Predicting Treatment Response in Pancreatic Cancer

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Metastatic pancreatic cancer is often resistant to chemotherapy-based treatments, and clinicians do not currently have a good way to predict whether a patient's cancer will respond or not. At the Abramson Cancer Center of the University of Pennsylvania, former Damon Runyon-Rachleff Innovator Gregory L. Beatty, MD, PhD, and his colleagues are seeking to uncover the factors that determine response so that patients and clinicians can make better informed treatment decisions.

Led by Dr. Beatty, the team conducted a clinical trial in which pancreatic cancer patients received a chemotherapy regimen alongside indoximod, a molecule that boosts immune T cell activity. When they examined tissue biopsies from those who benefitted from the treatment and those who did not, the researchers discovered that, surprisingly, it was not a reduction in tumor cell growth that determined treatment outcomes. In fact, both groups saw a decrease in tumor cell growth as the result of chemotherapy.

The key to longer survival, it turned out, was the presence of specific immune cells, known as CD8+ T cells, within the tumor tissue. Those who benefitted from treatment, the researchers noted, exhibited both a reduction in tumor cell division and increased infiltration of CD8+ T cells in the tumor site.

With this study, Dr. Beatty and his team have clarified an important requirement for treating pancreatic cancer—while inhibiting cancer cell growth is essential, it is not sufficient on its own. Activating patients' immune cells, particularly CD8+ T cells, is integral to the treatment's success.

These findings inform and reinforce the ongoing effort, among Damon Runyon scientists and others, to develop immunotherapies for the treatment of pancreatic cancer.

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