Tumor microenvironment and progression of pancreatic cancer.

Abstract:
Pancreatic ductal adenocarcinoma is characterized by « tumor desmoplasia », a remarkable increase in connective tissue that penetrates and envelopes the neoplasm. It is becoming clear that this desmoplastic microenvironment of pancreatic cancer—which is forming approximately eighty percent of the tumor mass—is not a passive scaffold for the tumor cells but an active player in carcinogenesis. Several chemotherapeutic agents and novel molecular targeted therapies against epithelial tumor cells—although showing antitumor activity in cell culture and mouse experiments—have failed to show significant effects in the clinic. Thus, targeting pancreatic tumor cells alone seems unlikely to improve the dismal prognosis of pancreatic cancer. It has recently been shown that the activated stroma of pancreatic cancer is an independent prognostic marker with an impact on patient survival as much as the lymph node status of the cancer. Several primarily benign conditions associated with expansion of stromal and inflammatory components, such as chronic pancreatitis or hereditary pancreatitis are believed to increase the risk of pancreatic cancer. Similar observations have been made in other cancer types such as chronic hepatitis-liver cancer, Barrett dyplasia-esophageal cancer, and inflammatory bowel disease-colon cancer. The common denominator of all these conditions is; chronic inflammation leads to increased incidence of cancer. In this review the
impact of the activated stroma on pancreatic carcinogenesis is discussed.

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