pancreaticoduodenectomy (CW), and the pylorus-preserving pancreaticoduodenectomy (PP). PP proponents argue that the less invasive extent of resection leads to shorter operative times and less intraoperative blood loss, whereas its detractors express concern that it predisposes patients to delayed gastric emptying (DGE), increasing length of stay. We set out to compare the outcomes of PP and CW within American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP), with attention to operative times, transfusions, and length-of-stay as a surrogate for DGE.

METHODS: We used CPT codes 48150, 48152, 48153 and 48154. In the ACS NSQIP 2005-2011 database, we identified patients having undergone PP and CW. We used a propensity-score adjusted multivariate quantile regression to compare length of stay between the two groups. We excluded postoperative deaths from the analysis to avoid a competing-risks model and restricted the analysis to pancreatic adenocarcinoma.

RESULTS: We identified 4899 PP and 6817 CW. Patient characteristics were similar between the two groups. There was no difference in mortality or in the generic surgical complications collected by ACS NSQIP. There was no difference in operative times (358.5 and 368 minutes for PP and CW respectively, p = 0.09) or perioperative transfusion. LOS was 9 and 10 for PP and CW (p = 0.000). At multivariate propensity-score adjusted quantile regression, PS remained associated with a decreased median length of stay (-0.7 days, p = 0.001).

CONCLUSIONS: Within ACS NSQIP, patients with PP had shorter LOS and similar morbidity than patients undergoing CW, suggesting DGE did not weigh heavily on their postoperative morbidity.

Short-term matrix metalloproteinase inhibition results in decreased mortality during hepatic ischemia and reperfusion in mice with hepatosteatosis

Prathima Nandivada, MD, Melissa I Chang, MD, MSE, Pan Amy, BS, Sarah J Carlson, MD, MSc, Alison A O’loughlin, Med, Eileen Cowan, MD, Mark Puder, MD, FACS
Boston Children’s Hospital, Boston, MA

INTRODUCTION: Hepatosteatosis is present in over 25% of potential donors for liver transplantation and is associated with an increased risk of delayed graft function and graft failure, due to increased ischemia-reperfusion injury. As a result, living and deceased donor livers with steatosis are used infrequently in transplantation, reducing the donor pool significantly. Prior studies in our laboratory demonstrated that treatment with a broad-spectrum matrix metalloproteinase inhibitor, Marimastat, results in resolution of hepatosteatosis and blunts elevations in transaminases after hepatic resection. The purpose of this study is to determine if short-term therapy with Marimastat can improve hepatic function and mortality after hepatic ischemia and reperfusion in mice.

METHODS: Three-week old C57/Bl6 male mice were fed a high fat diet (60% fat kcal) for 8 weeks to induce hepatosteatosis. Mice were then treated with either Marimastat (100 mg/kg) in 0.45% methylcellulose (n=5) or methylcellulose alone (n=5) twice daily for 4 days. Hepatic ischemia or sham operation was performed on day 4 for 60 minutes, followed by 6 hours of reperfusion.

RESULTS: Intraoperative mortality was 0% in the Marimastat-treated group, while a 60% mortality was observed in the vehicle-treated group. Furthermore, the Marimastat-treated group required more anesthetic (1.3 – 2.5% isoflurane) than the vehicle-treated group (0.6 – 2% isoflurane), suggesting increased hepatic microsomal enzyme activity (p = 0.006).

CONCLUSIONS: These data suggest that Marimastat may be a potential short-term therapy for reducing the insults of ischemia-reperfusion on steatotic liver. If successful, this therapy could allow the use of steatotic grafts, dramatically increasing the donor pool for liver transplantation.

Minimally invasive pancreatectoduodenectomy: is the learning curve surmountable?

Henry A Pitt, MD, FACS, Attila Nakeeb, MD, FACS, Abhishek Parmar, MD, MS, Taylor S Riall, MD, FACS, E Molly Killane, RN, Bruce L Hall, MD, FACS
Indiana University School of Medicine, Indianapolis, IN and Temple University Health System, Philadelphia, PA and University of Texas Medical Branch at Galveston, Galveston, TX and Washington University, Saint Louis, MO

INTRODUCTION: Minimally invasive pancreatectoduodenectomy (MIPD) has been introduced in recent years at a few specialized centers. Both laparoscopic and robotic Whipple procedures have been mastered by a small number of surgeons around the world. However, the generalizability of this procedure has yet to be established. Therefore, the aim of this analysis was to determine whether the outcomes of MIPD are comparable to open surgery in a contemporary, multicenter cohort.

METHODS: From November 2011 through December 2012, 1,781 patients underwent pancreatectoduodenectomy (PD) at 43 institutions participating in the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) Pancreatectomy Demonstration Project. MIPD included laparoscopic, hand-assisted, robotic and robotic-assisted cases. MIPD was initiated in 131 patients (7.4%) at 21 centers. The mean and median cases per institution was three, and 66 (50%) were converted to open surgery. Major morbidity was defined as ACS NSQIP serious morbidity plus pancreatic fistula. Outcomes for MIPD (completed plus converted) were compared to open PD by standard statistical analyses.

RESULTS: Minimally invasive and open patients were similar with respect to multiple clinical, procedural and management parameters. Pancreatic fistulas were more common in completed MIPD compared to open PD (26.6 vs 15.8%, p < 0.05).