Chronic Pancreatitis in Children

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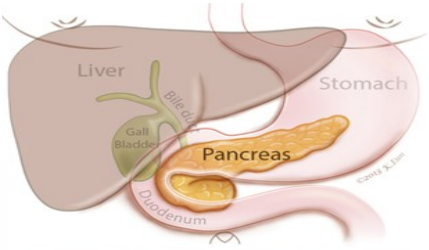
What role does the pancreas play in digestion?

The pancreas is a gland located behind the stomach and liver. It makes fluids and enzymes that help digest food. It also produces insulin and glucagon, two hormones that are important for blood sugar control.



What is chronic pancreatitis?

Pancreatitis occurs when the pancreas becomes irritated. Enzymes from the pancreas that are supposed to drain into the intestine and help with digestion get stuck inside the pancreas, causing further irritation and damage to the pancreas. "Chronic" means that the irritation does not go away completely; rather the symptoms come and go over time. In some patients, chronic pancreatitis causes so much damage that the pancreas is not able to make digestive enzymes and/or insulin; this can lead to diabetes.

What are the symptoms of chronic pancreatitis?

The most common symptom is upper abdominal pain, which can sometimes be experienced as back pain. This discomfort can range from mild to severe, and often worsens after eating. Symptoms such as vomiting, weight loss, greasy stools, and a lack of interest in eating may also be present.

What causes chronic pancreatitis in children?

There are many reasons pancreatitis can occur. These can include:

- Stones in the gallbladder
- Genetic mutations
- Autoimmunity (an immune reaction against the pancreas)
- Some medications
- Problems with the structure of pancreas
- Injury to the abdominal area
- Tumors and/or infections
- Increased blood levels of fats and/or calcium

Certain problems such as genetic mutations and autoimmunity are more likely to be associated with chronic pancreatitis. In some patients, even one episode of pancreatitis can cause pancreas scarring and damage that results in chronic pancreatitis; in other patients, chronic pancreatitis develops after many separate episodes of pancreatitis. It is important to note that in some cases of chronic pancreatitis, a specific cause cannot be identified.

How is the condition diagnosed?

The pancreas makes two key enzymes, amylase and lipase. They can be measured with a simple blood test—usually the first step in diagnosing pancreatitis. During an episode of pancreatitis, these enzymes may rise above the normal limit, indicating there is Irritation in the pancreas. However, in chronic pancreatitis, there is not always an increase in lipase or amylase.

Imaging of the pancreas can also be helpful. This might include:

- Abdominal ultrasound
- Specialized imaging such as computerized axial tomography ("CAT") scans or magnetic resonance imaging (MRI/MRCP)
- In some cases, a procedure known as an ERCP (Endoscopic Retrograde Cholangiopancreatography) may be

necessary; this involves passing a tube with a light and camera through the mouth, small intestine, and then into the pancreas. With ERCP, we can get detailed pictures of the ducts (tubes) draining the pancreas and treat the ducts to improve drainage. Improved pancreatic drainage may decrease the frequency and severity of pancreatitis flares.

In this case, your child's provider will look for underlying causes. This may include genetic testing, further imaging or procedures, and other investigations. Other tests such as stool studies and blood tests may also be checked in order to see if there are complications of poor pancreatic function, such as difficulty absorbing nutrients.

How is chronic pancreatitis treated?

Pancreatitis can be very painful. During a flare of the illness, children often stay in the hospital in order to control their pain with pain medications and fluids through an intravenous (IV) line.

Due to the long-term nature of the condition, children with chronic pancreatitis often need additional support with good nutrition and pain management. Medications can be given to control pain, but there are also safe, non-medication methods of relief such as transcutaneous electrical nerve stimulation (TENS), acupuncture, and yoga. These options can be discussed with your child's pain management team.

If regular eating has been interrupted, a nutritionist or other provider can offer ideas regarding food choices. Individual tolerance of specific foods may vary and depend on your child's current health. In severe cases, alternative sources of nutrition (e.g. tube feeding) may be necessary.

For long-term management, your child may benefit from taking pancreatic enzymes by mouth before snacks and meals. These pills mimic the naturally made enzymes in the pancreas and can help with digestion. They also slow the natural production of enzymes made by the pancreas, which may help prevent future attacks and make eating less painful.

Adolescents and young adults who have experienced episodes of pancreatitis are strongly advised to avoid alcohol. Drinking alcohol can cause pancreatitis in anyone, but for individuals with a history of pancreatitis, it is especially important they do not drink alcohol. Teenagers who encounter peer pressure may find it helpful to tell others they have an "allergy" to alcohol, especially if they do not want to share the details of their medical condition.

Where can I find more information?

In addition to speaking with your child's healthcare provider(s), there are many excellent resources available online. Please consider visiting:

INSPPIRE Pediatric Pancreatitis Research Project

http://www.medicine.uiowa.edu/pediatrics/insppire/

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

http://www.niddk.nih.gov

The National Pancreas Foundation

www.pancreasfoundation.org

UCSF Pediatric Pancreas Program

https://www.ucsfbenioffchildrens.org/clinics/pancreas_program/

References

1) **Johns Hopkins Medicine**

   http://pathology.jhu.edu/pc/BasicOverview1.php?area=ba

2) **Mayo Clinic**

   http://www.mayoclinic.org/diseases-conditions/pancreatitis/basics/definition/con-20028421

3) **National Institute of Diabetes and Digestive and Kidney Diseases**

   http://www.niddk.nih.gov/health-information/health-topics/liver-disease/pancreatitis/Pages/facts.aspx

   http://www.niddk.nih.gov/health-information/health-topics/liver-disease/pancreatitis/Documents/Pancreatitis_508.pdf

4) **The National Pancreas Foundation**

   https://www.pancreasfoundation.org/patient-information/chronic-pancreatitis/

5) **Up to Date**

   http://www.uptodate.com/contents/acute-pancreatitis-beyond-the-basics

6) **WebMD**

   http://www.webmd.com/digestive-disorders/digestive-diseases-pancreatitis

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