Medication Before Surgery Continues to Increase

Report shows a notable increase in the use of medication therapies, such as chemotherapy and immunotherapy, to treat cancer before surgery.

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Key Takeaways

- New report shows growing use of medications, such as chemotherapy, immunotherapy, and hormone therapy, given before surgery to treat many types of cancer, potentially making surgery less invasive and helping clinicians assess how a patient's cancer responds to medication to guide the most effective treatment options.
- The report also provides in-depth data on esophageal, melanoma, and prostate cancers, including the median age at diagnosis and the most common surgery performed for each cancer.
- Researchers call for more attention to esophageal cancer, which lacks effective screening options and is diagnosed at an advanced stage in roughly half of patients.

CHICAGO — The second annual report from the National Cancer Database (NCDB) of the American College of Surgeons (ACS) documents a substantial rise in medication treatments, such as chemotherapy, immunotherapy, and hormone therapy, used before surgery to treat many cancers, often allowing less invasive surgery and helping clinicians assess how a patient's cancer responds to medication to guide the most effective treatment options.

The report, published [January 21] in the Journal of the American College of Surgeons (JACS), shows the most notable increases in neoadjuvant systemic therapy, which involves treatments that travel throughout the bloodstream and are given before surgery, for pancreatic, gynecologic, and abdominal lining cancers.

A comprehensive cancer database jointly run by the ACS and the American Cancer Society, the NCDB collects data on nearly 75% of cancer cases across the United States and includes metrics

not often found in other cancer databases, such as tumor biology and length of hospital stay.

The report summarizes data from more than 22 million cancer cases diagnosed at 1,250 ACS Commission on Cancer (CoC) hospitals from 2004 to 2022, the most recent years for which complete data is available. It also describes in-depth data on esophageal, melanoma, and prostate cancers.

“The NCDB report includes clinically relevant data intended to inform not only researchers but also the public on recent observations of cancer involving the latest treatment, surgical options, and cancer outcomes,” said Ronald J. Weigel, MD, PhD, MBA, FACS, medical director of ACS Cancer Programs, and co-author of the JACS study. “As care at CoC-accredited facilities continues to advance, our hope is that this report reflects the vastly changing clinical landscape of cancer treatments using the latest evidence-based treatments.”

Big Picture Cancer Observations

Use of neoadjuvant systemic therapy increased notably for certain cancers. The researchers found that from 2010 to 2022, the use of neoadjuvant systemic therapy for gynecologic cancers rose nearly fivefold, from 7% to 34%. Substantial increases in neoadjuvant systemic therapy were also seen for pancreatic cancer, which more than tripled (12% to 40%), and for rarer cancers (peritoneum, omentum, and mesentery) that affect the abdominal lining and tissue, which nearly doubled (23% to 47%).

“Historically, when we thought about treating solid tumors, the first expected treatment was to have surgery to remove the tumor. Now, we are seeing treatment more frequently with targeted medication before surgery,” said Judy C. Boughey, MD, FACS, senior author of the JACS study, chair of the ACS Cancer Research Program, and chair of the Division of Breast and Melanoma Surgical Oncology at Mayo Clinic in Rochester, Minnesota.

Dr. Boughey noted the main advantage of neoadjuvant systemic therapy is twofold: first, it shrinks the tumor, ideally allowing for less invasive surgery; and second, it allows clinicians to better understand the tumor’s response to systemic treatment, which can help clinicians determine the most effective treatment for a patient.

“If a patient’s tumor responds to systemic therapy, they generally will do well with treatment; if that doesn’t happen, it tells the clinical team that they need to think about different therapy,” she said.

In-Depth Data on Three Cancers

The report also examined three cancers in depth: prostate cancer, a common (high-volume) cancer; esophageal cancer, a less common (low-volume) cancer; and melanoma, selected as a special interest cancer.

Prostate Cancer

Patients with prostate cancer, the most common cancer diagnosed in men, are increasingly being

treated with non-surgical options, especially for patients with Stage 1 prostate cancer, according to the report. In 2022, roughly 60% of patients with prostate cancer were treated with methods other than surgery, a rise from 54% in 2018. Of patients who had surgery, removal of the prostate gland (prostatectomy) was the most common surgery, occurring in 85% of patients who had surgery.

Risk factors for dying from prostate cancer are also described in the report. Men who had a prostate-specific antigen (PSA) level over 20 at the time of diagnosis, as well as a higher cancer stage and grade of tumor, were more likely to die from the disease.

Esophageal Cancer

The number of patients with esophageal cancer who received immunotherapy rose sharply, increasing from 8% to 30% between 2018 and 2022. While the use of immunotherapy to treat esophageal cancer is growing, the disease is often detected at an advanced stage. About half of patients already have stage 4 disease at the time of their diagnosis.

In the JACS study, the authors call for an effective, widely used screening method to detect esophageal cancer earlier in more patients.

“If patients with esophageal cancer are diagnosed at less advanced stages, we theorize that more patients could be treated with surgery or other less invasive treatment options,” said Elizabeth B. Habermann, PhD, MPH, chair of the ACS Cancer Data Modeling Pillar, professor of health services research at Mayo Clinic in Rochester, Minnesota, and first author of the JACS study.

Melanoma

Melanoma, a skin cancer that can be deadly if not detected early, most often affected the torso (30%) or the upper limb and shoulder region (25%). Patients with scalp and neck melanomas had the lowest overall survival rates among all invasive melanomas. Ulceration, which occurs when the top layer of the skin involved by melanoma breaks down, was also associated with poorer survival, according to the report.

Future reports will focus on three other cancers to provide the public and researchers with unique data points not often included in other cancer reports, the authors added.

Co-authors of the JACS study are Courtney N. Day, MS; Bryan E. Palis, MA; Daniel Boffa, MD, FACS; Tina J. Hieken, MD, FACS; and Shaheen Alanee, MD, MBA, MPH, FACS.

This study is published as an article in press on the JACS website.

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