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Pancreatic cancer: Current trends

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Abstract

Pancreatic cancer is an aggressive malignancy being the 4th leading cause of cancer deaths with survival rate of 5 % at 5 years 2010 estimations predicted an estimated 43,140 Americans will be diagnosed with pancreatic cancer, of which 36,800 will be mortally afflicted. Dismal prognosis is attributable to late detection and ineffective and inefficient screening. Most patients are asymptomatic and often have metastasis at the time of diagnosis. Tobacco use, longstanding diabetes, chronic pancreatitis, heavy alcohol consumption and high BMI are common risk factors. About 10 percent of pancreatic cancers have a familial basis. Genetic syndromes including Lynch syndrome, hereditary pancreatitis and Peutz-Jeghers syndrome are linked to genetic origin pancreatic cancer. About 1% of new onset diabetics are projected to develop pancreatic cancer within 3 years of their first diagnosis of diabetes. Studies show a lot of genetic abnormalities observed in pancreatic cancer. The oncogene KRAS2 (on chromosome 12p) encoding a membrane bound GTP binding protein, has been found to be mutated in more than 95% of pancreatic cancers. Mutations of other oncogenes like C-MYC and GATA6 are also observed in pancreatic cancers but with more infrequently. Inactivation of tumor suppressor genes like Tp53 have also been demonstrated in pancreatic cancers. Pancreatic intraepithelial neoplasia, intraductal papillary mucinous neoplasm, and mucinous cystic neoplasm are precursors for pancreatic carcinoma. Pancreatic ductal Adenocarcinoma is the most frequently observed variant with 20 percent survival rate at 5 years after surgical resection in patients with localized disease, in stark contrast to patients who present with advanced disease that is unresectable, the survival rate at 5 years is a mere 2 percent. CA 19-9, ICAM-1 and osteoprotegerin are makers included in the best 3-marker panel, which is accurately able to differentiate pancreatic cancer patients from healthy controls. Patients with pancreatic CA usually presents late in the disease with non-specific symptoms including upper abdominal pain, cachexia, jaundice, wasting and weight loss, fatigue, nausea and vomiting. Surgery is recommended in localized disease while chemotherapy and radiation is offered to patients with unresectable metastatic disease. If the cancer is only confined to the head of the pancreas, Whipple's procedure is done which involves removal of pancreatic head, a portion of duodenum, gallbladder and part of bile duct. Bleeding and infection are complications. When the tumor is confined to the body and tail of pancreas then a distal pancreatectomy is done. The combination of platinum agents with Gemcitabine or 5-Fluorouracil as the commonly used form of chemotherapy used. Recently FOLFIRINOX has emerged as an alternative to Gemcitabine. Ca19-9 levels are used for monitoring and as a prognostic indicator. Radiation therapy is also used but most often in combination with surgery or chemotherapy. The drug Erlotinib that is an EGFR Tyrosine Kinase Inhibitor approved by the FDA, offering target therapy attacking cancer cells and it is used in combination with chemotherapy in advanced pancreatic cancer cases. In a recent clinical trial, a new drug Abraxane prolonged survival by two months in advanced pancreatic cancer patients. Novel approaches in treatment of pancreatic cancer are currently needed to produce improved outcomes in this disease.

Biography

Dr. Bindu B N S S Gandrapu completed her medical training at Zaporozhye State Medical University, Ukraine. She is currently in the United States of America to pursue Graduate Medical Education in Internal Medicine and her field of interested is in Gastroenterology. She is passionate about teaching the next generation of medical students and hopes to contribute to academic medicine in the near future.