The feasibility of R0 resection of locally advanced pancreatic cancer encasing major visceral arteries using arterial reconstruction: Short- and long-term results

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Introduction: Locally advanced disease is found in about 40% of patients with pancreatic cancer at initial presentation. Tumors involving major visceral arteries are commonly deemed unresectable. In this study we analyzed the feasibility of R0 resection of locally advanced pancreatic cancer encasing major visceral arteries using arterial reconstruction.

Methods: The following data were collected prospectively following pancreatic resection with vascular reconstruction in patients with pancreatic adenocarcinoma: age, gender, operative details, post-operative complications, chemotherapy and/or radiation therapy and overall and disease free survival. Patient survival was calculated utilizing Kaplan-Meier survival probability estimates.

Results: From Dec., 2002 to Nov., 2011, 16 patients underwent pancreatic resection with concomitant resection and reconstruction of major visceral arteries in our institution. Twelve of the 16 patients (8 males and 4 females, median age 67.5 years (range: 50–82 years)) underwent operation for pancreatic ductal adenocarcinoma and were included in this analysis. The arterial involvement included celiac artery (n=6), superior mesenteric artery (n=3) and hepatic artery (n=3). Resections included pancreaticoduodenectomy (n=8), distal pancreatectomy (n=3), and total pancreatectomy (n=1). Management of the arterial involvement included: resection of celiac axis without reconstruction (n=2), reconstruction of one artery (n=6), two arteries (n=3) and three arteries (n=1). Nine of the 12 patients underwent simultaneous venous reconstruction of either portal vein, superior mesenteric vein or splenic vein. All vascular reconstructions were performed using autologous saphenous vein for the arteries and internal jugular vein for the splanchnic veins. R0 resection was accomplished in 10, R1 in 1, and R2 in 1 patient. Two patients required reoperation. One patient (8%) died peri-operatively from pulmonary thromboembolism. Median hospital stay was 15.5 days (range: 9–53 days). Two patients refused chemotherapy. Nine of the 12 patients received neoadjuvant and/or adjuvant chemo- or chemo-radiation therapy outside protocols. To date, 4 patients are alive and disease free at 1, 6, 13 and 108 months, and 1 patient is alive with recurrence at 97 months. Six-month patient survival was 64% and median overall survival was 19 months. The long-term survival is depicted in Fig. 1. The probability of 5-year survival was 25.7%.

Conclusions: Our study indicates that in select patients with locally advanced pancreatic cancer with involvement of major visceral arteries R0 resection is feasible by performing pancreatic resection with arterial reconstruction. The survival data in this group of patients are encouraging and provide the opportunity to reconsider the contraindications to surgical management of such patients.

Biography

Dr. Genyk is an assistant professor of surgery at the USC School of Medicine and the Division of Hepatobiliary/Pancreatic and Abdominal Organ Transplant Surgery. Additionally, he is an attending surgeon at Children’s Hospital of Los Angeles (CHLA). Dr. Genyk graduated with honors from Ivano-Frankivk’s Medical Institute in Ukraine. He received his postgraduate medical and research training at Baylor University Medical Center in Dallas, Texas, University of Alabama at Birmingham Medical Center and Mount Sinai Medical Center in New York City. He is an expert in living-related donor liver transplantation, adult and pediatric liver transplantation, laparoscopic donor nephrectomy for kidney transplantation, pancreas transplantation as well as non-transplant hepatobiliary and pancreatic surgery.