

Chronic Pancreatitis to Pancreatic Cancer

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[Chronic pancreatitis](#) and [pancreatic cancer](#) are two of the major diseases affecting the pancreas. Both are serious disorders for which current therapy has not been proven to be effective.

Physicians have known for more than 20 years that some patients with chronic pancreatitis eventually develop pancreatic cancer. However, it is an uncommon event: Over two decades, only about 4% of patients with well-documented chronic pancreatitis will develop pancreatic cancer.^[1] Patients who experience only a single attack of [acute pancreatitis](#) without developing recurrent pancreatitis or chronic pancreatitis do not progress to pancreatic cancer.

The symptoms of chronic pancreatitis can be easily confused with those of pancreatic cancer, leading to diagnostic uncertainty. In addition, so-called "type 3c diabetes" can be a complication in patients with either chronic pancreatitis or pancreatic cancer.

At the 46th Annual Meeting of the American Pancreatic Association, a mini-symposium was dedicated to discussing chronic pancreatitis, pancreatic cancer, and diabetes.

Type 3c Diabetes

Dana K. Andersen, MD, opened the symposium by defining and discussing type 3c diabetes and listing causative factors. In the United States and Europe, 5%-8% of all diabetes is this type of disease. The frequency is higher in Asia and India. About 20%-30% of patients with chronic pancreatitis have "pancreatogenic" diabetes, and the frequency increases with the duration of pancreatitis. More than one half of patients with long-standing chronic pancreatitis will require [insulin](#).

Why does diabetes develop in these patients? One explanation is that inflammation and resulting fibrosis lead to a loss of islet cells. A second reason is extirpation of the islet cells as a result of surgical treatment.

Inhibition of islet cell function as a result of pancreatic disease is yet another reason. In this form of diabetes, [hypoglycemia](#) is common and insulin levels are low.

Diagnosis of type 3c diabetes is based on a documented history of pancreatic disease, evidence of exocrine insufficiency, and ruling out type 1 and [type 2 diabetes](#). Having type 3c diabetes is associated with a 33-fold increased risk for pancreatic cancer—an enormous increase.^[2]

Diabetes and Pancreatic Cancer

Suresh Chari, MD, continued the discussion of diabetes and pancreatic disorders, focusing on the relationship between diabetes and pancreatic cancer. He pointed out that they have common risk factors, such as [obesity](#) and [insulin resistance](#), perhaps because they share common genetic factors. Patients with type 2 diabetes without underlying pancreatitis have an almost twofold excess risk for pancreatic cancer. The risk is not as high as with type 3c diabetes, but it still constitutes a major risk factor for pancreatic cancer.^[3]

Dr Chari presented several slides demonstrating changes in the pancreas of diabetic patients. These included decreased volume, increased fibrosis, and acinar atrophy. Diabetic patients have significantly reduced levels of fecal elastase 1, a marker of pancreatic insufficiency, compared with control subjects.

Distinguishing Chronic Pancreatitis From Pancreatic Cancer

Two panelists presented research ideas on distinguishing [chronic pancreatitis](#) from [pancreatic cancer](#). A correct diagnosis is critical because pancreatectomy benefits some patients with pancreatic cancer but is not the first choice of treatment for patients with chronic pancreatitis. Accurately distinguishing one disease from the other has always been challenging.

Julia Mayerle, MD, discussed a new approach using metabolic biomarkers that can help distinguish between these two diseases. Metabolic biomarkers are small molecules, such as glycolipids, polysaccharides, or short peptides, that can be measured in blood samples. Using a panel of metabolites is a promising approach, because it can discriminate between chronic pancreatitis and pancreatic cancer with an accuracy of 90% and a negative predictive value of 99.9%.

Yi Miao, MD, described another approach to help distinguish between pancreatitis and pancreatic cancer, which was based on transduodenal core needle biopsy of the pancreas. The advantage of this approach is that the larger sample of pancreatic tissue increases the likelihood of detecting cancer cells but still has an acceptable complication rate. The disadvantage is that it requires an operation rather than a less invasive procedure, such as a blood test or ultrasound-directed fine needle biopsy.

Chronic Pancreatitis Management

Finally, Darwin Conwell, MD, MS, discussed the diagnosis and management of chronic pancreatitis, focusing on pancreatic exocrine insufficiency.^[4] He pointed out that chronic pancreatitis is the end stage of a complex syndrome with multiple etiologies. A diagnostic predictive risk score can be derived by combining symptoms with imaging and exocrine function studies. For many patients, this combined approach helps to avoid more invasive and expensive procedures.

After discussing the diagnosis of chronic pancreatitis, Dr Conwell outlined the essential treatment measures. These begin with medical therapy and include measuring pain severity and its impact on quality of life; referring the patient for formal smoking and alcohol cessation programs; counseling about nutrition; testing bone mineral density; supplementing [vitamin D](#) and calcium when indicated; replacing pancreatic enzyme; and administering pain medication, beginning with the lowest effective dose.

Pancreatic enzyme replacement needs to be initiated early to achieve the best results. If these measures are effective, the patient should be followed with periodic reassessment.

If symptoms persist despite adherence to medical therapy, the next step is to discuss other treatment options with the patient, including endoscopic therapy and surgical options ranging from partial excision to total pancreatectomy with or without islet cell autotransplantation.

Included in this presentation was a discussion on the need for precision markers to allow accurate, early diagnosis of chronic pancreatitis—the best way to slow disease progression and avoid serious complications, such as [metabolic bone disease](#), type 3c diabetes, and debilitating pain.

References

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