

Pre-surgery chemotherapy is possible for early stage pancreatic cancer patients

January 21 2021



Dr. Sohail, co-chair of the SWOG Cancer Research Network pancreatic cancer clinical trial. Credit: University of Cincinnati

A first-of-its-kind randomized clinical trial found that patients with pancreatic cancer didn't live any longer than expected after receiving pre-operative chemotherapy from either of the two standard regimens, according to trial results published in *JAMA Oncology*.

While the trial findings did not show a direct patient benefit, they do show that it's possible to safely administer chemotherapy prior to [pancreatic cancer](#) surgery. They also pave the way for better treatment testing for this notorious killer. With no symptoms in the early stages,

and few effective therapies, pancreatic [cancer](#) is the fourth-most deadly cancer type in the United States. According to the American Cancer Society, only 20 percent of pancreatic cancer patients are alive one year after diagnosis. After five years, only about 7 percent are alive.

Can these [survival rates](#) improve? Is one answer to give chemotherapy drugs to patients before their surgery? SWOG Cancer Research Network member Davendra Sohal, MD, MPH, and SWOG Surgery Committee Chair Syed Ahmad, MD, launched the trial, known as S1505, to find out. S1505 is the first trial to compare two common chemotherapy regimens for pancreatic cancer, and the first in the National Cancer Institute's National Clinical Trials Network to test chemotherapy prior to pancreatic cancer surgery.

When diagnosed, roughly 20 percent of pancreatic cancers are stage I or II, meaning they haven't spread to other parts of a patient's body and can be surgically removed. For patients with these early stage cancers, Dr. Sohal, an associate professor at the University of Cincinnati and a medical oncologist with UC Health, and Dr. Ahmad, co-director of the University of Cincinnati Cancer Center, a professor and director of the Division of Surgical Oncology, and a UC Health surgeon, wanted to put to the test two chemotherapy regimens to see if one or both of the drug combinations would help patients live longer.

One regimen they tested is modified FOLFIRINOX, or mFOLFIRINOX, a combination of three chemotherapy drugs—fluorouracil, irinotecan, and oxaliplatin. The other regimen is a combination of gemcitabine and nab-paclitaxel. Results of a practice-changing international trial, PRODIGE-24, were published in December 2018 in the New England Journal of Medicine showing that pancreatic cancer patients saw a substantial benefit from six months of FOLFIRINOX treatment post-surgery, compared with post-surgery patients treated for six months with gemcitabine. An editorial written

about the results, titled "A Glimmer of Hope for Pancreatic Cancer" asked: "Is surgery followed by six months of adjuvant chemotherapy the appropriate sequence in patients with a disease that may be systemic at diagnosis? Can we further improve outcomes by delivering modified FOLFIRINOX before surgery?" This is the question the investigators wanted to answer.

In S1505, they enrolled 102 eligible early stage pancreatic cancer patients. Each was randomly assigned to receive either the mFOLFIRINOX or the gemcitabine combination, both before and after surgery. Because some patients were too sick from pre-surgical chemotherapy or for other reasons, only 73 of the 102 eligible patients underwent surgery. Of those, 61 started and 48 completed chemotherapy.

The key findings:

- Giving patients chemotherapy before surgery did not result in better survival rates, when compared with data from other pancreatic cancer trials testing upfront surgery
- Both drug combinations performed about the same. Two-year overall survival for patients on the mFOLFIRINOX combination was 47 percent, while two-year overall survival for patients on the gemcitabine combination was 48 percent.
- Pancreatic cancer patients can undergo chemotherapy and go on to have a successful surgery without significant post-operative complications. Surgical outcomes of S1505 were detailed in July 2020 in *Annals of Surgery*.
- It is possible to conduct [trials](#) that can safely compare chemotherapy treatments given prior to pancreatic cancer surgery.

"This is the first time the two frontline chemotherapy regimens for

pancreatic cancer have been tested in one study," Sohal said. "And while we didn't find a patient benefit from giving either of them prior to surgery, we did show that such a comparison can be done safely. Most of the patients who got the chemotherapy could go on to successfully have their surgery. So, in the end, we've created a clinical trial platform that can be used to test other pre-surgical [chemotherapy](#) treatments for pancreatic cancer."

In addition, by pre-treating a tumor prior to [surgery](#), the S1505 team opened the door for pre- and post-surgical comparisons of tumor tissue in pancreatic cancer. Molecular testing of tumor tissue could reveal genetic and other cellular changes that might shed important light on the effects of [chemotherapy drugs](#) on early stage pancreatic cancer.

Provided by SWOG

Citation: Pre-surgery chemotherapy is possible for early stage pancreatic cancer patients (2021, January 21) retrieved 6 May 2024 from <https://medicalxpress.com/news/2021-01-pre-surgery-chemotherapy-early-stage-pancreatic.html>

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