

# Evidence-Based Guidelines for Adjuvant Therapy for Resected Adenocarcinoma of the Pancreas

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Pancreatic cancer, the fourth most common cause of cancer deaths, has a five-year survival rate of 5% or less. Surgical removal of the tumor may improve survival, but survival remains poor even in optimally resected patients. The best adjuvant therapy for patients with resected pancreatic cancer is not clear. Surgical resection followed by chemoradiation and maintenance chemotherapy has been considered the most beneficial treatment for improving survival, but more recent studies have suggested that chemotherapy alone is more effective. The purpose of this article is to review randomized controlled studies of adjuvant chemoradiation or chemotherapy alone in the treatment of resected pancreatic cancer and to determine the optimal adjuvant therapy after curative resection with negative or microscopically positive margins. The outcomes of interest were overall survival and disease-free survival. The results indicate that chemoradiation is an acceptable option for adjuvant treatment. Three of the four randomized controlled trials suggest that adjuvant chemoradiation for resected pancreatic cancer improves overall survival. Adding gemcitabine to the chemoradiation regimen also confers increased disease-free survival. Providers counseling patients regarding treatment options for resected pancreatic cancer should continue to recommend adjuvant therapy—a combination of chemotherapy including gemcitabine and radiotherapy—for appropriately selected patients.

**P**ancreatic cancer (see Figure 1) is the fourth most common cause of cancer deaths. The five-year survival rate is estimated at 5% or less (Jemal et al., 2006), and the prospects for a curative treatment have not been promising. Surgical removal of the tumor improves survival; however, only 10% of patients with pancreatic cancer have tumors that are resectable at the time of diagnosis, and survival remains poor even in patients with optimally resected tumors. In addition, patients who undergo resection often have extended recovery times that preclude them from receiving adjuvant therapy (Chu, Khushalani, Javle, Douglass, & Gibbs, 2003; DiMagno, Reber, & Tempero, 1999; Kalser & Ellenberg, 1985; Neoptolemos et al., 2004; Stocken et al., 2005).

Studies regarding the best adjuvant therapy for patients with resected pancreatic cancer have shown conflicting results. Initial studies seemed to indicate that surgical resection followed by chemoradiation and maintenance chemotherapy was beneficial in improving survival (Kalser & Ellenberg, 1985; Gastrointestinal Tumor Study Group [GITSG], 1987). However, subsequent studies, such as the European Organisation for Research and Treatment of Cancer (EORTC) study comparing chemoradiation with observation (Klinkenbijn et al., 1999) and the European Study Group for Pancreatic Cancer (ESPAC) study comparing

## At a Glance

- ◆ Chemoradiation confers a survival benefit for patients with resected pancreatic cancer.
- ◆ Adjuvant gemcitabine has been shown in randomized controlled studies to increase survival.
- ◆ Randomized controlled studies have shown conflicting results regarding the relative effects of chemoradiation versus chemotherapy alone for the treatment of resected pancreatic cancer.

chemoradiation versus chemotherapy alone (Neoptolemos et al., 2004) seem to indicate that chemotherapy alone is more likely to increase survival. A statistical reanalysis of the EORTC trial

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