Pancreatic Cancer

Getting pancreatic cancer patients on the right treatment, faster.

CIRCULOGENE

In 2020, an estimated 57,600 Americans will be diagnosed with cancer of the pancreas, according to the American Cancer Society. Each year, pancreatic cancer accounts for about 3% of all new cancer diagnoses and more than 7% of all cancer deaths in the United States. Getting these patients on the right treatment faster can make all the difference. The adoption of precision medicine can have a substantial effect on survival in patients with pancreatic cancer!

However, the ability of patients with pancreatic cancer to undergo tumor molecular profiling or receive targeted therapies is a challenge in the U.S. healthcare system. **Currently, about 25% of patients have actionable alterations but less than 5% are able to receive targeted therapies.**

The advent of next-generation sequencing (NGS) has dramatically revolutionized the molecular knowledge of cancer by increasing the feasibility and opportunity to sequence DNA.

"Know Your Tumor" - Lancet, March 2020

"Patients with actionable molecular alterations who received matched therapy had significantly longer median overall survival than the patients who only received unmatched therapies."

"A significant survival benefit was also seen in patients in the matched therapy group versus unmatched therapy group and versus the no marker group who were diagnosed with resectable disease with the survival analysis initiated from the time of initial diagnosis."

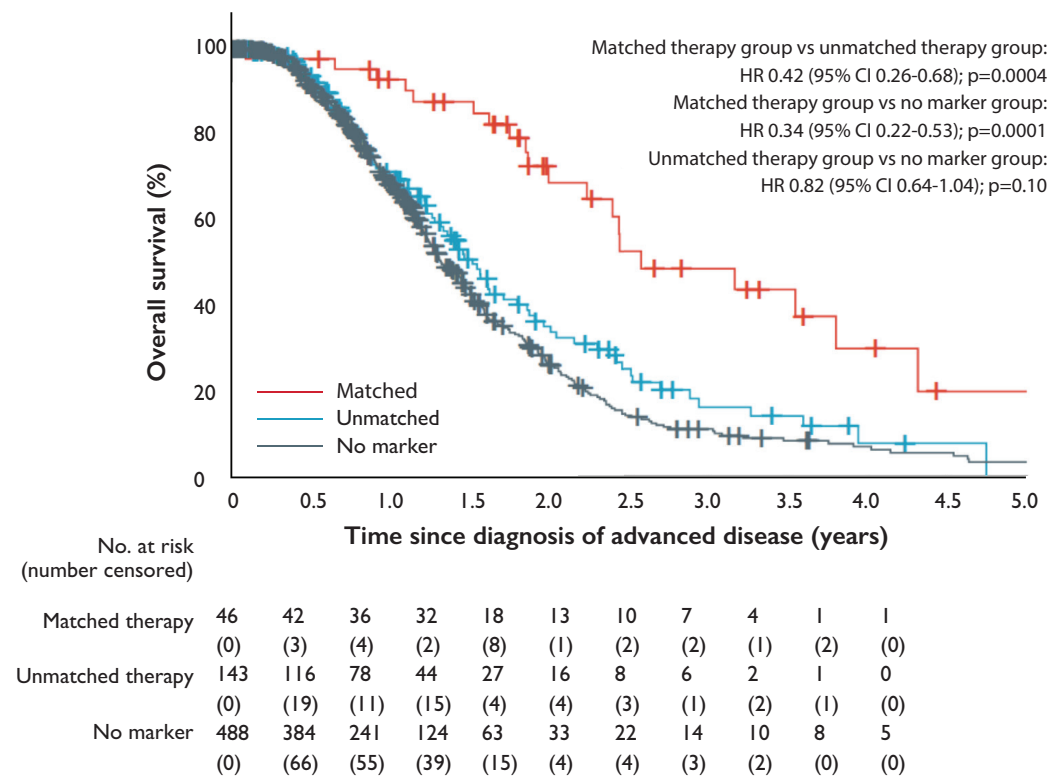

Fig 2. Overall Survival
HR = hazard ratio
The Lancet Oncology, March 2020

"The median overall survival of patients with advanced pancreatic cancer who had actionable alterations receiving matched therapy is one year longer than those with actionable alterations receiving unmatched therapy, or those without actionable alterations."

Complete Biomarker Testing Solution For Your Patient

"Adherence to guideline recommended biomarker testing would potentially reduce exposure to expensive and ineffective therapies, resulting in improved patient outcomes." - JCO Precision Oncology 2019

Pancreatic Cancer - Case Study 1

Real Patients, Real Results

46-Year-Old Female

ATM GERMLINE AND ALK FUSION SOMATIC RESULTS

"The germline ATM and somatic ALK fusion molecular findings in this individual with pancreatic cancer have a tremendous impact on not only her treatment but also her family." -Dr. Paul Walker, Chief Medical Officer, Former Director of Thoracic Oncology at East Carolina University

SNVs/INDELs (selected in report)

Gene Transcript	Alterations	Classification	Zygosity
ATM NM_000051	c.5228C>T p.(Thr1743Ile)	Flagged Pathogenicity 4 | Likely Pathogenic	Heterozygous

Comment:
Our AI-educated machine-learning pre-classification algorithm determined this variant as "likely pathogenic," consistent with the calls from multiple sources.

RNA TEST RESULTS		FDA GUIDANCE
ALK GENE FUSION	DETECTED	Alectinib, Brigatinib, Ceritinib, Crizotinib
NTRK GENE FUSION	Not Detected	

Germline mutations will be found in up to 17% of individuals with pancreatic cancer. The majority will be BRCA1/BRCA2, with 2-3% ATM germline mutations. Identifying these mutations has a profound lifesaving impact on any identified affected first-degree relatives who undergo recommended focused pancreatic cancer EUS and MRI screening.

The detection of ALK gene fusion radically changes the treatment approach from a group-standard, non-specific chemotherapy to a far more effective individually targeted oral ALK tyrosine kinase inhibitor. NTRK, ROS1, RET and NRG1 fusions can also occur. As tumor biology becomes the cancer treatment focus beyond just the anatomy, the same targeted, tissue-agnostic treatment can be effective across many different cancers. Although rarely within the group, for this individual the ALK fusion (and for all with a rare N of 1 oncogene driver mutation) individually targeted therapy is 100% the right choice. An exceptional response is just the right therapy. With more tissue and plasma NGS testing for your patients, you will begin to see what you did not know before. The result is precision oncology guiding personalized cancer treatment.

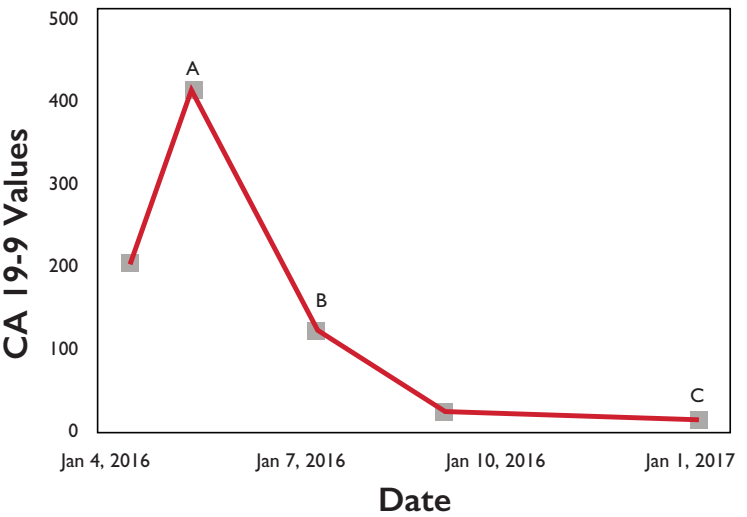

Fig 3. Cancer antigen (CA) 19-9 values (A) after first-line therapy with fluorouracil, folinic acid, irinotecan, and oxaliplatin; (B) after gemcitabine, radiotherapy, and crizotinib; and (C) after approximately 5 months of additional crizotinib.

JCO™ Precision Oncology 1
July 20, 2020 from 045.025.056.125

"In this case ALK TKI is recommended along with germline testing and focused pancreatic screening of possibly affected first-degree relatives. Without the germline and somatic molecular testing, none of this would be known. This was the right treatment for the patient, and a potential lifesaving gift for her family!" - Dr. Paul Walker, Chief Medical Officer, Former Director of Thoracic Oncology at East Carolina University

Sources:
- JCCN, Volume 17, Number 5.5
- Goggins M, et al. Gut 2020;69:7–17. doi:10.1136/gutjnl-2019-319352
- JCO™ Precision Oncology 1, July 20, 2020 from 045.025.056.125
- The Lancet Oncology, Volume 21, Issue 4

CIRCULOGENE'S comprehensive pancreatic panel is a noninvasive technique that can be combined with traditional tissue biopsy to track cell-free DNA and detect disease biomarkers in blood faster and more accurately.