



SUMMARY OF SCIENTIFIC BREAKTHROUGHS FROM THE 2019 ASTRO ANNUAL MEETING

THE ROLE OF RADIATION THERAPY IN CANCER CARE

Introduction

Hearing a cancer diagnosis is scary. Overwhelming. Confusing. Many questions flood your mind when you learn you or a loved one have cancer. And trying to learn and understand all the treatment options can be daunting to say the least. At the American Society for Radiation Oncology (ASTRO), our mission is to advance the practice of radiation therapy by promoting excellence in patient care, which includes promoting radiation oncology research and disseminating results to both our members and patients.

For more than 100 years, doctors have been using radiation therapy, also known as radiotherapy, to treat patients diagnosed with cancer. Radiation therapy is often combined with other treatment options, like chemotherapy or surgery, or used as a stand-alone treatment. Radiation therapy is an effective option for many people faced with a cancer diagnosis. In fact, nearly two-thirds of all cancer patients are treated with radiation during their illness.

Radiation therapy targets cancer cells and damages the DNA of the cell. The radiation destroys the ability of the cancer cells to reproduce and repair, causing the cells to die. Once these cancer cells die, the body naturally eliminates them. Normal cells that surround the cancer cells are affected by the radiation treatment as well, but the normal, healthy cells can repair themselves far better than the cancer cells. Advances in radiation therapy have allowed doctors to better target the cancer to reduce the risk of side effects from radiation. Despite the name, radiation therapy does not cause a patient to become radioactive. Radiation therapy treatments allow most patients to continue with their typical daily activities. Side effects vary based on the location and type of cancer, and many patients continue to work or go to school while undergoing treatments.

With radiation therapy, research often focuses on this question: What is the right dose of radiation for each patient? Sometimes more intense therapy is needed, and in others, is it possible to reduce the amount and intensity of treatments while still achieving excellent outcomes for patients? How do radiation oncologists find the right balance between reducing treatment doses to improve patients' quality of life while making sure that the reduced treatment remains powerful enough to stop the cancer from spreading?

The answer is research, where scientists and physicians work together to discover new cancer treatments. Today, radiation oncologists are actively researching safe and effective radiation treatments, including more personalized approaches and studies of lower doses for a variety of cancers.

In an effort to disseminate the latest science related to radiation therapy, ASTRO prepared this pamphlet, which highlights some of the top research presented at our 2019 Annual Meeting.



We encourage you to review all of your treatment options, including radiation therapy, with your primary care physician before determining which option or combination of options is best for you and your lifestyle.

Theodore L. DeWeese, MD, FASTRO
Chair, ASTRO Board of Directors



Palliative Care

The goal of palliative care, also known as supportive care, is to improve the quality of life of people with serious illnesses, including cancer, by relieving or managing symptoms caused by the cancer itself or cancer treatments. Symptoms treated can include pain, shortness of breath, loss of appetite, fatigue and disruptions to normal sleep patterns. The idea behind palliative care is that by providing relief to some of these symptoms, a patient would then gain more strength and be able to carry on with normal daily activities or tolerate other medical treatments. Patients can receive palliative care at the same time as other cancer treatments.

Can a rapid access bone metastasis clinic reduce financial toxicity?

Each year, thousands of U.S. cancer patients learn that their cancer has metastasized, meaning it has spread to other parts of the body, including their bones. Almost any cancer can metastasize (or spread) to the bones, but cancers of the breast, lung and prostate — some of the most common in the U.S. — are the types of cancer most likely to spread to the bones.

Bone metastases are typically painful and often prevent patients from continuing to do the things they enjoy. Fortunately, palliative radiation therapy is an effective treatment for bone metastases. Radiation therapy can reduce the need for pain medication and improve patients' quality of life, so providing effective, affordable treatments for bone metastases is an important priority among radiation oncologists.

To meet this need, the University of Texas MD Anderson Cancer Center in Houston launched a rapid access bone metastases clinic (RABC). The goal is for patients to receive radiation oncology and orthopedic surgery consults within 48 hours of being referred. When possible, patients receive radiation simulation and one 8 Gy treatment on the same day. Typically, this referral, planning and palliative radiation treatment process can take up to several weeks and requires multiple doctor visits, all of which rack up out-of-pocket costs to patients.

So far, high patient satisfaction scores have indicated that the RABC is meeting its goal of quickly improving care for patients with bone metastases. But is the RABC cost effective for patients? Jose Alberto Maldonado, a first-year medical student at the University of Texas Medical Branch, and colleagues conducted a survey to compare how much patients paid out of pocket when receiving treatment in the RABC compared with patients who did not use the RABC. The survey also asked about travel distance and patient satisfaction. Maldonado and colleagues learned that the RABC at MD Anderson Cancer Center significantly decreased overall out-of-pocket costs for palliative radiation patients. They found that the average out-of-pocket expense for RABC patients was \$500 per treatment, versus \$3,500 for MD Anderson patients who didn't use the RABC. "For patients, having the option of being seen for a consult and treated all within one day can make palliative care much more affordable," he said.

One finding did surprise Maldonado: There was no difference in the average distance a patient traveled, whether they were treated in the RABC or received treatment elsewhere at MD Anderson. "One of our worries with this study was that patients might pick treatment based on how far they had to travel and how much time they could spend in Houston," he said. "However, our results proved otherwise, making our findings much stronger."

Currently, the MD Anderson team is studying how much time patients must spend at the hospital. They are also looking at how many patients need additional palliative radiation sessions at the RABC and hope to publish data on how effective the 8 Gy single-fraction treatment is compared to more traditional forms of treatment.

Looking ahead, Maldonado sees much room for growth in the RABC model of care. "Implementation of an RABC in local community centers can further decrease costs for patients receiving palliative radiation," he said. "It is our hope that these findings encourage other cancer centers to implement RABCs throughout the country and even across the world."

SABR treatment gives patients with metastatic cancer good quality of life despite increased side effects

When researchers study new cancer treatments, they evaluate how well patients tolerate the new treatment, and they also look at how the new treatment affects patients' quality of life. But patients' thoughts about their quality of life don't always match up with researchers' perceptions.

That's what happened when researchers performed a new analysis on previously published data. A team of researchers led by Robert A. Olson, MD, MSc, of the University of British Columbia, studied whether adding stereotactic ablative radiotherapy (SABR) to standard therapy, such as palliative chemotherapy, would improve quality of life for patients with metastatic cancer.

SABR, also known as stereotactic body radiotherapy (SBRT), is a high-dose, high-precision cancer therapy that delivers its full dose of radiation to tumors in a few — or even just one — treatment session. In theory, a higher dose could cause increased side effects and decreased quality of life.

That's not what happened, though. When patients completed a questionnaire on quality of life, those who had received SABR reported no worse quality of life than the patients who had received standard care, even though the SABR patients did develop more side effects from their treatment.

“We were surprised that SABR was not associated with a worse quality of life when compared to standard of care, because we previously showed that SABR does have a measurable increase in side effects,” Dr. Olson said. “Combined with our previously reported findings that SABR was associated with longer survival, we believe that SABR should now be studied in larger randomized trials and could be considered a treatment approach in well-selected patients with a few sites of cancer spread.”

Currently, the researchers are performing two larger follow-up Phase III trials to compare SABR's effectiveness with standard therapies. The SABR-COMET-3 trial examines how well SABR works in patients whose cancer has spread to one to three sites. The SABR-COMET-10 trial will report on using SABR in patients whose cancer has spread to four to 10 sites.

