PET Scans Can Inform and Improve Treatment for Patients With Esophageal Cancer

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Expert Perspective
“PET scans may prove to be a valuable tool to help oncologists fine-tune the use of chemotherapy for esophageal cancer and maximize the benefit of chemotherapy for each individual patient,” said ASCO Expert Nancy Baxter, MD, FRCS, FACS, PhD, moderator of today’s presscast. “This is heartening evidence for a new approach to treating a disease where innovation is sorely needed.”

ALEXANDRIA, Va. – Findings from a federally funded clinical trial point to a new way to improve the outlook for patients with esophageal cancer: using PET scans to assess tumor response to initial chemotherapy may allow doctors to tailor further chemotherapy. Despite aggressive combined modality treatment with chemotherapy, radiation therapy, and surgery, the prognosis for patients with esophageal cancer is poor, with fewer than 50% surviving at five years after diagnosis. Ways to monitor treatment effectiveness are urgently needed to improve outcomes. The study will be presented at the upcoming 2017 Gastrointestinal Cancers Symposium in San Francisco.

Patients with stage II-III esophageal and gastroesophageal junction (GEJ) cancers typically receive 5.5 weeks of chemotherapy with radiation (“chemoradiation”), followed by surgery. Use of chemoradiation before surgery has been shown to improve survival compared to surgery alone. Several chemotherapy regimens are available for use during chemoradiation, but doctors have no reliable method to predict whether a particular chemotherapy will be effective in a given patient.

“In this study, we are adding induction chemotherapy before chemoradiation and showing that using PET scans after the induction chemotherapy to assess response can help doctors make quick course corrections to maximize patient benefit from chemotherapy,” said Karyn A. Goodman, MD, a radiation oncologist at the University of Colorado School of Medicine in Aurora, CO. “Although our approach does lengthen a patient’s time before surgery, we found that assessing treatment efficacy by PET scans can improve the efficacy of the treatment as shown by the ability to achieve a pathologic complete response, meaning there were no traces of cancer in the tissue specimen taken at the time of surgery.”

PET scans are routinely used to guide therapy decisions in lymphoma but are only beginning to be explored for this purpose in solid tumors. This study is among the first to show the benefit of PET imaging in
directing pre-surgery treatment decisions for esophageal cancer.

**The Study**

Following an initial PET scan, 257 patients with stage II-III esophageal and GEJ adenocarcinoma were randomly assigned to one of two induction chemotherapy regimens: modified FOLFOX-6 or carboplatin/paclitaxel. A PET scan was repeated after the first few cycles of induction therapy. If the PET scan suggested that the induction chemotherapy had worked, patients continued with the same chemotherapy regimen during chemoradiation.

If the PET scan revealed that the induction chemotherapy regimen was not effective, chemotherapy was changed to the other of the two regimens during chemoradiation. Overall, 39 out of 129 patients who received FOLFOX induction chemotherapy, and 49 out of 128 patients who received carboplatin/paclitaxel, switched chemotherapy regimens after the PET scan.

**Key Findings**

Among the patients who switched to an alternative chemotherapy after induction therapy, 15.6% ultimately achieved a pathologic complete response. In prior studies, where pre-surgery chemotherapy was not changed based on a PET scan, the complete pathologic response rate among patients with tumors not responsive to induction chemotherapy as measured by PET scan was only 5%. Prior research suggested a link between pathologic complete response and longer survival in this cancer.

**Next Steps**

PET scans are covered by Medicare for staging and evaluation of treatment response for esophageal and GE junction cancers. This study shows that PET scans can be used going forward to help guide therapy decisions for patients with esophageal and GEJ cancers. “However, we still need to further refine what is the most effective regimen for this disease,” said Dr. Goodman.

**About Esophageal and GEJ Cancers**

Worldwide, 400,000 people die of esophageal cancer every year.\(^1\) In the United States, the rates of esophageal and GEJ cancers have been rising since the 1970s. An estimated 17,000 people were diagnosed with esophageal cancer in 2016 in the United States, and 16,000 died of the disease.\(^2\) The most common type in the United States is adenocarcinoma, accounting for 70% of esophageal cancers.

This study was supported by grants from the National Institutes for Health.

View the [full abstract](#).

For your readers:

- Guide to Esophageal Cancer
- Positron Emission Tomography and Computed Tomography (PET-CT) Scans
- Understanding Chemotherapy

**2017 Gastrointestinal Cancers Symposium News Planning Team**

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[Click here](#) to view the disclosures for the News Planning Team.

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The American Gastroenterological Association (AGA) is the trusted voice of the GI community. Founded in 1897, the AGA has grown to include more than 16,000 members from around the globe who are involved in all aspects of the science, practice and advancement of gastroenterology. The AGA, a 501(c6) organization, administers all membership and public policy activities, while the AGA Institute, a 501(c3) organization, runs the organization's practice, research and educational programs. On a monthly basis, the AGA Institute publishes two highly respected journals, *Gastroenterology* and *Clinical Gastroenterology and Hepatology*, and has recently launched a third journal, *Cellular and Molecular Gastroenterology and Hepatology*. The organization's annual meeting is *Digestive Disease Week®,* which is held each May and is the largest international gathering of physicians, researchers and academics in the fields of gastroenterology, hepatology, endoscopy, and gastrointestinal surgery. The [AGA Research Foundation](http://www.agaf.org) provides digestive disease research grants on behalf of the AGA Institute.

For more information and to join, visit [gastro.org/membership](http://gastro.org/membership).

**About the American Society for Radiation Oncology:**
The American Society for Radiation Oncology (ASTRO) is the premier radiation oncology society in the world, with more than 10,000 members who are physicians, nurses, biologist, physicists, radiation therapists, dosimetrists and other health care professionals that specialize in treating patients with radiation therapies. As the leading organization in radiation oncology, the Society is dedicated to improving patient care through professional education and training, support for clinical practice and health policy standards, advancement of science and research, and advocacy. ASTRO publishes three medical journals, *International Journal of Radiation Oncology, Biology, Physics*, *Practical Radiation Oncology*, and *Advances in Radiation Oncology*, developed and maintains an extensive patient website and created the [Radiation Oncology Institute](http://www.radiationoncologyinstitute.org), a non-profit foundation to support research and education efforts around the world that enhance and confirm the critical role of radiation therapy in improving cancer treatment. Learn more about [ASTRO](http://www.astro.org).

**About ASCO:**

Founded in 1964, the American Society of Clinical Oncology, Inc. (ASCO®) is committed to making a world of difference in cancer care. As the world’s leading organization of its kind, ASCO represents more than 40,000 oncology professionals who care for people living with cancer. Through research, education, and promotion of the highest-quality patient care, ASCO works to conquer cancer and create a world where cancer is prevented or cured, and every survivor is healthy. ASCO is supported by its affiliate organization, the Conquer Cancer Foundation. Learn more at [www.ASCO.org](http://www.ASCO.org), explore patient education resources at [www.Cancer.Net](http://www.Cancer.Net), and follow us on Facebook, Twitter, LinkedIn, and YouTube.

**About the Society of Surgical Oncology:**
The Society of Surgical Oncology (SSO) is the premier organization for surgeons and health care providers dedicated to advancing and promoting the science and treatment of cancer. The Society’s focus on all solid-tumor disease sites is reflected in its Annual Cancer Symposium, monthly scientific journal (Annals of Surgical Oncology), educational initiatives, and committee structure. The Society’s mission is to improve multidisciplinary patient care by advancing the science, education, and practice of cancer surgery worldwide. SSO’s 2016–2017 President is Daniel G. Coit, MD, Professor of Surgery with Weill Cornell Medical College and surgical oncologist with Memorial Sloan Kettering Cancer Center. For more
information, visit surgonc.org or SSO2016.org.