

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A WORD FROM THE PRESIDENT

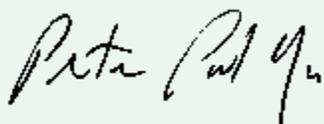
Dear Friends,

Welcome to the 2015 American Society of Clinical Oncology (ASCO) Annual Meeting. The research presented at this year's meeting highlights innovative and technological advances that can improve every aspect of cancer care—from prevention, to diagnosis, to treatment, to survivorship. This year's theme, *Illumination and Innovation*, reflects ASCO's role in taking the knowledge gained through research to improve cancer care.

To help you, the patient, learn about the latest advances in cancer care and what they mean for you, ASCO provides summaries of the research highlighted at the 2015 ASCO Annual Meeting in Chicago, Illinois, from May 29 through June 2, 2015.

I am optimistic about the progress described here. Cancer involves an entire community of health professionals and caregivers working together on all aspects of treatment. Together, we are *making a world of difference in cancer care*. For more information about cancer, please visit Cancer.Net, ASCO's patient information website.

Sincerely,



Peter Paul Yu, MD, FACP, FASCO
ASCO President



New Treatment, Pacritinib, Helps Ease Myelofibrosis Symptoms

A recent study showed that the drug pacritinib works better for myelofibrosis than current treatments. Myelofibrosis is a rare blood cancer that develops when the bone marrow is unable to make enough blood cells. As a result, the spleen takes over the role of making blood cells but becomes quite enlarged. Patients also often experience tiredness, weakness, shortness of breath, fever, and weight loss because of an enlarged spleen. In addition, myelofibrosis turns into acute leukemia in about a third of patients with this disease.

There is currently no cure for myelofibrosis. Treatment usually involves a range of treatments that are not specific for this disease. Examples include thalidomide (Synovir, Thalomid) and lenalidomide (Revlimid), epoetin (Epogen, Eprex, Procrit) and darbepoetin (Aranesp), and hydroxyurea (Droxia, Hydrea). The only treatment approved by the U.S. Food and Drug Administration (FDA) is ruxolitinib (Jakafi), which is not an option for patients who have a low level of platelets. Platelets are the cells that help the blood to clot.

As part of this study, 327 patients received either pacritinib or other treatments listed above, except for ruxolitinib. Because this study included patients

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In this study, the most common side effects of bendamustine and obinutuzumab included low white blood cell levels and reactions where the drug was given. Obinutuzumab is currently approved along with chemotherapy to treat chronic lymphocytic leukemia. Talk

with your doctor for more information. ■

Questions to Ask Your Doctor

- What type of NHL do I have? What does this mean?
- What are my treatment options? Will rituximab be a treatment option?
- What are my options if rituximab stops working?
- What clinical trials are open to me? How do I find out more about them?

with very low platelet levels, ruxolitinib was not considered a safe option for those patients. Researchers found that after six months, about 19% of patients receiving pacritinib had a reduction in the size of their spleens, compared with almost 5% receiving other treatments. This was considered a success of treatment. For the patients who had the lowest levels of platelets, 33% had their spleens shrink compared with none of the patients receiving other treatments.

In addition, patients receiving pacritinib had less weight loss, night sweats, fever, and bone pain. Pacritinib also increased red blood cell levels, helping about 26% of patients avoid regular red blood cell transfusions.

What this means for patients

“There is a huge unmet need for patients with myelofibrosis. Only one drug is currently FDA-approved for the disease, and it is not safe for patients with low platelet counts,” said lead study author Ruben A. Mesa, MD, Deputy Director of the Mayo Clinic Cancer Center in Scottsdale, AZ. “We were encouraged to see that pacritinib was safe and effective, even in patients with severely low blood counts.”

Most patients who were

receiving other treatments as part of this study were switched to pacritinib because of the benefits of the drug. The most common side effects of pacritinib were diarrhea, nausea, and vomiting. The symptoms typically lasted less than one week and few patients needed to stop treatment because of the side effects.

Pacritinib is currently not approved by the FDA and may be available only in clinical trials. Talk with your doctor for more information. ■

Questions to Ask Your Doctor

- What are my treatment options for myelofibrosis?
- What are the risks and benefits of each treatment option?
- Do I have very low platelet levels? What does this mean?
- What clinical trials are open to me? How do I find out more about them?

Adding Ibrutinib to Standard Treatment Lowers the Risk of Dying from Chronic Lymphocytic Leukemia

In a large, ongoing study, researchers found that a combination of ibrutinib (Imbruvica) and standard treatment slows the growth of chronic lymphocytic leukemia (CLL) and lowers patients’ risk of dying from the disease. The standard treatment for CLL is usually a combination of bendamustine (Treanda) and rituximab (Rituxan), a regimen called BR.

These treatments help control CLL growth for many years, but they cannot cure it. Eventually, treatment stops working for all patients with CLL. Adding the

new targeted therapy, ibrutinib, approved by the U.S. Food and Drug Administration (FDA) in 2014, has helped control the growth of CLL for patients when other treatments have stopped working. Targeted therapy is a treatment that targets the cancer’s specific genes, proteins, or the tissue environment that contributes to cancer growth and survival. Specifically, ibrutinib targets a protein that helps lymphocytes grow.

As part of this study, 578 patients who already had treatment for CLL received

either ibrutinib and BR or a placebo and BR. A placebo is an inactive treatment. After about a year and a half, the patients receiving ibrutinib were 80% less likely to have the disease worsen or die from the disease. In addition, patients receiving ibrutinib experienced less fatigue related to the CLL.

What this means for patients

“This was one of the most rigorous clinical trials ever conducted in CLL and it truly validates ibrutinib as an important drug for this cancer,” said lead study author Asher Chanan-Khan, MD, a professor of medicine at Mayo Clinic in Jacksonville, FL. “We found that ibrutinib can be safely

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Adding Ibrutinib to Standard Treatment Lowers the Risk of Dying from Chronic Lymphocytic Leukemia

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paired with existing therapy to powerfully prolong remissions and improve patients' well-being."

Because of the benefits

patients receiving ibrutinib experienced, those who were receiving the placebo were later given ibrutinib in addition to the BR regimen. Since the FDA has approved ibrutinib, this drug may be a treatment option for you. The most common side effects noticed in this study were low levels of blood cells and nausea. Talk with your doctor for more information. ■

Questions to Ask Your Doctor

- What type of leukemia do I have?
- What treatments have I already received?
- What options are available if the current treatment stops working?
- What clinical trials are open to me? How do I find out more about them?

Adding Immune-Based Drug to Standard Treatment Controls the Growth of Multiple Myeloma for Longer

As part of an ongoing study, researchers found that a new immune-based treatment controlled the growth of multiple myeloma for longer than standard treatment. This new treatment, elotuzumab, works in two different ways to treat myeloma. It is able to directly target multiple myeloma cells and boost a part of the immune system that helps control the growth of cancer cells.

This study included 646 patients with multiple myeloma that had come back, or relapsed, after treatment. They received either a standard treatment, which was lenalidomide

(Revlimid) and dexamethasone (multiple brand names), or standard treatment plus elotuzumab.

Researchers found that adding elotuzumab to treatment controlled the growth of multiple myeloma for longer than standard treatment only (about 19 months compared with nearly 15 months). In addition, elotuzumab appeared to work as well for patients with genetic changes usually linked with less successful treatment as for those who did not have those genetic changes.

What this means for patients

"It appears that, for patients with relapsed multiple myeloma

who would otherwise be offered lenalidomide and dexamethasone, addition of this new targeted drug makes the outcomes even better," said lead study author Sagar Lonial, MD, Chief Medical Officer of the Winship Cancer Institute of Emory University School of Medicine, and Professor and Executive Vice Chair of the Department of Hematology and Medical Oncology of Emory University School of Medicine in Atlanta, GA. "It was particularly striking that the difference between the elotuzumab and standard treatment seems to get bigger over time, which really speaks to the power of this immune-based approach."

In this study, elotuzumab did not add many additional side effects. Some patients had a mild reaction where the drug was given for the first few doses. Elotuzumab is still being researched and may only be available in clinical trials. ■

Questions to Ask Your Doctor

- What type of multiple myeloma do I have? What does this mean?
- What are my treatment options?
- Is elotuzumab an option for me? Is it only available in clinical trials?
- What treatment do you recommend? Why?
- What is my chance of recovery?

Daratumumab May Be an Effective Treatment for Multiple Myeloma

According to a recent small study, the drug daratumumab may work well as a treatment for multiple myeloma after other treatments have not worked. About 26,000 Americans are diagnosed with multiple myeloma every year. Despite recent advances, treatments usually stop working to control the cancer's growth.

Daratumumab is a type of targeted therapy. Targeted therapy is a treatment that targets the cancer's specific genes, proteins, or the tissue

environment that contributes to cancer growth and survival.

In this study, 106 patients whose disease had worsened after at least three previous treatments received daratumumab as the only treatment. Researchers found that after about nine months, daratumumab slowed the cancer's growth for 29% of patients. In addition, three patients had a complete remission, which means that they had no signs of the cancer.

What this means for patients

"The efficacy we're seeing is quite impressive for a clinical trial of multiple myeloma, given that many patients had already undergone five or more types of treatment," said lead study author Saad Zafar Usmani, MD,

a hematologist at Levine Cancer Institute/Carolinas Healthcare System in Charlotte, NC. "Our hope is that daratumumab will help fill the unmet need of patients who have exhausted available treatment approaches."

In this study, the most common side effect was a reaction in the area where daratumumab was given. Other side effects included fatigue, low blood counts, back pain, and cough. Daratumumab is still being researched and may only be available through a clinical trial. Talk with your doctor for more information. ■

More Information: Blood Cancers

- [Guide to Acute Myeloid Leukemia \(www.cancer.net/aml\)](http://www.cancer.net/aml)
- [Guide to Chronic Lymphocytic Leukemia \(www.cancer.net/cll\)](http://www.cancer.net/cll)
- [Guide to Multiple Myeloma \(www.cancer.net/myeloma\)](http://www.cancer.net/myeloma)
- [Guide to Myelodysplastic Syndromes \(www.cancer.net/mds\)](http://www.cancer.net/mds)
- [Guide to Non-Hodgkin Lymphoma \(www.cancer.net/nhl\)](http://www.cancer.net/nhl)
- [Targeted Treatments \(www.cancer.net/targetedtreatments\)](http://www.cancer.net/targetedtreatments)

Questions to Ask Your Doctor

- What are my treatment options for multiple myeloma?
- What treatments have I already received?
- If the current treatment stops working, what options are available?
- What clinical trials are open to me? How do I find out more about them?

BRAIN METASTASES

The Side Effects of Whole Brain Radiation Therapy for Brain Metastases May Outweigh the Benefits for Some Patients

In a recent study, researchers found that radiation therapy to the whole brain after radiosurgery for cancer that has spread to the brain causes more thought

and memory problems than just radiosurgery. Even though the additional radiation therapy controlled the cancer's growth, it did not lengthen patients' lives.

Radiosurgery is a type of radiation therapy that aims radiation directly and only to the parts of the brain where there is cancer. It is a common way to treat brain metastases when there are just a few areas where the cancer has spread. Regular surgery to remove the metastases is only an option for a few patients because of the

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The Side Effects of Whole Brain Radiation Therapy for Brain Metastases May Outweigh the Benefits for Some Patients

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risk of damage to the brain. At some point, most patients with brain metastases receive radiation therapy to the whole brain to control the cancer's growth or reduce symptoms caused by the cancer.

As part of this study, 213 patients received either radiosurgery alone or radiosurgery followed by radiation therapy to the whole brain. All patients had one to three small brain metastases. After three months, researchers found that more patients who received radiation therapy to the whole brain had thought and memory problems than those who just received radiosurgery alone (92% compared with 64%).

What this means for patients

“We used to offer whole brain radiation early on, but now we know that the side effects of this therapy are worse for the patient than cancer growth or recurrences in the brain,” said senior study author Jan C.

Buckner, MD, a professor of oncology at Mayo Clinic in Rochester, MN. “We expect that practice will shift to reserve the use of whole brain radiation therapy for later treatment and palliative care.”

Radiation therapy to the whole brain may still be an appropriate option for patients. Talk with your doctor about the goals of treatment, in addition to your treatment options. ■

Questions to Ask Your Doctor

- What type of cancer do I have? What does this mean?
- Has the cancer spread anywhere else?
- What are my treatment options?
- What are the goals of treatment? Is it to eliminate the cancer, help me feel better, or both?
- What are the side effects of each treatment?

More Information: Brain Metastases

- [What is Radiation Therapy? \(www.cancer.net/radiationtherapy\)](http://www.cancer.net/radiationtherapy)
- [What is Cancer Surgery? \(www.cancer.net/surgery\)](http://www.cancer.net/surgery)

New Targeted Drug Slows Growth and Spread of Metastatic Breast Cancer

A large phase III study has found that a new targeted therapy, called palbociclib (Ibrance), delayed the growth and spread of advanced hormone receptor-positive breast cancer by roughly five months when combined with the standard hormonal therapy fulvestrant (Faslodex). This combination could become a new treatment option for women with hormone receptor-positive, HER2-negative breast cancer that has spread to other parts of the body.

Palbociclib is a new drug that is given as a pill to swallow. It targets specific proteins, called cyclin dependent kinases (CDKs) 4 and 6, that contribute to breast cancer's growth and survival. This type of treatment blocks the growth and spread of cancer cells while limiting damage to healthy cells.

For this study, 521 women with hormone receptor-positive, HER2-negative breast cancer received either fulvestrant and palbociclib or fulvestrant and an inactive substance called a placebo. All of the participants had metastatic cancer that had grown, spread, or come back after receiving hormonal therapy.

When the researchers analyzed the data collected during the study, they found that the combination of fulvestrant and palbociclib kept breast cancer from growing or spreading for more than nine months compared

PRE-ACT: AN ONLINE TOOL ABOUT CLINICAL TRIALS

PRE-ACT (Preparatory Education About Clinical Trials) is an online education program that provides free access to a series of videos that helps patients and their caregivers learn about clinical trials and address barriers to participation. Learn about this exciting new tool at www.cancer.net/preact



with less than four months for fulvestrant treatment alone. The researchers also noted that the benefits of the combination treatment were similar whether the women had been through menopause or not. More time is needed to find out whether the fulvestrant and palbociclib combination will help women with metastatic hormone receptor-positive, HER2-negative breast cancer live longer.

What this means for patients

“After initial hormonal therapy stops working in metastatic breast cancer, the next step is typically chemotherapy, which can be effective, but the side effects are often very difficult for women,” said lead study author Nicholas C. Turner, MD, PhD, a consultant medical oncologist at The Royal Marsden and a team leader at The Institute of Cancer Research

in London, United Kingdom. “This relatively easy-to-take new drug can substantially delay the point when women need to start chemotherapy, making this an exciting new approach for women.”

Earlier this year, the U.S. Food and Drug Administration approved treatment with palbociclib in combination with letrozole (Femara) under its accelerated approval program based on the results of a previous

phase II study. Talk with your doctor for more information.

In this study, less than 3% of women had to stop treatment with fulvestrant and palbociclib because of side effects. The most common side effects of this combination were abnormal blood counts. Many of the women in this study developed low white blood cell counts, but very few (less than 1%) developed the more serious side effect of febrile neutropenia. ■

Questions to Ask Your Doctor

- What type and stage of breast cancer do I have? What does this mean?
- What is the hormone status of my tumor? What is my HER2 status? How will this affect my treatment options?
- Is palbociclib an option for me? Why or why not?
- What treatment plan do you recommend? Why?
- What clinical trials are open to me?
- What are the possible side effects of each treatment, and how can they be managed?

Anastrozole Helps Reduce Breast Cancer Risk after DCIS for Postmenopausal Women

A large clinical trial suggests that anastrozole (Arimidex) may be a new option for preventing breast cancer after treatment for ductal carcinoma in situ (DCIS). DCIS is a non-invasive type of breast cancer. DCIS can usually be eliminated with a lumpectomy followed by radiation therapy. However, women with DCIS are at increased risk for developing invasive breast cancer in the same or opposite breast.

Tamoxifen has typically been used to reduce breast cancer risk for women with

hormone receptor-positive DCIS. However, another type of hormonal therapy, known as aromatase inhibitors (AIs), is an option for women who have gone through menopause.

Hormone receptor-positive breast cancer depends on estrogen to grow and spread. Both tamoxifen and AIs like anastrozole block the estrogen growth signal, but they do it in different ways. Tamoxifen keeps estrogen from getting into cancer cells, while anastrozole stops tissues and organs other than the

ovaries from making estrogen.

This is the first study to compare anastrozole with tamoxifen after treatment for DCIS. More than 3,000 women who had already had a lumpectomy and radiation therapy for hormone receptor-positive DCIS volunteered to participate in the study. Half of these women took tamoxifen every day for five years, and the other half took anastrozole.

More than eight years after starting treatment, 94% of women in this study who took anastrozole remained breast cancer-free compared with 89% who took tamoxifen. However, the survival rates were similar for both

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Anastrozole Helps Reduce Breast Cancer Risk after DCIS for Postmenopausal Women

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treatments (93% for anastrozole and 92% for tamoxifen).

Additional analysis of the data suggests that anastrozole may not provide additional benefits over tamoxifen for women who are older than 60.

What this means for patients

“The good news is—tamoxifen and anastrozole are both very effective, but it seems that women have a better chance of staying well with anastrozole,” said lead study author Richard G. Margolese, MD, a professor of surgical oncology at The Jewish General Hospital at McGill University in Montreal, Canada. “Women should also consider differences in side effects when discussing treatment options with their doctors.”

AIs and tamoxifen have slightly different side effects, although they are often similar in severity. The side effects of AIs include joint pain and

stiffness, vaginal dryness, increased cholesterol, heart disease, weakening bones, and bone breaks. The side effects of tamoxifen include hot flashes, vaginal discharge or dryness, leg cramps, and, rarely, blood clots and a slightly increased risk of uterine cancer. Talk with your doctor for more information. ■

Questions to Ask Your Doctor

- What type and stage of breast cancer do I have? What does this mean?
- Is my breast cancer hormone receptor-positive? What does this mean?
- What are the chances that the breast cancer will return?
- Do you recommend hormonal therapy after surgery and radiation therapy? Why or why not?
- What is my menopausal status now, and how does this affect my options for treatment?
- What are the benefits and risks of hormonal therapy?
- How do the side effects of AIs compare with tamoxifen?

More Information: Breast Cancer

- [Guide to Breast Cancer \(www.cancer.net/breast\)](http://www.cancer.net/breast)
- [Hormonal Therapy for Hormone Receptor-Positive Breast Cancer \(www.cancer.net/recommendations\)](http://www.cancer.net/recommendations)
- [Targeted Treatments \(www.cancer.net/targetedtreatments\)](http://www.cancer.net/targetedtreatments)
- [Coping With Fear of Recurrence \(www.cancer.net/survivorship\)](http://www.cancer.net/survivorship)

ASCO Answers: Managing the Cost of Cancer Care offers practical guidance, information about the Affordable Care Act, a list of financial resources, and more. Download this booklet at www.cancer.net/managingcostofcare.



Improved Care and Treatment Helps Children with Cancer Live Longer and Better

A recent analysis of information from more than 34,000 children who participated in the Childhood Cancer Survivor Study shows that modern cancer care is reducing deaths from cancer and long-term side effects. Previous research has shown that up to 18% of childhood cancer survivors die within 30 years of diagnosis. While deaths from worsening or recurrent cancers tend to slow over time, deaths from other health-related reasons, such as long-term side effects tend to increase.

In this study, researchers found that 6% of children diagnosed with cancer in the 1990s died within 15 years of diagnosis, compared with 12% of those diagnosed in the early 1970s. In addition, about 2% of survivors diagnosed in the 1990s died from other health-related reasons, compared with almost 4% of those diagnosed in the early 1970s.

Researchers also found children diagnosed with Wilms tumor, Hodgkin lymphoma, and acute lymphoblastic leukemia (ALL) had the highest decrease in the risk of death from long-term side effects. One major factor that may be responsible for the improved long-term health of cancer survivors is that doctors have reduced treatments for childhood cancers that are less aggressive without making the treatment

less effective. For example, in the 1970s, 86% of patients with ALL received radiation therapy to the head, compared with only 22% in the 1990s. The dose of radiation therapy has also been reduced for the treatment of Hodgkin lymphoma and Wilms tumor. And, the dose of a type of chemotherapy called anthracyclines that are linked with heart problems has also decreased for children diagnosed with Hodgkin lymphoma, Wilms tumor, and ALL.

What this means for patients

“Fifty years ago, only one in five children would survive cancer, and today over 80% are alive five years after diagnosis. Yet, these survivors still grow up with increased risk of dying from late effects, like heart disease and second cancers,” said

the lead study author Gregory T. Armstrong, MD, MSCE, a pediatric oncologist at St. Jude Children’s Research Hospital in Memphis, TN. “While the modernization of cancer therapy has probably made the most significant difference, improvements in supportive care for survivors, and screening,

detection, and treatment of late effects, like new cancers and heart and lung disease, have played an important role in extending their lifespan as well.”

Dr. Armstrong was a recipient of a Conquer Cancer Foundation of ASCO Career Development Award in 2008. ■

Questions to Ask Your Doctor

IF YOU ARE A CHILDHOOD CANCER SURVIVOR

- When was I diagnosed with cancer?
- What treatments did I receive?
- What are the long-term side effects? How can they be managed?

IF YOUR CHILD HAS BEEN DIAGNOSED WITH CANCER

- What type of cancer does my child have?
- What is the chance of recovery?
- What are the treatment options?
- What are the long-term side effects of each treatment option?
- What can be done to lower the risk of long-term side effects?

Adding to Standard Treatment Increases the Number of Children Cured of Wilms Tumor

Two phase III Children’s Oncology Group studies found that using additional drugs with standard therapy lowered the chance that Wilms tumor with a specific genetic change returned after treatment. Wilms tumor is a rare type of cancer that begins in a child’s kidney. When it comes back after treatment, it is called a relapse or recurrence.

The genetic change looked at in this study is known as loss of

heterozygosity on chromosomes 1p and 16q (LOH 1p and 16q). This change occurs only in the cancer cells and can be found by testing the tumor. Tumors with this change have a higher chance of coming back. In these studies, 35 children with stage I and stage II disease and 52 with stage III and stage IV disease had tumors with LOH 1p and 16p.

Each child participating in these studies who had a tumor with the LOH 1p and 16q genetic change received a standard treatment for their stage of cancer plus additional treatment. Children with stage I and stage II disease received vincristine (Vincasar) and dactinomycin (Cosmegen) plus doxorubicin (Adriamycin).

Children with stage III and stage IV disease received vincristine, dactinomycin, doxorubicin, and radiation therapy. Then, four cycles of cyclophosphamide (Neosar) and etoposide (Toposar, VePesid) were added.

After about four years, almost 84% of children with stage I and stage II disease and about 92% of children with stage III and stage IV disease had not had a relapse. For comparison, previous research has shown that 75% of children with stage I or stage II disease and 66% of those with stage III and stage IV disease do not have a relapse within four years after standard treatment.

Pediatric oncologists have been working for years to find

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Adding to Standard Treatment Increases the Number of Children Cured of Wilms Tumor

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ways to give the right amount of chemotherapy and radiation therapy for each patient based on estimates of recurrence. Recently doctors are using less treatment for children with a low risk of recurrence while boosting treatments for children with a very high chance of recurrence. To do this well, doctors and researchers are learning which patients have a low risk of recurrence and which have a higher risk of recurrence.

What this means for patients

“Tailoring therapy to match each patient’s risk for relapse has been a major focus of pediatric oncology. For cancers with a low risk of recurrence, we strive to decrease therapy and minimize exposure to potentially toxic agents. On

the other hand, we want to add to therapy for those patients who are at higher risk of relapse so we can hopefully increase the chance for cure,” said lead study author David B. Dix, MD, a physician at the British Columbia Children’s Hospital in Vancouver, Canada. “Our study is an example of successfully adding treatments for patients with a high risk of relapse. We were very encouraged to see that adding to treatment can overcome the negative influence of a genetic change in children with Wilms tumor.”

In this study, there were few short-term side effects for children who received treatment for stage I and stage II disease. For those who received treatment for stage III and stage IV disease, there was a lowering of the number of blood cells made by the bone marrow. In addition, children who received treatment for stage III and stage IV disease will be more likely to have fertility problems in the future. ■

Early Research Shows Potential of Pembrolizumab as Head and Neck Cancer Treatment

Results from a phase I clinical trial show that pembrolizumab (Keytruda) is able to shrink head and neck cancer that has spread to other parts of the body or come back after treatment. These findings suggest that immunotherapy may fill a large unmet need for better treatments for recurrent and advanced head and neck cancer.

Immunotherapy is a type of treatment designed to boost the body’s natural defenses to fight the cancer. Pembrolizumab helps improve immune system function by blocking a protein called PD-1. PD-1 is found on the surface of T-cells, which are a type of white blood cell that directly helps the body’s immune system fight disease. Because PD-1 keeps the immune system from destroying cancer cells, stopping PD-1 from working allows the immune system to better eliminate the disease.

In this study, 132 people with recurrent or metastatic squamous cell carcinoma of the head and neck received treatment with pembrolizumab. One in four (25%) people had tumors that noticeably shrank. More than half (57%) experienced some decrease in tumor size. The researchers will continue to watch the participants to see how

Questions to Ask Your Child’s Doctor

- What stage of Wilms tumor does my child have? What does this mean?
- Was my child’s tumor tested for any genetic changes? If so, how do these affect his or her treatment options and chance of recovery?
- What treatment options are available?
- What are the risks and benefits of each treatment option?
- What is my child’s risk of relapse?

More Information: Childhood Cancer

- [Guide to Wilms Tumor \(www.cancer.net/wilms\)](http://www.cancer.net/wilms)
- [Cancer in Children \(www.cancer.net/children\)](http://www.cancer.net/children)
- [Survivorship \(www.cancer.net/survivorship\)](http://www.cancer.net/survivorship)
- [Late Effects of Childhood Cancer \(www.cancer.net/children\)](http://www.cancer.net/children)
- [Managing Late Effects of Childhood Cancer \(www.cancer.net/children\)](http://www.cancer.net/children)

these benefits affect how long people live.

Interestingly, infection with the human papillomavirus (HPV) did not affect how much participants benefitted from treatment. Recent research has shown that HPV infection can influence how a tumor responds to existing treatments like cetuximab (Erbix).

What this means for patients

“The efficacy we saw was remarkable—pembrolizumab seems to be roughly twice as effective, when measured by response, as our only targeted therapy cetuximab,” said lead study author Tanguy Seiwert, MD, an assistant professor of medicine and Associate Head and Neck Cancer Program Leader at the University of Chicago in Illinois. “We have high hopes

that immunotherapy will change the way we treat head and neck cancer.”

In this study, the most common side effects of pembrolizumab were fatigue, rash, and itching. A small number of participants experienced more serious immune-related side effects, such as inflammation of lungs and colon. Less than 10% of people experienced serious side effects.

Currently, pembrolizumab is only approved by the U.S. Food and Drug Administration (FDA) to treat advanced melanoma that has not responded to other standard treatments. Researchers are also studying other types of PD-1 immunotherapy for recurrent and metastatic head and neck cancer in clinical trials. Talk with your doctor for more information.

Dr. Seiwert was a recipient of a Conquer Cancer Foundation of ASCO Young Investigator Award in 2006. ■

Questions to Ask Your Doctor

- What type and stage of head and neck cancer do I have? What does this mean?
- Is it important to find out whether the tumor was caused by HPV? Why or why not?
- What are my treatment options?
- What are the risks and benefits of each treatment option?
- What clinical trials are open to me? How do I find out more about them?

Choosing Lymph Node Surgery Earlier May Be a Better Option for Some Patients with Oral Cancer

A new study provides clarification on the best time for patients to receive lymph node surgery for early-stage oral cancer. Oral cancer is often successfully treated with surgery to remove the tumor. However, the cancer can come back and spread to the lymph nodes in the neck.

Generally, patients have two opportunities for surgery to remove groups of lymph nodes in the neck, called neck dissection. One option is called elective neck dissection (END), which is choosing surgery to remove lymph nodes before the cancer

comes back. The other option is called therapeutic neck dissection (TND), which is surgery to remove the lymph nodes after the cancer has come back.

In this study, researchers found that END lengthens patients’ lives and lowers the risk of the cancer coming back, called a recurrence. This study included 596 patients with early squamous cell oral cancer. This is the most common type of oral cancer, which begins in the flat, squamous cells found in the lining of the mouth and throat. The patients participating in this

study received either END or TND.

Researchers found that 80% of patients who received END were alive three years after diagnosis, compared with about 68% of those who received TND. In addition, about 70% of patients who received END were still cancer-free three years after diagnosis, compared with almost 46% of those who received TND.

What this means for patients

“Our study is the first to prove that more lives can be saved with elective neck dissection. This answers a question doctors have been asking for 50 years, for the treatment of thousands

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HEAD AND NECK CANCERS

Choosing Lymph Node Surgery Earlier May Be a Better Option for Some Patients with Oral Cancer

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of patients” said lead study author Anil D’Cruz, MBBS, MS, FRCS, Professor and Chief, Department of Head and Neck Surgery at Tata Memorial Hospital in Mumbai, India.

“Armed with the results of this study, doctors will be able to confidently counsel patients that adding neck surgery to their initial treatment is worthwhile.”

Neck dissection is linked with side effects common with any surgery, such as infection and bleeding. Also, the nerve that controls a larger shoulder muscle is damaged during surgery for up to 40% of patients. This nerve damage can cause shoulder pain and limit the range of motion

in that arm, which can interfere with daily functioning and work. Talk with your doctor about the risks and benefits of all your treatment options, including surgery. ■

More Information: Head and Neck Cancers

- [Guide to Head and Neck Cancer \(www.cancer.net/headneck\)](http://www.cancer.net/headneck)
- [Guide to Oral Cancer \(www.cancer.net/oral\)](http://www.cancer.net/oral)
- [What is Immunotherapy? \(www.cancer.net/immunotherapy\)](http://www.cancer.net/immunotherapy)
- [What is Cancer Surgery? \(www.cancer.net/surgery\)](http://www.cancer.net/surgery)
- [HPV and Cancer \(www.cancer.net/prevention\)](http://www.cancer.net/prevention)

Questions to Ask Your Doctor

- What type of oral cancer do I have? What is the stage?
- What are my treatment options?
- Has the cancer spread to the lymph nodes?
- Do you recommend surgery to remove any lymph nodes, either now or in the future? Why?
- What are the risks and benefits of each treatment option?

LIVER CANCER

Nivolumab Shows Promise as a Treatment Option for Advanced Liver Cancer

In an early-stage study, nivolumab (Opdivo) has shown encouraging results as a treatment for advanced liver cancer. Liver cancer is the leading cause of cancer deaths worldwide, accounting for more than 600,000 deaths each year. People diagnosed with advanced liver cancer especially need new treatment options, as there is currently only one drug approved by the U.S. Food and Drug Administration (FDA).

Nivolumab is a type of immunotherapy, which is a treatment designed to boost the body's natural defenses to fight the cancer. Nivolumab helps improve immune system function by blocking a protein called PD-1. PD-1 is found on the surface of T-cells, which are a type of white blood cell that directly helps the body's immune system fight disease. Because PD-1 keeps the immune system from destroying cancer cells, stopping PD-1 from working allows the immune system to better eliminate the disease.

As part of this study, 42 people with advanced hepatocellular carcinoma (HCC), the most common type of liver cancer diagnosed in adults, received

nivolumab. Overall, 19% of the participants had tumors that responded to the treatment. Eight people had tumors that shrank by more than 30%, and two had complete remissions. A remission is when cancer cannot be detected in the body and there are no symptoms. These benefits lasted for more than a year for four participants. In addition, nivolumab stopped tumors from growing for 48% of the participants.

The one-year survival rate was 62%. The one-year survival rate is the percentage of people who live at least one year after starting treatment.

What this means for patients
“We are encouraged to see that

Nivolumab Extends the Lives of People with the Most Common Type of Lung Cancer

A phase III clinical trial has shown that nivolumab (Opdivo) is an effective treatment option for people with non-squamous, non-small cell lung cancer (NSCLC). Nivolumab is a type of immunotherapy, which is a treatment designed to boost the body's natural defenses to fight the cancer. Nivolumab helps improve immune system function by blocking a protein called PD-1. PD-1 is found on the surface of T-cells, which are a type of white blood cell that directly helps the body's immune system fight disease. Because PD-1 keeps the immune system from destroying cancer cells, stopping PD-1 from

working allows the immune system to better eliminate the disease.

More than 580 people with advanced non-squamous NSCLC that grew or spread after receiving platinum-based chemotherapy volunteered to participate in this study. They were divided into two groups. One group received nivolumab, and the other group received docetaxel (Docefrez, Taxotere) chemotherapy.

The researchers found that the people in the nivolumab group lived an average of three months longer than those in the docetaxel group. People who received

nivolumab lived an average of one year compared with nine months for docetaxel treatment. This difference was even higher for people with tumors that had high levels of a protein called PD-L1. Earlier research has suggested that the protein PD-L1 helps predict which tumors are more likely to respond to PD-1 immunotherapy. In this study, the researchers found that people with tumors that had high levels of PD-L1 generally lived for about a year and a half after nivolumab treatment. Overall, people who received nivolumab had a 27% lower risk of death compared to those who received docetaxel.

What this means for patients

“This is the first phase III study

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the response rate, as well as preliminary survival data, look quite promising,” said lead study author Anthony B. El-Khoueiry, MD, an associate professor of clinical medicine and the Phase I Program Director at the University of Southern California Norris Comprehensive Cancer Center in Los Angeles. “While we have to verify this early signal in larger studies, this is one of the first signs that immunotherapy with immune checkpoint inhibitors will have a role in the treatment of liver cancer.”

In this study, treatment with nivolumab caused mild to moderate side effects. The most common side effects were elevated liver enzyme levels, rash, and high levels of amylase and lipase. However, abnormal liver enzymes and elevated amylase and lipase levels did not cause any significant symptoms.

Nivolumab is currently only FDA-approved to treat advanced melanoma that has not responded to other standard treatments and advanced squamous non-small cell lung

cancer. Talk with your doctor about all of your treatment options, including participating in a clinical trial. ■

Questions to Ask Your Doctor

- What stage of liver cancer do I have? What does this mean?
- What are my treatment options?
- What clinical trials are open to me? Where are they located, and how do I find out more about them?
- What treatment do you recommend? Why?
- What are the possible side effects of each treatment, and how can they be managed?

More Information: Liver Cancer

- [Guide to Liver Cancer \(www.cancer.net/liver\)](http://www.cancer.net/liver)
- [What is Immunotherapy? \(www.cancer.net/immunotherapy\)](http://www.cancer.net/immunotherapy)

MELANOMA

Nivolumab Slows Melanoma Growth Better than just Ipilimumab

Recently, researchers found that nivolumab (Opdivo) either given as a single treatment or in combination with ipilimumab (Yervoy) is more effective than treatment with ipilimumab alone for people with advanced

melanoma. Both nivolumab and ipilimumab are types of immunotherapy that block two proteins called PD-1 and CTLA-4. By blocking these two proteins, the drugs are able to boost the body's immune system to fight the cancer.

The PD-1 protein on the body's immune cells attaches to another protein called PD-L1, which is found on the surface of some cancer cells. Previous research has suggested that PD-1 therapy works better for patients who have PD-L1 on the tumor cells.

For this study, 945 patients who had not yet received treatment for advanced melanoma were given either ipilimumab, nivolumab, or a combination of both. The researchers found that nivolumab controlled the growth of the melanoma for more than twice as long as ipilimumab (about 7 months compared with about 3 months). The combination of nivolumab and ipilimumab controlled the cancer's growth for longer, about 12 months.

Researchers also found that nivolumab by itself seemed to work as well for cancer with PD-L1 as nivolumab and ipilimumab combined. However, for patients with cancer without PD-L1, the combination of nivolumab and ipilimumab worked better than just nivolumab.

What this means for patients

"Our study also suggests that patients with a specific tumor marker appear to benefit the most from the combination treatment, whereas other patients may do just as well with nivolumab

LUNG CANCER

Nivolumab Extends the Lives of People with the Most Common Type of Lung Cancer

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to show that immunotherapy is effective against non-squamous cell NSCLC and appears to be particularly active in patients with PD-L1-positive tumors," said lead study author Luis Paz-Ares, MD, PhD, a professor of medicine at the Hospital Universitario 12 de Octubre in Madrid, Spain. "While nivolumab appears to be more potent against this most common lung cancer, it is important to note that it is also far easier on patients compared to the standard second-line treatment, docetaxel."

In this study, only one in 10 people in the nivolumab group experienced serious side effects compared with more than half of people in the docetaxel

group. Earlier this year, the U.S. Food and Drug Administration (FDA) approved nivolumab as a treatment for advanced squamous cell NSCLC. Talk with your doctor for more information. ■

Questions to Ask Your Doctor

- What type and stage of lung cancer do I have? What does this mean?
- What are my treatment options?
- Is nivolumab an option for me?
- What clinical trials are open to me? Where are they located, and how do I find out more about them?
- What treatment do you recommend? Why?
- What are the possible side effects of each treatment, and how can they be managed?

More Information: Lung Cancer

- [Guide to Lung Cancer \(www.cancer.net/lung\)](http://www.cancer.net/lung)
- [What is Immunotherapy? \(www.cancer.net/immunotherapy\)](http://www.cancer.net/immunotherapy)
- [FDA Approval of Nivolumab for Lung Cancer \(www.cancer.net/blog\)](http://www.cancer.net/blog)

alone. This will help doctors provide important insight for patients on which treatment is right for them,” said lead study author Jedd Wolchok, MD, PhD, Chief of Melanoma and Immunotherapeutics Service at Memorial Sloan Kettering Cancer Center in New York, NY.

In this study, about one-third of patients taking the combination of nivolumab and ipilimumab needed to stop treatment because of the side effects. However, for patients that can continue treatment,

previous research has shown that the benefits of immunotherapy continue even after the drug is stopped.

Ipilimumab and nivolumab are both approved by the U.S. Food and Drug Administration (FDA) for melanoma that cannot be removed with surgery and advanced melanoma when other treatments stop working. Talk with your doctor about your treatment options, the risks and benefits of these options, as well as other concerns about managing your care. ■

Questions to Ask Your Doctor

- What stage of melanoma do I have? What does this mean?
- What are my treatment options?
- What clinical trials are open to me?
- Was my tumor tested to learn more about my treatment options?
- What are the possible side effects of each treatment option? How can they be managed?

Some People with Melanoma May Not Need Extensive Lymph Node Surgery

According to the results of a recent study, people who have surgery to remove lymph nodes near a melanoma tumor live the same amount of time as those who are watched closely for signs of cancer. Lymph nodes are tiny, bean-shaped organs that fight infection. During melanoma surgery, doctors look for cancer that has spread to the lymph nodes. If melanoma is found in these lymph nodes, there is a higher risk of the cancer coming back after treatment.

Most doctors around the world recommend that people with evidence of melanoma in their lymph nodes have a complete lymph node dissection (CLND). During a CLND, the doctor removes entire groups of lymph nodes. This surgery is extensive and can cause serious long-term side effects, including

infection, nerve damage, and lymphedema.

To find out if the benefits of a CLND outweigh the risks, researchers divided 483 people with stage III melanoma and a positive lymph node biopsy into two groups. One group had a CLND after melanoma surgery. The other group was closely monitored for signs that the cancer had come back. This meant having an ultrasound exam of the lymph nodes every three months and a computed tomography (CT or CAT) scan, magnetic resonance imaging (MRI), or positron emission tomography (PET) scan every six months. The participants in the CLND group followed this same schedule of check-ups after their CLND.

After nearly three years, doctors found cancer in the

lymph nodes of 15% of the people in the observation group compared with 8% in the CLND group. However, the same number of people in both groups had melanoma that eventually spread to other parts of the body. There was also no difference in how long people lived between the two groups. This means that having more extensive surgery did not help people live longer than having regular check-ups.

What this means for patients

This study may conclude a long-standing debate over the role of CLND in the care of people with melanoma.

“This is the first study to offer solid evidence that many patients with melanoma don’t need extensive lymph node surgery,” said ASCO expert Lynn Schuchter, MD, FASCO, a professor of hematology/oncology at the University of Pennsylvania in Philadelphia. “The findings should reduce the

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Adding Chemotherapy Improves Survival for Men with High-Risk, Localized Prostate Cancer

A recent study shows that adding docetaxel (Docefrez, Taxotere) chemotherapy to the standard treatment of hormone therapy and radiation therapy helps men with high-risk, localized prostate cancer live longer. Having a high-risk, localized prostate cancer means that the tumor has grown throughout the prostate gland, the tumor has a high grade or Gleason score, and the man has a high prostate-specific antigen (PSA) level. The Gleason score is based on how much the tumor looks like healthy tissue when viewed under a microscope.

Currently, the standard treatment for men with high-risk, localized prostate cancer is radiation therapy plus two years of hormone therapy. In this study, the researchers wanted to find out if adding chemotherapy after radiation therapy would lower the risk of the cancer coming back and help men live longer. This is called adjuvant chemotherapy, and it is a common treatment approach for many other cancers, including lung, breast, and colorectal cancers.

For this study, 562 men with high-risk, locally advanced prostate cancer received radiation

therapy and hormone therapy. A month after radiation therapy, one group also received 18 weeks of docetaxel chemotherapy, while the other received an inactive substance called a placebo.

The four-year survival rate was 93% in the docetaxel group compared with 89% in the standard treatment group. The four-year survival rate is the percentage of people who live at least four years after receiving treatment. Adding docetaxel also reduced the risk of the cancer coming back. Five years after treatment, 73% of men in the docetaxel group had no signs of prostate cancer compared with 66% in the standard treatment group.

What this means for patients
“This study is the first indication that chemotherapy has a role

MELANOMA

Some People with Melanoma May Not Need Extensive Lymph Node Surgery

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use of an approach that we have long assumed to be optimal. This is great news for patients, who can forego extensive surgeries without compromising their survival chances.” ■

Download Cancer.Net’s award-winning app at www.cancer.net/app to



get interactive tools in English and Spanish that can help you get answers to important questions, track side effects, and manage medications.

Questions to Ask Your Doctor

- What stage of melanoma do I have? What does this mean?
- Is it likely that the melanoma has spread? Why or why not?
- Will surgery be able to remove all of the cancer?
- Will I have a sentinel lymph node biopsy to find out if cancer has spread to the lymph nodes?
- If the melanoma has spread to the lymph nodes, will I need to have additional surgery?
- What are the potential risks and benefits of a complete lymph node dissection?

More Information: Melanoma

- [Guide to Melanoma \(www.cancer.net/melanoma\)](http://www.cancer.net/melanoma)
- [What is Cancer Surgery? \(www.cancer.net/surgery\)](http://www.cancer.net/surgery)
- [What is Immunotherapy? \(www.cancer.net/immunotherapy\)](http://www.cancer.net/immunotherapy)
- [Making Decisions About Cancer Treatment \(www.cancer.net/treatmentdecisions\)](http://www.cancer.net/treatmentdecisions)
- [Lymphedema \(www.cancer.net/lymphedema\)](http://www.cancer.net/lymphedema)

in the adjuvant treatment of localized prostate cancer, and we also expect to see an even bigger survival advantage over time,” said lead study author Howard Sandler, MD, a professor of radiation oncology at the Cedars-Sinai Medical Center in Los Angeles, CA. “This finding could extend the lives of thousands of men. At the same time, chemotherapy carries a modest increase in side effects, so it is important that physicians discuss the balance of benefits and risks with their patients.”

The side effects of chemotherapy depend on the individual and the dose used, but they can include fatigue, risk of infection, nausea and vomiting, hair loss, loss of appetite, and diarrhea. These side effects can often be prevented or managed and usually go away once treatment is finished. Take time to learn about all of your treatment options, and talk with your doctor about what you can expect while receiving treatment. ■

Questions to Ask Your Doctor

- What stage of prostate cancer do I have? What does this mean?
- What is my chance of recovery?
- What treatment plan do you recommend? Why?
- What are the possible side effects of each treatment, both in the short term and the long term?
- How can these side effects be prevented or managed?
- What is the risk of the cancer coming back after treatment?

Adding Docetaxel to Standard Prostate Cancer Treatment Lengthens Lives

A large, ongoing study showed that men with advanced prostate cancer who received docetaxel (Docetaxel, Taxotere) in addition to standard prostate cancer treatment lived longer than those who received only standard hormone therapy. The study also showed that including zoledronic acid (Zometa) along with docetaxel and standard hormone therapy did not offer additional benefits.

The results provided here are only one portion of this large, ongoing study on prostate cancer and its treatment. This portion includes 2,962 men newly diagnosed with prostate cancer who started long-term hormone therapy. The men participating in this portion of the study received one of the four different treatments listed below:

- Standard prostate cancer treatment, which includes at least three years of hormone therapy, with radiation therapy for some patients
- Standard prostate cancer treatment plus docetaxel
- Standard prostate cancer treatment plus zoledronic acid
- Standard prostate cancer treatment plus docetaxel and zoledronic acid

Researchers found that men who received standard treatment plus docetaxel lived about ten months longer than those who received only standard treatment. For the men who had prostate cancer that had spread, called metastatic

prostate cancer, those who received docetaxel lived almost two years longer than those who received only standard treatment. Docetaxel also reduced the risk of the cancer coming back after treatment.

Men who received only zoledronic acid in addition to standard treatment lived about as long as those who received only the standard treatment. Also, those who received docetaxel and zoledronic acid in addition to standard treatment lived about as long as those who received only docetaxel plus standard treatment. This indicates that adding zoledronic acid appeared to have little effect on how long men lived after diagnosis.

What this means for patients

“We hope our findings will encourage doctors to offer docetaxel to men newly diagnosed with metastatic prostate cancer, if they are healthy enough for chemotherapy. Men with locally-advanced, non-metastatic prostate cancer may also consider docetaxel as part of upfront therapy, as it clearly delays relapse,” said lead study author Nicholas David James, MD, PhD, Director of the Cancer Research Unit at the University of Warwick in Coventry, United Kingdom and Consultant in Clinical Oncology at Queen Elizabeth Hospital Birmingham. “It’s also clear that zoledronic acid does not benefit

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PROSTATE CANCER

Adding Docetaxel to Standard Prostate Cancer Treatment Lengthens Lives

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these patients and should not be offered as an upfront treatment for advanced prostate cancer.”

Men who received docetaxel had some additional side effects, compared with those who received only the standard treatment. However, very few patients stopped receiving docetaxel because of the side effects, which means that, in general, the side effects were manageable. ■

Questions to Ask Your Doctor

- What stage of prostate cancer do I have? What does this mean?
- What are my treatment options?
- Is docetaxel an option for me?
- What treatment do you recommend? Why?
- What are the possible side effects of each treatment and how can they be managed?

More Information: Prostate Cancer

- [Guide to Prostate Cancer \(www.cancer.net/prostate\)](http://www.cancer.net/prostate)
- [What is Chemotherapy? \(www.cancer.net/chemotherapy\)](http://www.cancer.net/chemotherapy)
- [Hormone Therapy for Advanced Prostate Cancer \(www.cancer.net/recommendations\)](http://www.cancer.net/recommendations)

SARCOMA

Eribulin Helps People with Two Rare Types of Soft-Tissue Sarcoma Live Longer

Approximately 12,000 people will be diagnosed with a soft-tissue sarcoma in the United States this year. Currently, there are few treatment options available, especially for tumors that grow or spread to other parts of the body during treatment. However, recent research has shown that the chemotherapy eribulin (Halaven) may be a promising new treatment option for people with two types of rare soft-tissue sarcomas: leiomyosarcoma and adipocytic sarcoma, which is also

called liposarcoma.

In the current study, 452 people with advanced leiomyosarcoma or adipocytic sarcoma volunteered to participate. Leiomyosarcoma, which starts in smooth muscle, and adipocytic sarcoma, which starts in fatty tissue, are difficult-to-treat cancers. All of the participants had cancer that had grown or spread after receiving two or more previous treatments.

The researchers divided the participants into two groups. One group received eribulin, and the other group received the standard chemotherapy dacarbazine (DTIC-Dome). The researchers found that the people in the eribulin group lived two months longer than the people in the dacarbazine group (14 months compared with 12 months).

SKIN CANCER PREVENTION

Common Vitamin May Lower the Risk of Skin Cancer

A recent study showed that people who took a form of vitamin B3 called nicotinamide developed fewer non-melanoma skin cancers. Nicotinamide is a low-cost vitamin supplement available over the counter. Previous research has suggested that nicotinamide helps protect skin cells from the sun and repair sun damage.

The primary cause of non-melanoma skin cancer is sun exposure. Despite intensive

sun protection campaigns, skin cancer is continuing to increase worldwide. In the United States, more than four million people develop non-melanoma skin cancer each year. In Australia, where this study was done, more than half the population develops non-melanoma skin cancer during their lifetime.

This study included 386 patients with a high risk of skin cancer. This means that they had developed at least two skin cancers in the five years before the study began. As part of the study, they took either nicotinamide twice a day by mouth in pill form or a placebo for 12 months. A placebo is an inactive treatment.

According to the authors, this is the first randomized phase III study to show an improvement in survival for people with these hard-to-treat diseases.

What this means for patients

“Soft-tissue sarcomas are relatively rare and can be very difficult to treat. The efficacy of available drugs for initial therapy is very unsatisfactory, and patients whose disease progresses despite two or more lines of treatment have a very poor prognosis,” said lead study author Patrick Schöffski, MD, MPH, Head of the Department of General Medical Oncology at University Hospitals Leuven in Belgium. “For a disease where such few treatment options exist, a two-month improvement in survival is significant. The more treatments

our patients have access to, the better the chance of improving their life expectancy.”

The U.S. Food and Drug Administration (FDA) approved eribulin as a treatment for advanced breast cancer in 2010. However, eribulin is currently not FDA-approved to treat soft-tissue sarcoma. Talk with your doctor about all of your treatment options, including participating in a clinical trial.

In this study, the most common side effects of eribulin were low white blood cell counts, fatigue, nausea, hair loss, and constipation. ■

Questions to Ask Your Doctor

- What type of sarcoma do I have? What does this mean?
- What are my treatment options? What clinical trials are open to me?
- Is eribulin an option for me? Is it only available in clinical trials?
- What treatment do you recommend? Why?
- What are the potential risks and benefits of this treatment?
- What is my chance of recovery?

More Information: Sarcoma

- [Guide to Soft Tissue Sarcoma \(www.cancer.net/sarcoma\)](http://www.cancer.net/sarcoma)
- [What is Chemotherapy? \(www.cancer.net/chemotherapy\)](http://www.cancer.net/chemotherapy)

Researchers found that the patients who took nicotinamide were less likely to develop non-melanoma skin cancer than those who took the placebo. For example, patients who received nicotinamide developed 23% fewer skin cancers than those who received the placebo. In addition, patients who took nicotinamide had fewer precancerous growths, called actinic keratosis, as early as three months into the study.

What this means for patients

“This is the first clear evidence that we can reduce skin cancers using a simple vitamin, together with sensible sun protection. We hope that these findings can

be immediately translated into clinical practice,” said senior study author Diona Damian, MBBS, PhD, a professor of dermatology at the Dermatology University of Sydney in Australia. “However, people at high risk for skin cancer will still need regular check-ups with their doctor.”

In this study, there were no serious side effects of taking nicotinamide. Nicotinamide is easy to confuse with another form of vitamin B3 called nicotinic acid, which is known to cause side effects. This is one reason why it is important to talk with your doctor before starting any new vitamin or supplement. ■

Questions to Ask Your Doctor

- What is my risk of skin cancer?
- What can I do to lower my risk?
- Would I benefit from taking this form of vitamin B3?
- How can I make sure I am taking the correct form of vitamin B3 in an appropriate dose?
- Are there any possible risks of taking this vitamin?

More Information: Skin Cancer Prevention

- [Guide to Skin Cancer \(Non-Melanoma\) \(www.cancer.net/skin\)](http://www.cancer.net/skin)
- [Vitamins and Minerals \(www.cancer.net/prevention\)](http://www.cancer.net/prevention)

Genetic Changes May Help Predict Who Will Benefit Most from PD-1 Immunotherapy

Results from a small phase II study suggest that the PD-1 immunotherapy, pembrolizumab (Keytruda), works better when tumors have a large number of genetic changes or mutations.

Cancer begins when healthy cells change and grow uncontrollably, forming a mass called a tumor. Sometimes these changes cause problems with the process that repairs mistakes in the DNA of cancer cells. This happens in 15% to 20% of non-inherited colorectal cancers and nearly all colorectal cancers associated with Lynch syndrome. This DNA repair problem also occurs in other types of cancer, such as stomach, small bowel, endometrial, prostate, and ovarian cancers.

By not being able to fix genetic mistakes, mutations start to build up in a tumor's DNA. In this study, tumors with a DNA repair problem had an average of 1,782 mutations compared with 73 mutations in tumors without this repair issue. According to the researchers, the immune system is more likely to recognize and destroy a tumor with thousands of mutations, which could help treatments like PD-1 immunotherapy work better.

Immunotherapy is designed to boost the body's natural defenses to fight the cancer. Drugs like pembrolizumab improve immune system function by blocking a protein called PD-1. PD-1 is found on the surface of T-cells, which are a type of white blood cell that directly helps the body's immune system fight disease. Because PD-1 keeps the immune system from destroying cancer cells, stopping PD-1 from working allows the immune system to better eliminate the disease.

In this study, 48 people with metastatic cancer that had grown or spread despite previous treatment received pembrolizumab. Thirty-eight had colorectal cancer that had spread to other parts of the body, while 10 had other types of cancer.

About five months after treatment, the researchers found that tumors that were unable to repair DNA mistakes responded better to pembrolizumab treatment. Ninety-two percent (92%) of colorectal cancer tumors with the DNA repair problem shrank or stopped growing after pembrolizumab treatment compared with 16% of tumors without this DNA

repair problem. Overall, 62% of colorectal cancer tumors with the DNA repair problem shrank, while none without the repair problem decreased in size.

The response rate for other types of cancer with this DNA repair problem was similar (60%). This included advanced endometrial cancer and several types of advanced gastrointestinal cancers, including ampullary, duodenal, cholangiocarcinoma, and gastric cancers. Few treatment options exist for people with these diseases. The last time data was analyzed, these responses were continuing for all but one person, and many of these responses have been ongoing for more than a year.

What this means for patients

“This study is really about bridging immunotherapy and genomics for the benefit of patients, and it has implications for a broad range of cancers,” said lead study author Dung T. Le, MD, an assistant professor of oncology at Johns Hopkins Kimmel Cancer Center in Baltimore, MD. “Opening the door to this effective new therapy would be a breakthrough for this group of patients with metastatic colon cancer and other hard-to-treat cancers.”

Testing for the DNA repair problem reported in this study is widely available. If these

More Information: Tumor Genetics

- [The Genetics of Cancer \(www.cancer.net/genetics\)](http://www.cancer.net/genetics)
- [What is Immunotherapy? \(www.cancer.net/immunotherapy\)](http://www.cancer.net/immunotherapy)
- [What is Personalized Cancer Medicine? \(www.cancer.net/treatment\)](http://www.cancer.net/treatment)
- [Explaining Cancer Genome Research \(www.cancer.net/research\)](http://www.cancer.net/research)

results are confirmed in larger studies, this type of testing may help doctors figure out which people might benefit the most from treatment with pembrolizumab and other PD-1 immunotherapies in the future.

Pembrolizumab is currently only approved by the U.S. Food and Drug Administration (FDA) to treat advanced melanoma that has not responded to other standard treatments. Another PD-1 immunotherapy, nivolumab (Opdivo), is approved for advanced melanoma and advanced squamous non-small cell lung cancer. Talk with your doctor about whether your tumor should be tested for genetic changes and whether the results will affect your treatment options.

Dr. Le was a recipient of a Conquer Cancer Foundation of ASCO Career Development Award in 2008. ■

Questions to Ask Your Doctor

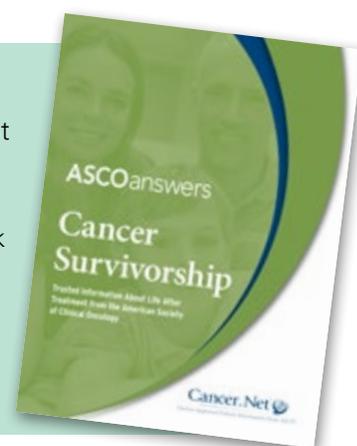
- What type and stage of cancer do I have? What does this mean?
- What are my treatment options based on my diagnosis?
- Are there tests available that can help guide my treatment choices?
- What clinical trials are open to me? Where are they located, and how do I find out more about them?
- What are the risks and possible side effects of treatment, both in the short term and the long term?



DISCOVER THE CANCER.NET BLOG

Cancer.Net has an interactive blog that shares information in a more timely manner and responds to current events, including breaking news about cancer advances and other topics important to people affected by cancer. Cancer.Net Blog posts provide practical tips for living with cancer, suggestions to help patients and families cope with the disease, and research news and guidelines from ASCO. The blog also features guest posts by ASCO experts, stories from patients and patient advocates, podcasts, and interviews. Check out the latest posts at www.cancer.net/blog.

ASCO Answers: Cancer Survivorship helps patients transition into life after active treatment has finished. In addition to information on the challenges survivors may face and the importance of follow-up care, it includes a blank treatment summary and survivorship care form that patients can fill out with the help of their health care team. Download this booklet at www.cancer.net/survivorship.



STAY UP-TO-DATE WITH THE NEW RESOURCES AVAILABLE ON CANCER.NET

It is easier than ever to get the latest cancer information on your computer or mobile device by subscribing to the [Cancer.Net Blog](http://www.cancer.net/blog) at www.cancer.net/blog, or on [Cancer.Net's Facebook](https://www.facebook.com/CancerDotNet) (www.facebook.com/CancerDotNet), [Google+ \(plus.google.com\)](https://plus.google.com), and [YouTube](https://www.youtube.com/CancerDotNet) (www.youtube.com/CancerDotNet) pages, and at CancerDotNet on [Twitter](https://www.twitter.com/CancerDotNet) (www.twitter.com/CancerDotNet).

Cancer.Net™ 

For more information, visit ASCO's patient website, www.cancer.net, or call 888-651-3038.

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