



1. What are the early signs of pancreatic cancer and how is this disease usually diagnosed?

Unfortunately, there are no warning signs that would allow us to diagnose pancreatic cancer when it is still at an early stage. Patients usually present with abdominal pain, loss of appetite, weight loss or jaundice (yellowish discoloration of the eyes and skin). These signs and symptoms usually indicate that the disease has already spread and is not contained to the pancreas any longer. Occasionally, early stage pancreatic cancer is found serendipitously, for example, when a patient undergoes a CT scan for an unrelated problem and the pancreatic cancer is found by accident.

2. What are the tests used to diagnose the disease?

A CT scan of the abdomen in most cases shows the cancer involving the pancreas and may also give information about spread of the cancer to local lymph nodes around the pancreas, the liver or may show growth of the cancer towards major blood vessels feeding the bowel (mesenteric artery). Other tests include ERCP, MRI of the abdomen or endoscopic ultrasound. A biopsy of the pancreatic mass usually yields a diagnosis of adenocarcinoma, the most common type of pancreatic carcinoma. Sometimes the patient has developed fluid in the abdominal cavity (ascites) and drainage of this fluid and examination for cancer cells can yield the diagnosis.

3. How common is pancreatic cancer?

Pancreatic cancer is the fourth leading cause of death from cancer in the United States. The rate of pancreatic cancer appears stable over the last 30 years. The disease occurs most commonly in the elderly and is rare in patients under the age of 45.

4. How about blood tests? Can they be used to screen for the cancer and early detection?

There is no blood available that would reliably identify pancreatic cancer at an early stage. So-called tumor markers (such as CA19-9 or CEA) can be useful in following the disease when the patient is on treatment. A decline in the level of the tumor marker level usually indicates that the patient is responding to treatment.

5. What are the treatment options for patients with pancreatic cancer?

Treatment options include surgery, chemotherapy, radiation therapy or supportive care only (pain control).

6. What is the role of surgery?

If imaging studies (CT scan, ERCP, endoscopic ultrasound etc.) do not show any evidence of the cancer having spread to surrounding structures (such as the mesenteric artery), the abdominal cavity or distant organs (such as the liver), an attempt can be made to remove the



cancer. This radical surgery, the so-called "Whipple procedure" involves removal of the pancreatic head, duodenum, first 15 cm of the jejunum, common bile duct, and gallbladder along with a portion of the stomach. Unfortunately, many patients are found to have more advanced disease during surgery than was appreciated on the imaging studies. This explains the disappointing five-year survival rates of only 10 to 25 percent.

7. What is the role of chemotherapy and radiation therapy?

Many years back, the Mayo Clinic in Minnesota conducted a study using radiation therapy combined with chemotherapy (a drug called 5-FU) in patients with inoperable pancreatic cancer that had not spread to the liver or any other distant organs. Many of the patients treated experienced an improved quality of life, and some patients enjoyed long-term survival. More recently, Gemzar (Gemcytabine) has been approved for the treatment of pancreatic cancer. This medication is not combined with radiation therapy, but by itself maintains or improves the quality of life in the majority of patients with pancreatic cancer. Different combinations of the Gemzar with other chemotherapy drugs (including Xeloda and Taxol) have been tested. None of these combinations has had a significant impact on the overall survival. Some of these combinations caused significant side effects with a decrease in the patient's quality of life.

8. We are the latest developments in the treatment of pancreatic cancer?

Pancreatic cancers often express receptors for epidermal growth factor (EGFR) and vascular endothelial growth factor (VEGF). These proteins on the surface of cancer cells are important in regulating the growth of the cancer and its blood supply. We now have medication available (eg, Avastin, Erbix, Tarceva) that can slow the growth of cancer cells by attaching themselves to these surface proteins. These drugs react very specifically with these particular proteins and are therefore called "targeted therapy". Encouraging preliminary results were reported with the combination of Tarceva plus Gemzar. However on a subsequent study, overall survival was modestly but significantly better compared to gemcitabine alone (one-year survival 24 versus 17 percent, respectively). Although the gain in survival was statistically significant, it is unclear whether this is truly meaningful for the patient. Nevertheless, Tarceva is approved for use in the United States in combination with gemcitabine for the treatment of locally advanced, unresectable, or metastatic pancreatic cancer. A study of Gemzar plus Avastin was completed in March of 2006. Results are pending.