

Pancreatitis, Acute

Pronunciations: (*PAN-crē-uh-tī-tus*)

Pancreatitis is inflammation of the pancreas, which occurs when its digestive enzymes (such as *proteases*, pancreatic *lipase*, and *amylase*) attack the pancreatic tissue itself. It may occur suddenly (acute pancreatitis) or develop over many years (chronic pancreatitis).

Causes

About 80% of cases of acute pancreatitis are caused by excessive alcohol use or by gallstones that block the flow of digestive enzymes. In 10% of the cases, causes include heredity, mumps, a high level of fats (triglycerides) in the blood, pancreatic surgery, trauma, and medications. The cause is unknown in the remaining 10% of cases. In the U.S., annual incidence of acute pancreatitis in Native Americans is 4 per 100,000, in whites is 5.7 per 100,000, and in blacks is 20.7 per 100,000. The risk for African-Americans aged 35–64 years is 10 times higher than for any other group.

Diagnosis

Symptoms:

The primary symptom of acute pancreatitis is moderate to severe pain in the upper (epigastric) area of the abdomen that persists for many hours. Occasionally, the pain is only mild. It may feel as though it bores through the abdomen to the back and is sometimes reduced by sitting up or leaning forward.

Other symptoms:

- Nausea and vomiting
- Fever
- Tachycardia (rapid heart rate)
- Sweating
- Yellowing of the skin (jaundice)
- Shock

Interpretation of Laboratory Tests

The following methods are frequently used to help reach a diagnosis for pancreatitis. Selecting the type of test to order may depend on the severity of symptoms, confirming previously ordered tests, or availability of resources.

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LABORATORY TESTS		
Test Name	Normal values	Indicators
Serum amylase	56-190 IU/L 80-150 Somogyi units/dl 25-125 U/L	Three times upper limit of normal (Other conditions may cause lesser increases.)

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Serum lipase	0-110 U/L 0-417 U/L	High levels of lipase are usually present with this disorder.
OTHER BLOOD TESTS		
Test Name	Normal values	Indicators
Complete blood count (CBC)		Increase in white blood cell count (sometimes dramatic)
Liver function tests	Alanine aminotransferase: 5-35 IU/L or 8-20 U/L in adults. May be slightly higher in elderly patients.	Increased in liver enzymes, esp. alanine aminotransferase may indicate gallstones as cause.
Bilirubin	Total serum bilirubin: 0.1-1.0 mg/dl or 5.1-17.0 mmol/L	Increase in blood levels.
IMAGING TESTS		
Test Name	Indicators	
Abdominal X-ray	Can sometimes locate gallstone blockages in the common bile duct; reveal problems with the stomach, small intestine, or colon that might be caused by pancreatic enzymes	
CT scan with contrast dye	Can help rule out other causes of abdominal pain; identify <i>pancreatic necrosis</i> ; fluid around the pancreas; abscess, and pseudocyst; possibly show gas bubbles near the pancreas (a sign of infection)	
Abdominal ultrasound	Can locate gallstones; <i>ascites</i> (fluid from inflammation in the abdomen); enlarged common bile duct; abscess; or pseudocyst	
Endoscopic ultrasound	May reveal gallstones in the common bile duct	
MRI	Results provide much of the same information as a CT scan.	
ERCP	<i>(Endoscopic retrograde cholangiopancreatography)</i> Reveals structure of the common bile duct, other bile ducts, and the pancreatic duct; can be used to repair narrow areas (strictures) of the bile ducts and remove gallstones from the common bile duct	

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If it is not known whether pancreatic tissue is infected, a doctor may use a needle to take some fluid from the area of inflammation. The fluid is tested to see if there are organisms that can cause infection. Researchers are exploring the use of a urine test to screen for pancreatitis.

Common Current Treatments

The mainstays of treatment for acute pancreatitis are intravenous (IV) fluids to maintain blood pressure and medications to control pain until inflammation subsides. In the cases of respiratory compromise or other complications, treatment in the intensive care unit may be required. If tissue has been destroyed (pancreatic necrosis), antibiotics may be used to prevent infection. If infection is present, surgery may be done to remove the

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infected and necrotic tissue. Surgery to remove gallstones or the gallbladder usually cures acute pancreatitis and may be done if there is no infection and the person's condition has not improved. However, surgery is avoided if possible because the pancreas is easily damaged. When a gallstone causes severe pancreatitis, ERCP may be used to remove it.

Medications

The following table lists some classes and examples of medications commonly prescribed for patients with pancreatitis. Although pain medication may be needed immediately, an accurate diagnosis of the level of infection is necessary to determine whether treatment by medication may help avoid surgical intervention. Chronic conditions may require ongoing treatment to aid digestion and avoid further complications such as diabetes. The order of medications listed in the table is not intended to represent subsequent treatments; complementary medications may be needed to address multiple symptoms.

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PAIN MEDICATIONS		
Indication	Class/Examples	Notes
Mild pain	Non-narcotic medication: acetaminophen ibuprofen	
Intense pain	Narcotics: <ul style="list-style-type: none"> • meperidine (Demerol) • morphine 	Morphine can occasionally cause a spasm in the opening between the pancreatic duct and the upper part of the small intestine (duodenum).
ANTIBIOTICS		
Indication	Class/Name	Notes
Infected tissue of the pancreas or pancreatic necrosis	Antibiotics	
PANCREATIC ENZYME SUPPRESSANTS		
Indication	Class/Examples	Notes
Severe acute or chronic pancreatitis	Medications to suppress production of pancreatic enzymes: <ul style="list-style-type: none"> • somatostatin • octreotide • aprotinin • gabexate mesilate 	So far, studies of these medications have shown little benefit.
STOMACH ACID SUPPRESSANTS		
Indication	Class/Examples	Notes

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Stomach pain associated with acid-reflux or ulcer pain	H ₂ -receptor blockers: <ul style="list-style-type: none"> • Tagamet • Pepcid • Zantac 	Not effective for most people.
Stomach pain associated with acid-reflux or ulcer pain	Proton pump inhibitors: <ul style="list-style-type: none"> • Prilosec • Prevacid 	Not effective for most people.
OTHER		
Indication	Class/Examples	Notes
Advanced chronic pancreatitis with diabetes	Insulin	

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Dietary Interventions

The nutritional goals in the treatment of pancreatitis are to reduce the amount of pancreatic stimulation, correct fluid and electrolyte imbalances, provide adequate amounts of calories and protein, and avoid overfeeding. Patients with mild pancreatitis should be able to tolerate low-fat oral feeding within 5 days of the onset of symptoms. Aggressive early enteral or total parenteral nutrition (TPN) support reduces mortality in patients with moderate-to-severe pancreatitis.

Patients with mild pancreatitis usually are given nothing to eat for 3 to 7 days. Those who have severe pancreatitis may not eat for 3 to 6 weeks. They receive TPN or enteral feeding through the jejunum. When the symptoms of pancreatitis have subsided, a low-fat diet and regular exercise to maintain a healthy body weight should be recommended. Patients should avoid drinking alcohol excessively. The amount of alcohol necessary to cause pancreatitis varies from one person to another. Generally, moderate consumption is considered no more than two alcoholic drinks per day for men and one per day for women and older people. However, if the patient has alcoholic pancreatitis, they should abstain from alcohol entirely.

Orders

Enteral jejunal feedings if possible or TPN

When symptoms subside, patients should follow a low-fat, high-fiber diet outlined in the *Healthy Diet* section of this book.

What to Tell the Patient and Family

When the patient's symptoms have subsided, it is important to emphasize that avoiding high-fat foods and limiting alcohol is necessary to help prevent recurrence. It is also important to instruct the whole family on all aspects of the diet. This applies to spouses or partners of patients.