



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

Hematologic – Lymphomas

Lymphomas affect the network of tiny vessels (even smaller than veins and arteries) and lymph nodes that extend throughout the body and are known as the lymphatic system. These lymphatic vessels carry a clear liquid called lymph from the extremities and organs back to the blood circulation and help fight infections and disease. Two common cancers in this area, often referred to as lymphoma, are Hodgkin's lymphoma and Non-Hodgkin's lymphoma.

Hodgkin's lymphoma: What's the best level of treatment?

Hodgkin's lymphoma (also known as Hodgkin's disease) is one of the most curable cancers today. Since all cancer treatments come with side effects, current research often focuses on creating treatment plans that minimize the amount of treatment without losing effectiveness. Recent research has suggested that Hodgkin's patients can skip radiation treatments if they have a good initial response to chemotherapy, but a new European study with more than a thousand patients contradicts that finding.

"Radiation therapy is still a key player in the management of Hodgkin's lymphoma," said principal investigator Hans Eich, MD, PhD, a radiation oncologist at University Hospital Muenster in Germany. He noted that radiation therapy was the only treatment for the disease several decades ago, but recent studies, including this one, indicate that a combination of chemotherapy and low-dose radiation achieves the highest level of tumor control with the least harmful effects.

Between November 2009 and December 2015, the German Hodgkin Study Group (GHSG) recruited 1,150 patients, ranging in age from 18 to 75, with newly diagnosed, early-stage favorable Hodgkin's lymphoma, from Germany, Switzerland, Austria and the Netherlands.

The patients all received chemotherapy, and positron emission tomography (PET) was used to evaluate how well they responded. They were then randomly assigned to one of two groups. Group one received a course of low-dose radiation therapy regardless of what the PET scan showed. Group two was divided into two arms based on their PET results. The patients whose PET scans showed a good response to chemotherapy received no further treatment aside from routine follow-up care, and the patients who responded less well received low-dose radiation.

The research team compared the chemotherapy-only group (300 patients) with the 328 patients in the chemo/radiation group who had similar PET results. They found that 93.4% of the patients receiving both chemotherapy and radiation were disease free after five years, compared with only 86.1% of the patients in the chemotherapy-only group. Dr. Eich said he was surprised at the size of the difference. Most often, the disease recurred at its original site, rather than showing up in other parts of the body.

"A limited, well defined, low-dose radiation therapy in conjunction with a limited chemotherapy offers the best chances for a cure in limited-stage Hodgkin's lymphoma," he said.

