

# Pancreatic Cancer: A Review and Update

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Pancreatic cancer will account for about 6% of all cancer-related deaths in 2008. Patients often present with advanced disease, so treatment remains a challenge. This article will review the risk factors, pathology features, clinical symptoms, diagnosis and staging guidelines, treatment, and nursing implications of pancreatic cancer. This article also will review studies that have precipitated the shift in systemic treatment from 5-fluorouracil to gemcitabine. Targeted therapies will further shift treatment strategies to improve survival as more is learned about the molecular basis of pancreatic cancer.

**P**ancreatic cancer is the fourth-leading cause of cancer-related deaths among men and women (American Cancer Society [ACS], 2008; Jemal et al., 2008). In 2008, an estimated 37,680 new cases of pancreatic cancer will be diagnosed (18,770 men and 18,910 women), and an estimated 34,290 people will die from the disease (ACS; Jemal et al.). The incidence increases with age, peaking in patients 60–80 years of age (Yeo et al., 2005). The incidence of pancreatic cancer has been stable in men since 1993 and in women since 1983 (ACS). The lack of effective systemic therapies is evident in the poor overall survival rate (ACS; Jemal et al.).

The high mortality rate associated with pancreatic cancer almost equals the incidence rate and is caused by the high incidence of metastatic disease found at diagnosis. Only 7%–8% of patients are diagnosed with local disease alone, whereas about 26% of patients have regional disease and 52%–55% have distant disease at diagnosis. The disease rates are similar for all races according to the Surveillance, Epidemiology and End Results data from 1996–2003 (Jemal et al., 2008), and the five-year survival rates for pancreatic cancer are very low. Patients diagnosed with localized disease have a 20% five-year survival rate, whereas patients with regional disease at diagnosis have a five-year survival rate of 8%. Patients with distant disease have a 2% five-year survival rate across all races. When all disease stages are combined, the patients have a five-year survival rate of 5%.

## Etiology and Risk Factors

Pancreatic cancer is a disease of the industrialized world. Risk factors associated with pancreatic cancer include smoking, a high-fat diet, exposure to certain chemicals, obesity, diabetes, cirrhosis, and chronic pancreatitis (ACS, 2008; National Comprehensive Cancer Network [NCCN], 2008). The incidence of pancreatic cancer is twice as high in smokers than in nonsmokers (ACS; Coleman, 2005; Yeo et al., 2005), and the increased risk can be correlated with the length and duration of a patient's smoking history.

### At a Glance

- ♦ The incidence of pancreatic cancer almost equals the mortality rate.
- ♦ Pancreatic cancer has no early warning signs and symptoms, so most patients present with advanced disease.
- ♦ The backbone of treatment for pancreatic cancer has been 5-fluorouracil, but the paradigm has shifted to gemcitabine.

No clear dietary link exists between food with a high-fat content and developing pancreatic cancer, although people with increased body mass indexes are believed to be at higher risk. The role of diabetes, alcohol, and chronic pancreatitis in the development of pancreatic cancer is debatable (Coleman, 2005; NCCN, 2008).

True familial pancreatic cancer is rare. However, people with a family history of hereditary nonpolyposis colorectal cancer are predisposed to developing pancreatic cancer (Yeo et al., 2005). Other genetic syndromes associated with pancreatic development include hereditary pancreatitis, hereditary breast and ovarian cancer, familial atypical multiple mole melanoma syndrome, Peutz-Jeghers syndrome, and hereditary ataxia-telangiectasia (Yeo et al.).

## Pathophysiology

The pancreas is a secretory gland. Ninety percent of pancreatic cancers are ductal adenocarcinomas, which occur in the

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