



FIGURE 38-2 The pathophysiology of acute pancreatitis is not fully understood, but as the schematic shows, a cascade of events seems likely, beginning with the release of toxic substances into the parenchyma and ending with shock and death. Damage to the ductal epithelium or acinar cell injury may result from bile reflux, increased intraductal pressure, alcohol, or trauma. (Modified from Grendell JH: The pancreas. In Smith LH Jr, Thier SO, editors: Pathophysiology: the biological principles of disease, ed 2, Philadelphia, 1985, WB Saunders, p 1228.)

chronic disease. However, some have true acute alcoholic pancreatitis because not all patients progress to chronic pancreatitis, even with continued alcohol abuse. The mechanism of pancreatic injury, the genetic and environmental factors that influence its development in alcoholics, and the reason only a small proportion of alcoholics develop pancreatitis are unclear (see [Chronic Pancreatitis](#)).

Heredity

Hereditary causes of pancreatitis include mutations in the genes encoding cationic trypsinogen (*PRSS1*), pancreatic secretory trypsin inhibitor (serine protease inhibitor Kazal type 1 [*SPINK1*]), cystic fibrosis transmembrane conductance regulator (*CFTR*), chymotrypsin C (i.e., caldecrin) (*CTRC*), and the calcium-sensing receptor (*CASR*).

The role of genetic testing in idiopathic acute pancreatitis is controversial. Diagnosis of these genetic disorders contributes little to direct management because specific therapy is unavailable. Similarly, inadvertent disclosure of the results of genetic testing protects patients' healthcare insurance but may impact other financial decisions such as disability and

life insurance. However, identification of an underlying genetic cause may obviate the need for further testing, allow more informed family planning, and enable better surveillance for complications, including pancreatic cancer. The decision to pursue genetic testing is one that should be made only with the advice and involvement of an experienced counselor.

Neoplasia

Primary pancreatic ductal adenocarcinoma, ampullary tumors, metastasis to the pancreas, and intraductal papillary mucinous neoplasms are uncommon causes of acute pancreatitis. These causes should be considered for patients older than 40 years. Pancreatitis has been reported in up to 10% of patients with pancreatic cancer.

Smoking

Smoking was once thought to be a risk factor due to its synergism with alcohol. However, studies have suggested that cigarette smoking is an independent risk factor for acute and chronic pancreatitis by mechanisms that are unclear.