P1
HAND-ASSISTED MINIMALLY INVASIVE HEPATECTOMY FOR MALIGNANT INDICATIONS IS SUPERIOR TO THE TOTALLY LAPAROSCOPIC APPROACH

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Objective: This project was designed to critically assess the outcomes of hand-assisted laparoscopic minimally-invasive hepatectomy for malignancy.

Methods: Eighty-two consecutive patients undergoing minimally invasive hepatectomy for malignancy were assessed for intraoperative, pathological, mid-term complications and long-term oncologic outcomes. The median age was 59 years (range: 24–79 yrs), 54% were male, and the median BMI was 27.1 (IQR: 24.2–31.8). Sixty-eight patients (83%) had hand-assisted resection (Gelport, Applied Medical) via an 8 cm port/extraction incision (36 subcostal/32 midline) and 14 (17%) were totally laparoscopic. Histologies included colorectal metastases (55%), HCC (17%), NET metastases (6%), and other malignancy (22%) with 45% treated with preoperative chemotherapy.

Results: Median operative time was 200 minutes (IQR: 155–244 min) and median EBL was 88cc (IQR: 50–150cc) with no perioperative transfusions. There was one conversion to open surgery for extensive portal inflammation after PVE. Six patients (9%) in the hand-assisted group had small occult tumors identified by palpation and resected, none of which were detectable on imaging or ultrasound. Postoperatively, there were 11 patients (13%) with minor complications, no major complications, no reoperations, 4 readmissions (5%) and no 90-day mortalities. 95% of resections were R0 with no intrahepatic recurrence in the four R1 cases. With a median follow-up of 18 months, the 3-year RFS was 58% with 68% of patients without disease and the 3-year OS was 82%.

Conclusion: Compared to historical totally laparoscopic hepatectomy outcomes with a Pfannenstiel extraction incision, upper abdominal hand-assisted laparoscopic hepatectomy is safer, more efficient, and better able to identify small occult lesions, while providing excellent oncologic outcomes.

P2
TREATMENT AT NATIONAL CANCER INSTITUTE DESIGNATED CENTERS IS ASSOCIATED WITH INCREASED RESECTION OF COLORECTAL LIVER METASTASES

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Objective: Surgical treatment remains underutilized in for patients with resectable colorectal liver metastases. This study examines factors associated with the likelihood of surgical resection.

Methods: California Cancer Registry data from 2000 to 2012 was reviewed to identify patients with colorectal liver metastases (CRLM). Linkage to patient discharge records provided information regarding resection of primary and liver metastases. Bivariate analyses, Kaplan–Meier survival, and multivariate logistic regression analyses were performed.

Results: Overall, 2,792/23,099 (12%) patients with CRLM underwent surgical resection. The median survival of patients undergoing resection was 59 months and 18 months for those not undergoing resection. Factors independently associated with a decreased likelihood of resection were treatment at a non-National Cancer Institute (NCI) designated hospital (p < 0.0001), lower patient socioeconomic status, non-white race, Medicaid insurance (p < 0.001), higher number of extra-hepatic sites, and older age (p < 0.001). A sub-group analysis excluding patients with extrahepatic metastases identified 1805/12,069 patients (15%) with CRLM that were treated with surgical resection. The cohort selected for resection did not reach median survival at 60 months, patients not undergoing resection had a median survival of 18 months. Treatment at an NCI designated center persisted as an independent predictor of undergoing surgical resection (p < 0.001).

Conclusion: Treatment for CRLM with or without extrahepatic disease at an NCI-designated center is independently associated with increased likelihood of surgical resection. In the era of increased complexity and broadening resectability criteria in patients with stage IV colorectal cancer, centralization of care to NCI-designated centers should be strongly considered.

P3
MULTI-INSTITUTIONAL COMPARISON OF OPEN, LAPAROSCOPIC, HAND-ASSISTED LAPAROSCOPIC, AND ROBOTIC TECHNIQUES FOR DISTAL PANCREATECTOMY

Baylor College of Medicine, Houston, TX, USA

Objective: The literature comparing minimally invasive distal pancreatectomy (DP) to open DP is mostly limited to one or two minimally invasive surgical (MIS) techniques. Previous studies have addressed outcomes between robotic, laparoscopic, and open DP but have not included hand-assisted laparoscopic surgery. We evaluated outcomes of these four DP techniques in a multi-center study.

Methods: Data was collected from a prospectively maintained pancreas surgery consortium database at three high-volume pancreatic centers. We analyzed pre-operative,
oncologic, and post-operative outcomes including complications, pancreatic fistula of any grade, and clinically relevant fistula in each DP procedure type. **Results:** 261 patients underwent DP. 36% underwent open, 25% laparoscopic, 14% hand-assisted, and 25% robotic DP. The most common diagnosis was cystic lesion (39%) followed by pancreatic adenocarcinoma (PDAC) (27%). Open DP was more common in patients with PDAC (p = 0.001) and with greater co-morbidities, particularly HTN (p = 0.02) and smoking history (p = 0.02). EBL and transfusions were greater with open DP. Length of procedure was greater with MIS. Soft gland texture was more common in the MIS groups (Table 1). There was no difference in post-operative complications except for increased fistula of any grade with MIS (p = 0.02). However, there was no difference in clinically relevant fistula (p = 0.4). There was no difference in LOS, R0 resection, or lymph node yield. **Conclusion:** There is no difference in post-operative complications and oncologic outcomes between open and various MIS modalities for DP. The increased use of open DP for PDAC patients is likely a result of selection bias.

**Table 1 Results**

<table>
<thead>
<tr>
<th>Baseline characteristics</th>
<th>Open</th>
<th>Lap</th>
<th>HAL</th>
<th>Robotic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTN</td>
<td>56 (61%)</td>
<td>25 (44%)</td>
<td>21 (60%)</td>
<td>23 (38%)</td>
<td>0.02</td>
</tr>
<tr>
<td>Smoking history</td>
<td>53 (58%)</td>
<td>30 (47%)</td>
<td>13 (35%)</td>
<td>19 (28%)</td>
<td>0.02</td>
</tr>
<tr>
<td>Initial diagnosis PDAC</td>
<td>43 (45%)</td>
<td>7 (11%)</td>
<td>10 (27%)</td>
<td>9 (14%)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perioperative characteristics</th>
<th>EBL (mL)</th>
<th>Transfusion</th>
<th>Soft gland texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open DP</td>
<td>438</td>
<td>10 (11%)</td>
<td>69 (75%)</td>
</tr>
<tr>
<td>Laparoscopic DP</td>
<td>239</td>
<td>2 (3%)</td>
<td>49 (83%)</td>
</tr>
<tr>
<td>Hand-assisted DP</td>
<td>60</td>
<td>0</td>
<td>32 (91%)</td>
</tr>
<tr>
<td>Robotic DP</td>
<td>225</td>
<td>2 (3%)</td>
<td>58 (88%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-operative complications</th>
<th>Fistula any grade</th>
<th>CR-POPF (ISGPS Grade B/C)</th>
<th>Patients with any complications</th>
<th>Patients with Accordion ≥ grade 3 complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open DP</td>
<td>21 (23%)</td>
<td>9 (10%)</td>
<td>44 (42%)</td>
<td>20 (21%)</td>
</tr>
<tr>
<td>Laparoscopic DP</td>
<td>25 (48%)</td>
<td>10 (19%)</td>
<td>33 (28%)</td>
<td>13 (20%)</td>
</tr>
<tr>
<td>Hand-assisted DP</td>
<td>12 (39%)</td>
<td>3 (10%)</td>
<td>15 (41%)</td>
<td>5 (14%)</td>
</tr>
<tr>
<td>Robotic DP</td>
<td>17 (33%)</td>
<td>7 (14%)</td>
<td>23 (36%)</td>
<td>11 (20%)</td>
</tr>
</tbody>
</table>

**P4**

**ASSESSING RELATIVE COST OF COMPLICATIONS FOLLOWING HEPATIC RESECTION: A CALL FOR ENHANCED RECOVERY IN ALL PATIENTS**

N. Bhutiani, P. Philips, C. Scoggins, K. McMasters and R. Martin

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**Objective:** Improvements in surgical technique as well as anesthesia and post-operative critical care have augmented safety and decreased complications associated with hepatic resection. However, post-operative complications continue to impose a clinical and financial burden on patients and the healthcare system. This study sought to identify the frequency and economic impact of complications following hepatic resection.

**Methods:** The Premier Hospital Database was queried for patients undergoing hepatic resection between 2008 and 2015. Complications were identified based on ICD-9 code and grouped based on complication type. Complication frequency as well as impact on clinical and economic outcomes was calculated. Cost differences were calculated with respect to patients undergoing hepatic resection who did not experience each given complication. Differences were averaged within complication types. Complication frequency and effect on cost were ranked, with ranks summed to evaluate relative economic impact of complication types.

**Results:** A total of 6358 patients met inclusion criteria. The most common groups of complications following hepatic resection were pulmonary, gastrointestinal, and infectious (Table 1). The complications with the greatest average percent effect on treatment-related costs were hepatic, deep vein thrombosis/pulmonary embolus, and neurologic. After combining ranks of complication frequency and percent of effect on cost, pulmonary, gastrointestinal, and infectious complications had the greatest cumulative effect on cost related to hepatic resection.

**Conclusion:** Financially significant complications following hepatic resection stem from several post-operative factors. Enhanced recovery after surgery protocols that focus on improving post-operative pulmonary toilet and early mobilization, decreasing narcotic utilization, and minimizing sources of infection can help improve cost-effectiveness of hepatic resection.
P5
CONTEMPORARY MANAGEMENT OF BILIARY LEAKAGE FOLLOWING HEPATECTOMY
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University of Miami, Miami, FL, USA
Objective: This study aims to report contemporary management of biliary leakage in patients who underwent hepatectomy with or without biliary reconstruction.
Methods: The NSQIP database was used to examine the clinical data of patients underwent hepatectomy in 2014. The rate and treatment of biliary leak was evaluated in patients with the complication.
Results: We sampled a total of 3020 patients who underwent hepatectomy. Of these, 30.6% of patients with hepatectomy and biliary reconstruction and 6.5% for patients with hepatectomy without biliary reconstruction developed biliary leakage. Biliary leakage was significantly associated with increase mortality (AOR: 4.4% vs. 1.7%, 2.71, P < 0.01) and postoperative sepsis (20.2% vs. 3.7%, AOR: 6.62, P < 0.01). A biliary drain was used in 88.1% and 42.9% of patients with and without biliary reconstruction respectively. Presence of a drain was associated with a significant decrease in need for reoperation in patients developed biliary leakage following hepatectomy with and without biliary reconstruction (6.1% vs. 26.4%, P < 0.01 and 6.4% vs. 33.3%, P < 0.01 respectively). In 63.6% of patients with biliary leakage and a drain in surgical field, the leakage was contained and no needed for any other procedure. 28.7% required percutaneous drainage and 6.2% needed reoperation. However, presence a biliary drain was associated with increase of intra-abdominal infection (10.8% vs. 4.6%, AOR: 2.48, P < 0.01).
Conclusion: Biliary leakage is relatively common complication for patients who underwent hepatectomy. Most of the patients with the complication treat non-operative (98.3%).

Table 1 Most frequent and financially significant complications following hepatic resection

<table>
<thead>
<tr>
<th>Complication group</th>
<th>Percent</th>
<th>Rank of frequency</th>
<th>Average effect on cost (%)</th>
<th>Rank of effect on cost</th>
<th>Combined rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary</td>
<td>28.94</td>
<td>1</td>
<td>0.11</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Gastrointestinal</td>
<td>23.40</td>
<td>2</td>
<td>0.11</td>
<td>6</td>
<td>8</td>
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<tr>
<td>Infectious</td>
<td>17.56</td>
<td>3</td>
<td>0.18</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Deep vein thrombosis/pulmonary embolus</td>
<td>1.38</td>
<td>8</td>
<td>0.28</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Hepatic</td>
<td>2.04</td>
<td>9</td>
<td>0.32</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>9.65</td>
<td>6</td>
<td>0.11</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Neurologic</td>
<td>1.03</td>
<td>10</td>
<td>0.23</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Bleeding</td>
<td>14.81</td>
<td>4</td>
<td>0.07</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>0.96</td>
<td>11</td>
<td>0.19</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Cardiac</td>
<td>10.62</td>
<td>5</td>
<td>0.00</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Renal</td>
<td>7.67</td>
<td>7</td>
<td>0.10</td>
<td>9</td>
<td>16</td>
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</tbody>
</table>

P6
MINIMALLY INVASIVE VERSUS OPEN SEGMENT 7 AND 8 HEPATIC RESECTION: A PROPENSITY SCORE-MATCHED COMPARISON
Memorial Sloan Kettering Cancer Center, New York, NY, USA
Objective: Many surgeons consider minimally invasive (MIS) resection of segment 7 and 8 of the liver technically challenging and not indicated. We compared operative and post-operative outcomes of MIS vs open liver resections for tumors in segment 7 or 8.
Methods: Patients who underwent MIS (robotic/laparoscopic) or open segmentectomy 7 or 8 (2003–2016) were identified from a prospective database and matched 2:1 for benign or malignant disease, age, and BMI. Differences in patient characteristics between the cohorts were tested using conditional logistic regression.
Results: Eighteen patients who underwent MIS resection were matched with 36 patients who underwent open resection. The median ages were 57.0 (IQR 22–75) and 58.5 (IQR 31–75), respectively. There were no significant differences in tumor size (median 2.8 vs 3 cm, p = 0.25), blood loss (median 100 vs 275 ml, p = 0.15), microscopic positive surgical margins (0% vs 9%, p = 0.88), and post-operative complications (11.1% vs 34.3%, p = 0.11) between the groups. Patients in the MIS group had significantly shorter Pringle time (median 0 vs 25 min, p = 0.01) than the open group and similar operative time (median 177 vs 178 min, p = 0.47). Median hospital length of stay was 2 days shorter for MIS patients (4 vs 6 days, p = 0.03).
Conclusion: Although technically challenging, MIS resection of segment 7 or 8 in selected patients is associated with improved surgical outcomes, including Pringle time and length of stay compared to open resections. There is also a trend towards fewer complications. Therefore, MIS approaches are reasonable to consider for treating tumors in segments 7 and 8.
P9
TRANS-ARTERIAL CHEMOEMBOLIZATION OF HEPATOCELLULAR CARCINOMA IS EFFICACIOUS, REGARDLESS OF HOSPITAL CHARACTERISTICS OR TACE VOLUME
S. Gray, J. White, L. Peng, R. Cannon W Kilgore, D. Redden, A. Abdel Aal, H. Simpson, B. Mcguire, D. Eckhoff and D. Dubay
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Objective: Trans-arterial chemoembolization (TACE) is the recommended treatment for intermediate-stage hepatocellular carcinoma (HCC) according to American Association for the Study of Liver Disease (AASLD) guidelines. In an era of healthcare regionalization, it is unclear whether hospital volume is associated with post-TACE outcomes.
Methods: The 2012 linkage of Surveillance, Epidemiology, and End Results (SEER)-Medicare database was utilized. A multivariable Cox proportional hazards model was utilized to evaluate the association between post-TACE survival and patient factors, hospital characteristics, and TACE volume.
Results: 4258 patients with HCC treated with TACE comprised the study cohort. The mean age was 70, patients were 69.7% male, 60.6% Caucasian, 58.8% had HCV, 40.0% had multifocal disease, and median tumor size was 4.5 cm. Teaching hospitals, large hospitals and hospital performing >100 TACE treated 59.0%, 47.5%, and 35.8% of patients respectively. Median survival was 24.5 months. Unadjusted KM survival analysis demonstrated improved survival in hospitals performing >100 TACE annually (p < 0.001, figure). After controlling for sociodemographic, oncologic, and hospital characteristics, there was no significant association with post-TACE survival and patient factors, hospital characteristics, and TACE volume.
Conclusion: Neither hospital size, teaching status, nor TACE volume predicted survival in the Medicare patient population. These data encourage widespread utilization of TACE.

Figure 1 Survival of HCC patients with TACE treatment by annual hospital volume.

P10
CURRENT PRACTICES IN PERIOPERATIVE BLOOD MANAGEMENT FOR PATIENTS UNDERGOING LIVER RESECTION: A SURVEY OF SURGEONS AND ANESTHESIOLOGISTS
S. Bennett, A. Ayoub, A. Tran, M. Gostimir, S. English, A. Tinmouth, D. McIsaac, D. Fergusson and G. Martel
University of Ottawa, Ottawa, ON, Canada
Objective: The development of new techniques and blood management strategies in liver resection, and the multidisciplinary nature of perioperative transfusion decision-making, creates an opportunity for practice variation. The aim of this study was to describe the current practices in perioperative blood management, and explore differences between surgeons and anesthesiologists.
Methods: A survey was circulated to Canadian liver surgeons and anesthesiologists. The survey focused on management of pre-operative anemia, blood conservation strategies, estimation of blood loss, and transfusion decision-making in a multidisciplinary setting.
Results: 198 physicians received the survey, with 117 responding (59.1%). Most responding surgeons (66.7%) perform over 20 liver resections per year, while most responding anesthesiologists (90%) take part in less than 10. The most common blood conservation strategy used is administration of anti-fibrinolytics (63% used them at least occasionally). The most important factor for anesthesiologists when deciding on an intraoperative transfusion was hemoglobin value (47.2%), for surgeons, it was patient hemodynamics (33.4%). Compared to when they started their career, 60.5% of respondents felt they were less likely to transfuse a patient now. Almost 40% of respondents replied that they had no specific management for preoperative anemia, or that someone else managed it.
Conclusion: The results of our survey provide insights into current transfusion practice and decision making in liver resection, including a comparison between anesthesiologist and surgeon transfusion behaviour. The findings reflect trends toward restrictive transfusion strategies, and promote the development of improved blood conservation techniques and clinical practice guidelines.
P11
PROGNOSTIC SIGNIFICANCE OF BASELINE ALPHA-FETOPROTEIN IN HEPATOCELLULAR CARCINOMA: SYSTEMATIC REVIEW AND META-ANALYSIS

J. Silva, N. Berger and T. C. Gamblin
Medical College of Wisconsin, Milwaukee, WI, USA

Objective: AFP has been used as a surveillance tool for HCC recurrence, but the prognostic utility of an elevated pretreatment AFP level is poorly defined. This review sought to analyze the ability of elevated AFP levels to predict overall survival and recurrence free survival prior to treatment for HCC.

Methods: PubMed was searched for clinical studies published from January 2012 to July 2016 including terms: alpha fetoprotein, hepatocellular carcinoma, prognosis, factor, survival, and outcome. Included studies were required to report AFP levels before treatment with curative intent for HCC and report long term survival data. Cox regressions were analyzed to determine hazard ratios (HR) of elevated AFP. Meta-analysis of overall survival (OS) and recurrence free survival (RFS) HR was performed using the random-effects model.

Results: The literature search returned 64 studies. A total of 13 studies with 5383 total patients met inclusion criteria and were examined for review and meta-analysis. In studies reporting the number of patients with elevated AFP, 45.8% of HCC patients met the definition of elevated pre-treatment AFP. In the meta-analysis, elevated pre-treatment AFP was associated with increased risk of disease recurrence (HR: 1.41, 95% CI: 1.17–1.70) and increased HR for survival (1.74, 95% CI: 1.46–2.07).

Conclusion: Elevated pretreatment serum AFP level is an independent predictor of overall survival and recurrence free survival in HCC patients. Serum AFP measurement may have prognostic value for HCC at the time of diagnosis. Further research is aimed to determine optimal baseline AFP values.

P12
OUTCOMES OF LIVER RESECTION FOR HEPATOCELLULAR CARCINOMA IN THE BACKGROUND OF CIRRHOSIS

C. Bhati, R. Seth, B. Kaplan, A. Cotterell, S. Matherly, T. Reichman, A. Sharma and M. Levy
Virginia Commonwealth University, Richmond, VA, USA

Objective: To evaluate the outcomes of liver resection for patients with hepatocellular carcinoma (HCC) in the setting of liver cirrhosis.

Methods: A retrospective review was conducted in cirrhotic patients who underwent liver resection for HCC from 01/2011 to 09/2016. All relevant clinical, radiological, pathological findings and treatment modalities were studied. Statistical analysis was performed using SPSS version 22.

Results: Seventy-three patients who underwent liver resection for HCC were studied. Seventy percent were male with mean age of 60 years ± 1.2. Seventy-two percent of patients had hepatitis C while 24% had hepatitis B. Mean Childs-Turcotte-Pugh and Model-for-End-Stage-Liver-Disease (MELD) score was 5 and 7 respectively. Median alpha-fetoprotein was 28.4 ng/mL. Eighty percent of patients were over stage T2 while four had ruptured HCC. Of these four, three are alive (at 1-month, 1-year and 2-years) while one died after 3 months following resection. Fourteen patients had positive margins and the recurrence rate was 37%.

Eighty-eight percent had two or more segmental resection. Most common surgery performed was right hemihepatectomy (24%), followed by left lateral (21%), non-anatomical resection (21%) and central mesohepatectomy (12%). Overall morbidity was 19% with bile leak rate of 5.5% while 30-day mortality was 2.7%. Overall 1-, 3- and 5-year survival was 82%, 66% and 40% respectively. Positive margin (p = 0.001), MELD over 8 (p = 0.0001) and recurrence (p = 0.001) were found to be significant predictors of increased mortality.

Conclusion: Liver resection in cirrhotics is safe with acceptable survival outcomes. Resection should be avoided in patients with MELD over 8. Positive margins have increased risk of recurrence and mortality.
P13
TRENDS IN PATIENT SELECTION AND POSTOPERATIVE OUTCOMES AFTER PANCREATODUODENECTOMY. A 10-YEAR RETROSPECTIVE ACS NSQIP DATABASE ANALYSIS

Providence Portland Medical Center, Portland, OR, USA

Objective: We aimed to assess trends in patient selection and outcomes to evaluate safety in current practice of pancreatoduodenectomy.

Methods: NSQIP database from 2005 to 2014 was used to identify patients undergoing a pancreatoduodenectomy. Preoperative optimization measure was created using lack of >10% weight loss, albumin >3 and bilirubin <2. Annual trends in patient characteristics and outcomes were described in univariate and logistic or linear regression analyses for binary and continuous variables, respectively.

Results: 23,295 pancreatoduodenectomies were identified. There was no significant trend of age (overall median 65 years, trend p = 0.31), severity of systemic disease increased (ASA ≥ 3 in 73% overall, trend OR = 1.07, p < 0.001), but so did the rate of preoperative optimization (52% overall, trend OR = 1.03, p < 0.001). Malignant indication percentage was increasing (75% overall, trend OR = 1.04, p < 0.001) as was rate of associated vascular resection (8% overall, trend OR = 1.09, p < 0.001), but not multivisceral resections (4% overall, trend p = 0.10). The adjusted odds of minor and major complications increased over time (overall 31.2% and 27.7%, trend OR = 1.32 and 1.11 respectively, p < 0.001 for both). In contrast, unadjusted and adjusted length of stay was shortening (median 9 days, decrease by 1.60% and 1.44% respectively, p < 0.001 for both) and mortality continued to decrease (2.5% overall, trend OR = 0.95, p = 0.002).

Conclusion: There has been increasing severity of systemic disease as well as more advanced primary disease in patients undergoing pancreatoduodenectomy. Despite increasing complication rates, preoperative optimization and management of complications were likely improved, as suggested by shortening length of stay and decreasing mortality.

P14
NEW ONSET EXOCRINE PANCREATIC INSUFFICIENCY: AN UNDERESTIMATED CONSEQUENCE OF DISTAL PANCREATECTOMY

A. Hallac, C. Brady, M. Rogers, G. A. Falk and G. Morris-Stiff
Cleveland Clinic Foundation, Cleveland, OH, USA

Objective: Exocrine pancreatic insufficiency (EPI) is a known consequence of pancreatic head resection, however its importance following distal pancreatectomy (DP) is not well defined. The aim of this study was to define the prevalence of EPI after DP and identify risk factors for its occurrence.

Methods: A prospectively maintained institutional pancreatic resection database was interrogated to identify all patients who underwent distal pancreatectomy (DP) from 2005 through 2015. Pre and post-operative exocrine function, histopathology, demographics and volume of pancreas resected were recorded.

Results: 371 patients underwent DP including 21 patients (5.66%) with EPI diagnosed preoperatively and treated with pancreatic enzyme replacement therapy (PERT). New-onset symptomatic EPI was documented and treated in 38 of the patients (10.87%). CP was the most common pathology indicating surgery in patient on PERT (12/21, 57.1%). CP was the leading cause of EPI requiring PERT post-operatively (12/38, 31.57%). Only 2 (9.5%) of the patients who entered the operating room on PERT where having resection of adenocarcinoma, however post-operatively adenocarcinoma was the second leading cause of new onset EPI requiring PERT (11/38, 28.9%). There was no correlation between the volume of pancreas resected and the incidence of EPI (156.2 cm³ versus 133.9 cm³, P = 0.074).

Conclusion: Symptomatic EPI is a common complication of DP, being identified in 10.2% of patients. CP is the most common pathology associated with EPI. Patients undergoing DP should be considered for EPI and screening should be considered to identify pre-clinical EPI to allow early treatment.

P15
IMPACT OF HEALTH LITERACY ON POST-OPERATIVE OUTCOMES IN PATIENTS UNDERGOING HEPATIC AND PANCREATIC SURGERY

Vanderbilt University Medical Center, Nashville, TN, USA

Objective: Health literacy (HL) is the ability to obtain, process, and understand health information to make informed healthcare decisions. Low HL status is associated with adverse outcomes in patients with chronic diseases, but its post-operative impact is unknown. We evaluated the influence of HL on the number of days patients spend outside of any healthcare facility, termed Hospital-Free Days (HFD), after hepatic or pancreatic resection (HR/PR).

Methods: We retrospectively reviewed 508 HR/PR patients. HL was assessed on admission using the validated Brief Health Literacy Screen (BHLS). HFD within 90-days from surgery was calculated by subtracting hospital LOS, readmission days and rehabilitation/nursing facility days. Patient demographics, ASA class, Charlson comorbidity index, insurance status, education level, BHLS, and post-operative major complications (PMc) were evaluated. Multivariable analysis (MVA) was used to examine association with HFD.

Results: The median BHLS score was 14 (IQR 11–15) and median HFD was 84 (IQR 80–86). On MVA, age, race, procedure type, and PMc (all p < 0.01) were predictive of lower HFD. In patients undergoing PR, age, race, and PMc predicted lower HFD (see table), whereas race was not significant for HR. In patients without PMc, procedure type predicted HFD. Health literacy, educational level and insurance status were not associated with HFD on MVA.

Conclusion: HFD is a novel, patient-centric metric to quantify the true duration patients spend away from home.
in healthcare facilities in the 90-days following surgery. In our patients undergoing HR/PR, health literacy was not predictive of HFD but rather patient demographics, procedure type and PMC dictated lower HFD.

**Conclusion:** Tissue damage after IRE is a dynamic process with remarkable differences between tissues in animals. Whereas pancreas and liver showed the first damages after 1–2 hours, this may take 24 hours in blood vessels and 7 days in nerves.

<table>
<thead>
<tr>
<th>Significance of demographic and clinical variables in predicting HFD.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Race</td>
</tr>
<tr>
<td>BMI</td>
</tr>
<tr>
<td>PMC</td>
</tr>
<tr>
<td>Procedure type</td>
</tr>
<tr>
<td>BHLS</td>
</tr>
<tr>
<td>Insurance status</td>
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<tr>
<td>Education status</td>
</tr>
</tbody>
</table>

PMC, post-operative major complications. HFD, Hospital-Free Days. BHLS, Brief Health Literacy Screen.

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**P16**

**TIME-DEPENDENT IMPACT OF IRREVERSIBLE ELECTROPORATION ON PANCREAS, LIVER, BLOOD VESSELS AND NERVES: A SYSTEMATIC REVIEW OF EXPERIMENTAL STUDIES**

J. Vogel, E. van Veldhuisen, P. Agnass, J. Crezee, F. Dijk, J. Verheij, T. van Gulik, M. Meijerink, L. Vroomen, K. van Lienden and M. Besselink

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**Objective:** Irreversible electroporation (IRE) is a novel ablation technique for treatment of unresectable cancer. Both in experimental and clinical studies, a waiting time between ablation and tissue analysis to allow for cell death through apoptosis, is often reported. However, the dynamics of IRE effect over time remain unknown. Therefore, this study aims to summarize these effects in relation to time between treatment and evaluation.

**Methods:** A systematic search was performed in Pubmed, Embase and the Cochrane Library for original articles using IRE on pancreas, liver or surrounding structures in animal or human studies. Data on pathology and time between IRE and evaluation were extracted.

**Results:** Thirty-six articles were included, regarding IRE in liver (n = 24), pancreas (n = 4), blood vessels (n = 4) and nerves (n = 4) in over 440 animals. No eligible human studies were found. In liver and pancreas, the first signs of apoptosis and haemorrhage were observed 1–2 hours after treatment, and remained visible until 24 hours in liver and 7 days in pancreas after which the damaged tissue was replaced by fibrosis. In blood vessels, the tunica media, intima and lumen remained unchanged for 24 hours. After 7 days, inflammation, fibrosis and loss of smooth muscle cells were demonstrated, which persisted 35 days. In nerves, the median time until demonstrable histological changes was 7 days.

**Conclusion:** Tissue damage after IRE is a dynamic process with remarkable differences between tissues in animals. Whereas pancreas and liver showed the first damages after 1–2 hours, this may take 24 hours in blood vessels and 7 days in nerves.

**P17**

**XANTHOGRANULOMATOUS CHOLECYSTITIS MIMICKING GALLBLADDER CARCINOMA: A DIAGNOSTIC CHALLENGE**

G. Gemenetzis, A. A. Javed, V. P. Groot, R. A. Burkhart, M. A. Makary, M. J. Weiss, J. L. Cameron, C. L. Wolfgang and J. He

**Johns Hopkins School of Medicine, Baltimore, MD, USA**

**Objective:** Xanthogranulomatous cholecystitis (XC) is an uncommon benign inflammatory pathology of the gallbladder that can be often misdiagnosed as gallbladder carcinoma (GBC) on clinical examination and imaging studies. Our focus is to determine the findings that can assist in establishing a preoperative diagnosis of XC.

**Methods:** We retrospectively reviewed all pathologically confirmed XC cases in Johns Hopkins Hospital and analyzed indications for resection based on patient clinical and radiological data.

**Results:** Between 1997 and 2016, 101 resected XC cases were identified. Nineteen were misdiagnosed as GBC preoperatively with presenting symptoms of abdominal pain (57.9%), weight loss (47.4%) and jaundice (21.1%). A distinct palpable mass in the right upper quadrant was identified in three patients (15.8%). Mean values of CA19-9 and CEA were 59 and 4, respectively. CT scans revealed extensive gallbladder wall-thickening and occasionally abnormal enhancement in adjacent hepatic parenchyma or formation of a distinct regional mass extending to neighboring tissues (n = 7, 36.8%). Intraoperative frozen section biopsy was performed in nine patients and was diagnostic of inflammatory and non-malignant pathology in eight of them (88.9%). Most patients underwent an open cholecystectomy. Multi-organ resections were performed in eight cases (hepatectomy n = 5 26.3%, right colectomy n = 1, 5.3% and Whipple n = 2, 10.5%). 90-day mortality and morbidity was 0% and 10.5%, respectively.
Conclusion: Non-specific clinical symptoms and lack of distinct radiological findings on CT make a preoperative diagnosis of XC and the differential diagnosis from GBC very difficult. Histopathological examination is the only way for a definitive diagnosis.

P18
INDICATIONS FOR A LAPAROSCOPIC COMMON BILE DUCT EXPLORATION IN A COMMUNITY HOSPITAL SETTING: A REVIEW OF A SINGLE-CENTER’S EXPERIENCE WITH LAPAROSCOPIC COMMON BILE DUCT EXPLORATION IN THE CURRENT DECADE

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Objective: Although laparoscopic cholecystectomies and IOC have become the standard, LCBDE haven’t gained universal popularity despite increasing enthusiasm within the literature, pre-operative ERCP remains the procedure of choice. In the last few years there’s been an increase in LCBDE in our large multi-disciplinary institution with gastroenterologists skilled in ERCP. We reviewed operative experience determining the prevalence, indications, success rates, techniques of LCBDE, and training of those surgeons performing them.

Methods: Review of a prospective operative database at KP Riverside between 2010 and 2015 identified 20 LCBDE out of 5800 cholecystectomies, 25% in the first two years, and 50% in the last two, reflecting an increasing trend. The most common indication being choledocholithiasis in gastric bypass patients (55%), and failed ERCP (45%).

Results: All 20 explorations were attempted trans-cystically, three required a choledochotomy to remove large stones. A T-Tube was placed laparoscopically through the choledochotomy in two and one had a laparoscopic choledochoduodenostomy for suspected ampullary stenosis. Laparoscopic clearance of CBD stones whether transcytic or in conjunction with choledochotomy was 85% (17/20). Of successful transcystic explorations, choledochoscopy was used in 30%. The most common technique was basket retrieval (40%), although a Sedlenger technique using a guidewire and dilator/sheath under fluoroscopy was used successfully (30%).

Conclusion: LCBDE with cholecystectomy was successful in the majority of patients when a team approach was undertaken. Despite the initial enthusiasm for LCBDE, it remains an uncommon procedure within our facility where skilled endoscopists are available. However, based on the results of our study LCBDE is an important technique to know.
P20
CLINICAL IMPACT OF DIAGNOSTIC IMAGING PRIOR TO DEFINITIVE ANGIOGRAPHY FOR POST-PANCREATICODUODENECTOMY HEMORRHAGE
Carolyn Chen, Filip Turcer, Farzad Alemi, An-Lin Cheng, Aaron Daub, Mehran Fotoohi and Adnan Alseidi
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Objective: Post-pancreaticoduodenectomy-hemorrhage (PPH) is associated with significant peri-operative morbidity and mortality, necessitating timely intervention. This study investigates the clinical risk factors and patient outcomes associated with PPH to identify the utility of diagnostic imaging prior to definitive management.
Methods: A retrospective review of pancreaticoduodenectomies at a single institution identified patients with PPH requiring definitive angiographic treatment. Chi-square analysis was performed between clinical risk factors and PPH characteristics. Pearson correlation and logistical regression analysis was performed between patient outcome measures and time between initial diagnostic imaging and definitive angiographic management.
Results: Between 2005 and 2016, 857 pancreaticoduodenectomies were performed. Twenty-two patients exhibited PPH. The concomitant pancreatic fistula was present in 18/22. In-hospital mortality occurred in 6/22. Active hemorrhage, pseudoaneurysm, or hematoma on initial imaging was not correlated with clinical risk factors, although there was a significant relationship between leukocytosis >13 and hematoma (p < 0.0181). The diagnostic modalities included CT angiography (12/22), CT without contrast (3/22), CT with contrast (5/22), or conventional angiography (2/22). Definitive angiographic management occurred in 20/22 of patients. There were no significant associations between the time of diagnostic imaging and therapeutic angiography and length of ICU stay (p = 0.352), pressor requirement (p = 0.775), or mortality (p = 0.352).
Conclusion: The delay to definitive therapy incurred by obtaining imaging prior to intervention angiography is not associated with negative patient outcomes. In patients with suspected PPH, the utility of pre-procedural CT scan includes the ability to confirm the need for angiography and identify other postoperative factors which may mimic PPH such as abscess or pancreatic fistula.

P21
OUTCOMES WITH DONORS AGED <35 YEARS IN LIVING DONOR LIVER TRANSPLANTATION FOR HEPATITIS C
Shifa International Hospital Islamabad, Islamabad, Pakistan
Objective: Donor age is an important prognostic variable in liver transplantation. However, variable donor age cut-offs have been used with conflicting results. Data on impact of donor age in patients undergoing LDLT for Hepatitis C virus (HCV) related end stage liver disease (ESLD) is very limited. The objective of this study was to determine if donor age <35 years improves outcomes in transplanted patients with HCV related ESLD.
Methods: This was retrospective cohort study of 169 patients who underwent LDLT for HCV related ESLD. Patients were divided into two groups based on whether they received grafts from donors ≤35 (Group 1) or >35 (Group 2). Uni and multivariate analysis was performed to determine independent predictors of outcome.
Results: Mean donor age was 25.1 ± 5.2 and 40.1 ± 5.4 years (P < 0.0001). Early allograft dysfunction (EAD) was seen in 11.7% patients in group 1 versus 29.6% in group 2 (P = 0.02). Overall mortality was significantly high in group 2 patients i.e. 33.3% versus 15.8% (P = 0.04). Estimated 4 years OS was 78% and 64% and was significantly different (P = 0.03). Donor age ≤35 was the only significant variable for EAD on univariate analysis. For mortality, EAD was the only independent predictor of death [HR: 2.6, CI: 1.1–5.8, P = 0.01].
Conclusion: Opting for younger donors (≤35 years) for HCV related ESLD patients lowers risk of EAD and significantly improves overall survival.

P22
LIVER RESECTION IN PATIENTS WITH SYNCHRONOUS COLORECTAL LIVER AND LUNG METASTASES
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Objective: Historically, extrahepatic disease in patients with colorectal liver metastases (CLM) has been considered a contraindication to resection. More recently, complete resection of liver and lung metastases is associated with favorable survival. Further review suggests there may be a survival benefit of liver resection in patients with resectable liver and unresectable lung metastases form colorectal cancer.
Methods: A review of published English literature was performed to identify overall survival (OS) rates for patients with colorectal liver and lung metastases based on current treatment standards and comparison made to OS noted in a retrospective study of patients who underwent hepatectomy without resection of lung metastases.
Results: The 5-year OS rates for resection of CLM and lung metastases from colorectal cancer are up to 58% and 68%, respectively. For patients with metastatic disease to both the liver and lung the 5-year OS for treatment with chemotherapy alone is 1.6% compared to rates for resection of both the liver and lung metastases of 56.9% and resection of liver metastases in the setting of unresectable lung metastases of 13.1%.
Conclusion: This review revealed intermediate OS rates in patients with resectable CLM but unresectable lung metastases when compared to chemotherapy alone and resection of liver and lung metastases. Furthermore, these findings have prompted interest for a prospective, randomized trial titled “Randomized Controlled Phase II Trial of Liver Resection Versus No Surgery in Patients with Liver and Unresectable Pulmonary Metastases from Colorectal Cancer.”
P23
IDENTIFICATION OF NONALCOHOLIC FATTY LIVER DISEASE (NAFLD) FOLLOWING PANCREATECTOMY FOR NONINVASIVE IPMN
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Objective: The incidence of nonalcoholic fatty liver disease (NAFLD) is a growing concern. Post-pancreatectomy NAFLD has been previously described in heterogeneous populations. We examined the incidence of NAFLD in patients undergoing surveillance following pancreatectomy for noninvasive intraductal papillary mucinous neoplasm (IPMN).
Methods: A retrospective review of 307 post-pancreatectomy patients for IPMN from 2000 to 2015 was performed. Fischer’s exact test, Kruskal–Wallis test, and multiple logistic regression were performed. NAFLD was defined as Hounsfield units less than 40 on enhanced or unenhanced CT or liver; spleen ratio <0.9 on CT or MR.
Results: 110 patients with noninvasive IPMN without evidence of pre-op NAFLD and more than 6 months follow-up were included in the study cohort (mean follow-up was 130 months). The incidence of postoperative NAFLD was 16.4%, with most cases occurring within 12 months. Multiple factors including age, sex, history of diabetes or pancreatitis, body mass index, and requirement of postoperative insulin or pancreatic enzyme replacement were considered. Weight loss (at 6 months postop) and development or progression of atrophy of the pancreas remnant was associated with hepatic steatosis. There was a trend towards increased NAFLD in patients who underwent Whipple resection. The presence of atrophy of the pancreas remnant remained significant on multivariable analysis (p < 0.001).
Conclusion: Development of hepatic steatosis after pancreatectomy is not negligible. As the incidence of hepatic steatosis rises in the general population, it is increasingly more important to understand the pathogenesis and possible prevention in this patient population.

P24
EVALUATION OF INSTITUTIONAL OUTCOMES IN THE SURGICAL MANAGEMENT OF NECROTIZING PANCREATITIS THROUGH ADHERENCE TO A MULTIDISCIPLINARY TREATMENT ALGORITHM
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Objective: Optimal surgical management of necrotizing pancreatitis is evolving. This study aimed to evaluate outcomes obtained through adherence to an established algorithmic pathway for surgical management of necrotizing pancreatitis.
Methods: One hundred patients with necrotizing pancreatitis treated surgically at a single institution from January 2010 to December 2014 were retrospectively reviewed and divided into Groups A and B by timing of surgical intervention and subdivided by operative modality: open necrosectomy (A1, n = 47), drain-guided debridement (A2, n = 15), and laparoscopic (B1, n = 22) or robot-assisted (B2, n = 16) transgastric debridement. Outcomes were evaluated.
Results: Patient characteristics and etiology of pancreatitis were similar among groups. In Group A, comorbidity assessed by American Society of Anesthesiologists (ASA) ≤ class III was higher than in Group B (33/62 [53.2%] vs. 35/38 [92.1%], p = .001). Mean surgical length of stay (LOS) was 25.2 and 8.6 days for Groups A and B, respectively (p = .001). While intraoperative blood loss was higher in Group A than in Group B (452.4 vs. 90.9 mL, respectively, p = .005), mean operative time was similar for acute and delayed interventions (166.5 min vs 126.9 min, p = .066). Ninety-day mortality was 8.1%, 6.7%, 0%, and 0% for A1, A2, B1, and B2, respectively.
Conclusion: This algorithm provides a comprehensive stepwise approach for the surgical management of necrotizing pancreatitis. While low mortality compared with historical series was observed, improved clinical outcomes were highlighted in those treated with minimally invasive approaches.

P25
MINIMALLY INVASIVE APPROACHES TO PANCREATEDUODENECTOMY: IMPACT OF OPERATION LENGTH
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University of Miami, Miami, FL, USA
Objective: Even though minimally invasive surgery approaches decrease morbidity of surgical patients in numerous procedures, such approaches usually increase the operation length, which has significant association with postoperative morbidity of surgical patients. This study aims to investigate the impact of the operation length of pancreateoduodenectomy in different surgical approaches on postoperative complications of patients.
Methods: The NSQIP database was used to examine the clinical data of patients underwent pancreateoduodenectomy in 2014. Multivariate regression analysis was performed to investigate the impact of the operation length on outcomes of patients underwent surgery with different approaches.
Results: We sampled a total of 3,137 patients who underwent pancreateoduodenectomy. Of these, 7.1% underwent minimally invasive pancreateoduodenectomy. The operation length was significantly associated with morbidity (P < 0.01). Patients who underwent minimally invasive pancreateoduodenectomy had less overall morbidity (51.4% vs. 56%, P = 0.4). However, patients underwent minimally invasive approaches had a significantly higher mean operation length (370 minutes vs. 431 minutes, P < 0.01). When minimally invasive procedures took less than 330 minutes, minimally invasive approaches had fewer postoperative complications compared to the open approach (P < 0.01). However, in minimally invasive operations that exceed 330 minutes there was not any significant decrease
in postoperative complications compared to the open approach (53% vs. 58.9%, P = 0.51) (Figure 1).

**Conclusion:** The minimally invasive approach to pancreatoduodenectomy is associated with lower postoperative morbidity compared to the open approach. However, the significant decrease is seen only in operations that last less than 330 minutes.

**Methods:** A University of Louisville database was queried for patients undergoing EUS between 2012 and 2016 who carried a diagnosis of CP. Number of EUS criteria for CP was recorded along with number of hospitalizations since diagnosis, average daily narcotic usage, change in body mass index since diagnosis, number of endoscopic interventions since diagnosis, and the requirement for parenchymal resection and/or thoracoscopic splanchnicectomy. Patients were grouped based on EUS criteria met for CP (1–3, 4–5, ≥6) and groups were compared along these variables.

**Results:** A total of 81 patients met inclusion criteria. 22, 47, and 12 patients met 1–3, 4–5, and ≥6 EUS diagnostic criteria, respectively. Median follow-up time was 40 months. Along all follow-up parameters, there were no significant differences among the three groups, though patients with ≥6 Rome criteria on EUS did display a trend toward greater daily narcotic use and requirement for a greater number of pancreatic duct stents over the course of their disease.

**Conclusion:** Despite the role of ultrasonographic criteria in establishing the diagnostic severity of patients with symptomatic chronic pancreatitis, the number of EUS-based criteria does not appear to correlate with symptom severity in this patient population.

**Table 1** Correlation of endoscopic ultrasound diagnostic criteria for chronic pancreatitis with surrogate markers of symptom severity.

<table>
<thead>
<tr>
<th>Endoscopic ultrasound diagnostic criteria for chronic pancreatitis</th>
<th>1–3 (n = 22)</th>
<th>4–5 (n = 47)</th>
<th>≥6 (n = 12)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalizations since diagnosis</td>
<td>0 (0–10)</td>
<td>1 (0–15)</td>
<td>3 (0–6)</td>
<td>0.43</td>
</tr>
<tr>
<td>Daily narcotic use (mg morphine equivalents)</td>
<td>42 (20–90)</td>
<td>23 (10–360)</td>
<td>105 (30–180)</td>
<td>0.34</td>
</tr>
<tr>
<td>Change in BMI</td>
<td>0.04 (−2.90 to 1.76)</td>
<td>−0.03 (−4.60 to 5.49)</td>
<td>0.19 (−3.38 to 2.74)</td>
<td>0.44</td>
</tr>
<tr>
<td>Pancreatic resection</td>
<td>1 (4.5%)</td>
<td>2 (4.3%)</td>
<td>0 (0%)</td>
<td>0.28</td>
</tr>
<tr>
<td>Thoracoscopic splanchnicectomy</td>
<td>0 (0%)</td>
<td>1 (2.1%)</td>
<td>0 (0%)</td>
<td>0.67</td>
</tr>
<tr>
<td># ERCP since diagnosis</td>
<td>0 (0–7)</td>
<td>0 (0–6)</td>
<td>0 (0–4)</td>
<td>0.70</td>
</tr>
<tr>
<td>PD stent placement</td>
<td>7 (31.8%)</td>
<td>13 (27.7%)</td>
<td>5 (41.7%)</td>
<td>0.79</td>
</tr>
<tr>
<td>PD stent number</td>
<td>0 (0–6)</td>
<td>0 (0–4)</td>
<td>0 (0–3)</td>
<td>0.62</td>
</tr>
</tbody>
</table>

*Continuous variables expressed as median, range. Categorical variables expressed as n, %.
**Results:** Data analyzed on 106 lesions from 76 patients, 49 male, 27 female. Average age: 62.7, range: 37 to 84. Average lesion size: 2.3 cm, range: 0.1–7.6 cm. Colorectal adenocarcinoma liver metastasis was the most common tumor type, (48.1% of index lesions, 43.4% of patients), followed by hepatocellular carcinoma (24.5% of index lesions, 27.6% of patients). All others were of various histologies. Average follow up time: 21 months, median local recurrence: 12 months. There were fifty recurrences among the 106 index lesions, 5 (4.7%) local only, 11 (10.4%) local and non-local concurrently, and 34 non-local only (32.1%). No association existed between lesion size >3.0 cm and risk of recurrence (p = 0.743), nor did an association exist with only in risk-profile between these two techniques is equivalent to RE. Therefore, RFA serves as a tissue-sparing alternative to resection.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Index lesion N (%)</th>
<th>Patient N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>106 (100)</td>
<td>76 (100)</td>
</tr>
<tr>
<td>With recurrences (%)</td>
<td>50 (47.2)</td>
<td>37 (48.7)</td>
</tr>
<tr>
<td>Local only</td>
<td>5 (4.7)</td>
<td>5 (6.6)</td>
</tr>
<tr>
<td>Local &amp; non-local</td>
<td>11 (10.4)</td>
<td>8 (10.5)</td>
</tr>
<tr>
<td>Non-local only</td>
<td>34 (32.1)</td>
<td>24 (31.6)</td>
</tr>
<tr>
<td>Without recurrence (%)</td>
<td>56 (52.8)</td>
<td>39 (51.3)</td>
</tr>
<tr>
<td>Index lesion size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;3.0 cm</td>
<td>79 (74.5)</td>
<td>N/A</td>
</tr>
<tr>
<td>≥3.0 cm</td>
<td>27 (25.5)</td>
<td>N/A</td>
</tr>
<tr>
<td>Treatment of index lesion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open RFA</td>
<td>66 (62.3)</td>
<td>47 (61.8)</td>
</tr>
<tr>
<td>Laparoscopic RFA</td>
<td>40 (37.7)</td>
<td>29 (38.2)</td>
</tr>
</tbody>
</table>

**Conclusion:** There is a high tumor control rate using RFA, with only five independent local recurrences, an overall failure rate of <5%. Given ~40% of patients developed new disease outside of the RFA site, the focus of evaluation of this treatment modality should be on local control, achieved in 63/76 patients. Therefore, RFA serves as a tissue-sparing alternative to resection.

**P29 THE IMPACT OF THERAPEUTIC AND EMPIRIC ANTIBIOTICS ON WALLED OFF PANCREATIC NECROSUM REQUIRING OPERATIVE INTERVENTION**

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**Objective:** Antimicrobial prophylaxis for acute pancreatitis with walled-off pancreatic necrosis (WOPN) is not beneficial. The impact of varying therapeutic/empiric preoperative antibiotics (ABx) on this patient cohort is unknown however. The primary aim was to evaluate the outcome of patients who underwent surgical management for WOPN after receiving preoperative therapeutic/empiric ABx.

**Methods:** Patients who underwent surgical intervention for WOPN from 2005–2016 were reviewed. Those receiving therapeutic, empiric and no ABx (control) were compared. Outcomes included mortality, morbidity, and culture-positive WOPN. Standard statistical analysis was employed (p < 0.05).

**Results:** Of 66 patients, 27 (41%) received preoperative ABx (14 empiric, 13 therapeutic). Both the ABx and control groups had similar demographics (p > 0.05). ABx and control groups rarely displayed clinical evidence of infected WOPN (15% vs. 10%, p = 0.58), nor mortality (4% vs. 0% respectively, p = 0.26). The ABx cohort displayed significantly more complications compared to the control cohort (26% vs. 5%, p = 0.02). Both empiric and therapeutic ABx resulted in similar complication rates (36% vs. 15%, p = 0.35). More culture-positive WOPN was observed within the ABx cohort compared to control (59% vs. 21%, p < 0.01). Gram-positive organisms dominated in both cohorts (94% vs. 75%, p = 0.19). Similar rates of culture-positive WOPN were identified in the empiric and therapeutic ABx groups (57% vs. 54%, p = 0.86).

**Conclusion:** Preoperative ABx administration does not result in increased mortality amongst patients with WOPN.
Significantly more patients receiving preoperative ABx experienced serious postoperative complications, regardless of indication. Moreover, the ABx cohort displayed significantly more culture-positive WOPN. Clearly the use of preoperative antibiotics in cases of WOPN must be judicious.

P30
IS TRANSDUODENAL RESECTION FOR DUODENAL ADENOMAS ADEQUATE?
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Objective: Duodenal adenomas (DAs) are uncommon occurrences with malignant potential. The optimal surgical management of DAs remain controversial.

Methods: We performed a retrospective review of 27 patients at a single institution who received either a Whipple procedure (40.7%) or a transduodenal resection (TDR) (59.3%) for ampullary and nonampullary duodenal adenomas. Perioperative and postoperative outcomes were compared between the two groups.

Results: Both groups had similar demographics. Median operative time and median estimated blood loss (EBL) were longer in the Whipple group than the TDR group. Mean length of stay was longer in the Whipple group vs TDR group (12 vs 7 days). 3 patients (18.7%) who received TDRs developed recurrent adenomas. Two of these patients subsequently received a Whipple procedure. This is summarized in Table 1.

Conclusion: Although TDR has the perioperative advantages of less operative time, less EBL and less hospital length of stay, our experience demonstrates that TDR may be inferior to the Whipple procedure for duodenal adenomas due to high recurrence rates.

Table 1
<table>
<thead>
<tr>
<th></th>
<th>Whipple (n = 11)</th>
<th>Transduodenal resection (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median duration of surgery (min)</td>
<td>248</td>
<td>120</td>
</tr>
<tr>
<td>Median estimated blood loss (mL)</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Mean length of stay (Days)</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Recurrences N/A</td>
<td>18.7%</td>
<td></td>
</tr>
</tbody>
</table>

P31
COMMON BILE DUCT EXPLORATION VIA THE CYSTIC DUCT WITH THE SEPTUM ORIFICE AT THE CONFLUENCE: ANATOMICAL BASIS AND SURGICAL OUTCOMES
A. Shimizu, Y. Noda, Y. Yasuda, A. Lefor, Y. Sakuma, H. Horie, Y. Hosoya, J. Kitayama and N. Sata
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Objective: Choledochotomy is commonly used to extract bile duct stones. In patients with a non-dilated common bile duct, there is concern about postoperative stricture after primary closure. A cystic duct approach with the septum orifice at the confluence has been applied with excellent outcomes. To date, however, there is little written about this septum, a fused abutment of the cystic duct and common hepatic duct. The aim of this study is to investigate the anatomy of the septum in cadavers and the outcomes of a pilot series using this technique.

Methods: Cadaveric Study: Thirty eight cadavers were dissected with attention to biliary anatomy, especially the size and structure of the septum at the confluence.

Surgical Procedure: Following cholecystectomy, dissection of the cystic duct was continued to its junction with the common hepatic duct. The lateral wall of the cystic duct was then incised to observe an opening into the common duct. The septum, located superior to the opening, was opened without jeopardizing the free wall of the common bile duct. Choledocholithotomy was then performed followed by closure of the cystic duct.

Results: The septum was identified in all 38 cadavers examined and its median length was 5.5 (range: 2–24) mm. Using this technique, five patients with choledocholithiasis were treated without incising the common bile duct. There was no incidence of postoperative bile leak or bile duct stricture.

Conclusion: Common bile duct exploration using the septum opening technique at the confluence may reduce the incidence of postoperative biliary stricture.

P32
LIVER TRANSPLANTATION FOR BENIGN BILE DUCT INJURY AFTER OPEN OR LAPAROSCOPIC CHOLECYSTECTOMY
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Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran, Mexico City, Mexico

Objective: To present our experience in LT after BDI in one of the largest center for bile duct reconstruction after BDI in the world.

Methods: This is a retrospective study that analyzed LT secondary to BDI at our institution from 2008 to 2015.

Results: 11 patients with diagnosis of end-stage liver disease secondary to BDI were included on the LT waiting list. 6 patients all ready received a LT, 4 still on the waiting list and 1 died waiting for a LT. The 5 patients on the waiting list are 1 man and 4 women with a median age of 33 (range = 23–46) years and a median MELD of 17 (range = 9–40). The 6 patients that received a LT compromise 1 man and 5 women with a median age of 44 (range = 38–50) years. Injury occurred during open cholecystectomy in 3 patients. Lesions included, E3 in 3 cases, E4 in 3 cases. Main symptoms leading to transplantation were recurrent episodes of cholangitis in the 6 patients. The median time between BDI and liver transplant was 96 (range = 36–240) months. Median cold ischemia time, operative time, trans operative bleeding, red blood cells usage, intensive care unit stay and in hospital stay are summarized on table 1. One patient died in the post-operative period, the other 5 patients had only minor complications.

Conclusion: Liver transplant as a therapy for BDI is an infrequent and challenging procedure, even so, LT is the only available treatment.
**Table 1** Peri operative variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold ischemia time (min)</td>
<td>480 (300–600)</td>
</tr>
<tr>
<td>Operative time (min)</td>
<td>530 (420–660)</td>
</tr>
<tr>
<td>Trans op bleeding (ml)</td>
<td>7138 ml (600–24,000)</td>
</tr>
<tr>
<td>Red blood cells (units)</td>
<td>14 (1–33)</td>
</tr>
<tr>
<td>ICU stay (days)</td>
<td>3 (1–4)</td>
</tr>
<tr>
<td>In hospital stay. (days)</td>
<td>8 (4–16)</td>
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</table>

**P34**  
**NEUTROPHIL/LYMPHOCYTE & PLATELET/LYMPHOCYTE RATIOS ARE NOT PREDICTORS OF THE METASTATIC BEHAVIOR OF HEPATOCELLULAR CARCINOMA**

*Hamad General Hospital, Doha, Qatar*

**Objective:** Several inflammatory markers such as neutrophil/lymphocyte ratio (NLR) and platelet/lymphocyte ratio (PLR), have been linked to prognosis of several malignancies including hepatocellular carcinoma (HCC). We aim to assess NLR and PLR as potential predictors of extra-hepatic spread of HCC.

**Methods:** Retrospective analysis of prospectively collected data on newly diagnosed patients with HCC between 2011 and 2015 was done.

**Results:** A total of 180 patients were included. The mean age at the time of diagnosis was 58.8 (range: 31–82) years. HCV infection was found to be the most common cause of liver cirrhosis (60%). Twenty two (12.2%) patients were classified as class C according to Child-Pugh criteria. The follow up of patients ranged from 0.1 to 4.4 years (mean = 1.0 ± 1.1 years).

During follow-up 80 patients died (overall survival of 51.1%). Forty seven patients (26%) had at least one extra-hepatic metastasis at the time of diagnosis (Single site-10 vs Multiple sites-37).

Comparative analysis between those who developed metastasis and those who didn’t included several variable including inflammatory markers. Potential risk factors, at significance level of P < 0.05, included higher serum platelets, lower PLR, bigger tumor diameter, bigger total tumor volume, multiple/bilobar HCC and macroscopic vascular invasion. However, multi-variante regression analysis revealed that tumor diameter larger than 5 cm (OR = 6.10, 95% CI = 1.85–20.12) and bilobar liver involvement (OR = 5.49, 95% CI = 1.10–27.30) were the only predictors of metastatic behavior of HCC.

**Conclusion:** Tumors size (>5 cm) and bilobar involvement are determinants of the extra-hepatic metastasis in HCC patients while NLR and PLR ratios are not.

**P35**  
**PREOPERATIVE MONOCLONAL ANTIBODIES DO NOT IMPACT EARLY AND LONG-TERM OUTCOMES OF PATIENTS WITH RESECTABLE COLORECTAL LIVER METASTASES**

*AC Camargo Cancer Center, Sao Paulo, Brazil*

**Objective:** Access surgical outcomes and survival results of patients with resectable colorectal liver metastases treated with preoperative chemotherapy with and without monoclonal antibodies.

**Methods:** A retrospective analysis including patients with resectable colorectal liver metastases treated at a single Brazilian cancer center from 1998 to 2012 was performed. Clinical and pathological variables, as well as surgical outcomes and survival results were compared between patients who received preoperative treatment with either anti-VEGF or anti-EGFR therapy.

**Results:** In this period, 346 patients were treated with curative intention, of which 131 where considered with resectable metastases and received preoperative chemotherapy, including 83 patients who also received monoclonal antibodies. The two groups showed no statistically significant difference regarding to age, primary tumor stage, synchronicity, number of nodules, largest nodule diameter, CEA level and postoperative complications according to Clavien’s Classification. After a median follow-up of 85 months, median disease-free survival was 12 months in the Chemotherapy + MAbs group versus 16 months in the chemotherapy-only group (p = 0.597). Median overall survival was 77 months versus not reached respectively (p = 0.955). The use of preoperative MAbs also didn’t increased R0 resection rates in this analysis (86% in each goup, p = 0.496).

**Conclusion:** In this series, the use of monoclonal antibodies associated to preoperative chemotherapy for patients with resectable colorectal liver metastases added no benefit in terms of survival results.

**P37**  
**IS THE INTENSIVE CARE UNIT STILL NEEDED FOLLOWING LIVER SURGERY?**

E. Pichardo, B. Johnston, J. Wagner and K. Billingsley  
*Oregon Health and Science University, Portland, OR, USA*

**Objective:** Following liver surgery many patients typically undergo a postoperative Intensive Care Unit (ICU) stay. In 2015 we developed a care pathway that focused on enhanced recovery strategies without an ICU stay. We report the elements of this pathway and the short term outcomes.

**Methods:** A retrospective review was performed of all liver resections following implementation of a new care pathway that minimized utilization of the ICU and encouraged postoperative management on the ward. 2:1 matching for age and blood loss was performed for patients who underwent a major hepatectomy pre fast track era and went to the ICU and post fast track and went to the ward.

**Results:** A total of 77 patients underwent resection in 2015. 62% (n = 48) of patients went to the ward immediately postoperatively. Of all the patients that went to the ward 31% underwent major resection, median length of stay was 6.4 days, 90 day survival was 100%, and 30 day readmission rate was 6%. None of the fast track patients required transferred to the ICU. In subset analysis of matched major hepatectomy patients, fast track patients tended to have shorter length of stay but similar short term survival compare to patients who went to the ICU directly (Figure 1).
Conclusion: Fast track pathways in hepatectomies have acceptable outcomes. Direct ward care does not appear to negatively impact resection outcomes. Cost analysis to be included in future.

Figure 1

<table>
<thead>
<tr>
<th>Clavien complication rate (%)</th>
<th>ICU (n = 30)</th>
<th>WARD (n = 15)</th>
<th>P</th>
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</thead>
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<tr>
<td>Days in SICU (mean)</td>
<td>1.5</td>
<td>0</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>LOS, days (mean)</td>
<td>8.3</td>
<td>5.7</td>
<td>.060</td>
</tr>
<tr>
<td>30 day readmission rate (%)</td>
<td>13.3</td>
<td>13.3</td>
<td>.689</td>
</tr>
<tr>
<td>90 day survival (%)</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

P38 PRIMARY TREATMENT RESPONSE BASED ON TUMOR EXPLANT MORPHOLOGY IN HCC FOLLOWING DEB-TACE

T. Sandoow, P. Gulotta, A. Albar, G. Galliano, D. DeVun, D. Kirsch, H. Bohorquez and D. Kay
Ochsner Clinic Foundation, New Orleans, LA, USA

Objective: Using liver explant findings for tumor morphology, the study seeks to compare treatment response with treatment dose and tumor characteristics.

Methods: Retrospective analysis was performed on all patients who were treated for HCC with DEB-TACE (100–300 µL C Beads,¢ mixed with 50–75 mg doxorubicin) and subsequently transplanted (n = 105). The end-point of each treatment was near-complete stasis or filling of the vascular tree. Of these 105 patients, 93 had post-treatment imaging performed prior to transplantation, and treatment response was based on modified RECIST criteria. Complete necrosis was seen in 9 patients. Treatment dose (Dose Delivered/Tumor Size) and tumor grade were compared to the primary treatment response.

Results: Low grade tumors were noted in 75 patients (G1, n = 11, G2, n = 64), and 9 were poorly differentiated (G3, n = 6, G4, n = 3). Of the 84 patients, higher treatment doses were seen in tumors with a favorable treatment response, 24 mg/cm in Complete Response (CR), 23 mg/cm in Partial Response (PR), and 14 mg/cm in Stable Disease (SD), p = 0.0002. Higher treatment doses were also more likely to be delivered to lower grade tumors, 22 mg/cm in G1/G2 lesions vs 14 mg/cm in G3/G4 lesions (p = 0.009). Low grade tumors (G1/G2) showed a favorable treatment response in 83%, (CR, 38%, PR, 45%, SD, 17%) as opposed to 11% of poorly differentiated (G3/G4) tumors (CR, 0%, PR, 11%, SD, 89%), p < 0.0001. Similarly, patients with a favorable treatment response (CR or PR) on imaging were more likely to be G1/G2 as opposed to G3/ G4 (98% vs 2%, p < 0.0001). Lower doxorubicin treatment doses suggest poor tumor response and aggressive tumor pathology.

P39 SURGICAL MANAGEMENT OF BILIODIGESTIVE DYSFUNCTION IS SUPERIOR OVER PERCUTANEOUS MANAGEMENT. SIX YEAR EXPERIENCE OF AN HPB CENTER IN COLOMBIA

L. Barrera, F. Vergara, C. Tarazona, D. Tamayo and J. Ramirez
IPS universitaria — Universidad de Antioquia, Medellin, Colombia

Objective: The rate of success in biliodigestive anastomosis BDA- (choledochoduodenostomy CD- or Hepaticojejunostomy HJ- in patients with biliary injuries post-cholecystectomy or benign biliary strictures is above 90%. However, the dysfunction of this diversion leads to complication such as: recurrent pyogenic cholangitis, hepatolithiasis, secondary sclerosing cholangitis or cirrhosis. Its management has become a challenging topic for surgeons nowadays. Describe the social, demographic and clinical characteristics of patients with biliodigestive anastomosis dysfunction and their prognosis after surgical management.

Methods: We performed an observational and retrospective study from September of 2010 to May of 2016, it included all patients with biliodigestive anastomosis made at our institution or at other hospitals presenting with complications after the reconstruction. The outcomes evaluated were: rate of cholangitis per year, re-stricture rate and mortality.

Results: We identified 60 patients with BDA (5 CD and 55 HY). 24 had a dysfunctional diversion: 5 CD and 19 HY. Seven of them where managed with internal-external percutaneous diversion and 17 needed a new Hepp – Couinaud hepaticojejunostomy. Five patients demanded hepatectomy after the reconstruction. Of the 7 patients managed by percutaneous diversion, 4 ended in liver transplantation. Of the 17 patients managed surgically, just two called for a new percutaneous management. None patients have a Dindo Clavien grade V complication.

Conclusion: Surgical management of biliodigestive dysfunction are safe and superior compared with percutaneous management.

P40 POSTOPERATIVE CHARACTERISTIC ISSUES OF CONGENITAL DILATATION OF THE INTRA- AND EXTRAHEPATICBILE DUCT

Yohsuke Yagawa, Ryota Higuchi, Takehisa Yazawa, Shuichiro Umura, Yutaro Matsunaga, Nobuhito Takeshita and Masakazu Yamamoto
Tokyo Women’s Medical University, Tokyo, Japan

Objective: This study aimed to elucidate the postoperative particular issues of congenital dilatation of the intra- and extrahepatic bile duct (Todani type IV-A congenital choledochal cyst (CCC)) with pancreaticobiliary maljunction.

Methods: 17 patients with intrahepatic stones (IHS) developed after flow-diversion surgery (excision of the...
extrahepatic bile duct and reconstruction) for type IV-A CCC were treated in our department between 1974 and 2015. Flow-diversion surgery was performed at our department in 6 patients and at other hospitals in 11 patients. We examined postsurgical treatment scores regarding hepatolithiasis.

Results: The median time of IHS confirmation from flow-diversion surgery was 9.9 years (range: 1–20 years). Most cases presented with cholangitis. Morphologically, persistence of extrahepatic bile duct dilatation and stricture and anastomotic stricture at the hepaticoenterostomy were seen in all cases and 7 patients, respectively. Stone removal, reconstruction with choledocho-enterostomy or hepatectomy were performed for IHS. Although prognosis was good in patients with well-controlled jaundice and cholangitis, 3 patients died with liver failure due to cholestatic liver cirrhosis.

Conclusion: IHS formation was considered to be largely ascribable to cholestasis caused by persistence of extrahepatic bile duct dilatation and stricture. To avoid post-operative cholestasis, adding hepatic duct plasty and creating a wide anastomosis are required when performing flow diversion surgery. Early stone removal and resolution of cholestasis to control cholangitis and jaundice is important in case IHS occurs after flow diversion surgery.

P41
COMPUTED TOMOGRAPHY FINDINGS AFTER RFA IN LOCALLY ADVANCED PANCREATIC CANCER
S. Rombouts, T. Derksen, C. Nio, I. Molenaar and M. van Leeuwen
University Medical Center Cancer Center Utrecht, Utrecht, Netherlands

Objective: Recent years, radiofrequency ablation (RFA), is being explored as new treatment option for locally advanced pancreatic cancer (LAPC). This article provides a systematic evaluation of the CT-findings after RFA in LAPC, by describing the changing appearances of the tumor, the ablation zone and their relation to surrounding vessels during follow-up (FU).

Methods: Institutional review board approval was obtained and informed consent from all 18 patients with LAPC who underwent RFA. All CT-studies performed prior to RFA and during FU were reassessed by two radiologists in consensus, using standardized scoring lists.

Results: In total, 69 CT-scans were reassessed. One week after RFA, the ablation zone was visible in 100%, as a (partially) sharply-defined (83%), heterogeneous area (94%). In 2 patients (11%), the ablation zone included the entire tumor. At 3 months FU, the ablation zone was completely invaded by tumor in 67% of patients and still present, but decreased in 33%. The SMV (44%) and portal vein (28%) were partially included in the ablation zone, complicated by local thrombosis (n = 1) and/or occlusion (n = 2) of the SMV in 21%. The occlusions persisted without clinical consequences and the thrombosis disappeared. In 39%, arteries were involved in the ablation zone, which led to lumen reduction in one case (14%).

Conclusion: Directly after RFA the ablation zone is well-defined on CT-imaging, but is usually replaced by tumor ingrowth at 3 months FU. The ablation zone regularly includes vascular structures, with asymptomatic venous occlusion or thrombosis in a minority of cases and without adverse effects in case of arterial involvement.

P42
IMPACT OF RACE AND SOCIOECONOMIC FACTORS ON SURGICAL MANAGEMENT OF PANCREATIC NEUROENDOCRINE TUMORS
MD Anderson Cancer Center, Jacksonville Beach, FL, USA

Objective: Pancreatic neuroendocrine tumors (PNET) are uncommon neoplasms. Surveillance, Epidemiology, and End Results data suggest improved survival for White patients with PNET, but no studies have investigated racial and socioeconomic disparities in this population. We therefore evaluated whether such factors influenced receiving surgical treatment for non-metastatic PNET, or were associated with a treatment delay.

Methods: All patients with non-metastatic PNET in the National Cancer Database from 2004 to 2013 were identified. Demographic, clinical, socioeconomic, and facility data were collected. Logistic regression was used to determine factors associated with receiving surgical treatment, or with treatment delay. Survival differences were assessed using Cox proportional hazards.

Results: We identified 4579 patients with non-metastatic PNET, of whom 4302 (94%) underwent surgery and 277 (6%) did not. Most were White (75.7%), with 13.4% Black, 5.9% Hispanic, and 5% other races. Race was not associated with surgical treatment, treatment delay, or survival. There were no differences in surgical treatment by gender, education, or facility type. Medicare was associated with decreased likelihood of surgery, while higher income and longer travel distance were associated with increased likelihood. Female gender and academic facility were associated with treatment delay, but also improved survival. Higher income and private insurance were associated with improved survival.

Conclusion: Among patients with non-metastatic PNET, race was not associated with surgical treatment, treatment delay, or survival. Insurance and income were strongly associated with treatment, and in turn influenced survival. Inverse relationships were seen between treatment delay and survival. Further study is warranted to better understand the etiology of these disparities.
SIZE OF PANCREATIC CANCER PREDICTS NEED FOR NEOADJUVANT THERAPY

K. Meredith, P. Briceno, J. Huston and R. Shridhar
Florida State University/Sarasota Memorial Healthcare System, Sarasota, FL, USA

Objective: Neoadjuvant therapy (NT) for resectable pancreatic adenocarcinoma (PAC) continues to be debated. We sought to establish the relationship between pancreatic tumor size, neoadjuvant chemotherapy (NCT), neoadjuvant chemoradiation (NCRT), and up front surgery (UFS) on survival.

Methods: Utilizing the National Cancer Database we identified patients with PAC who underwent NT and UFS. Patient characteristics and survival were compared with Mann–Whitney U, Pearson’s Chi-square, and the Kaplan–Meier method. Multivariable analysis (MVA) was developed to identify predictors of survival. All tests were two-sided and $P \leq 0.05$ was significant.

Results: We identified 29,969 patients: 24,547 patients with tumors $>2$ cm and 5,422 with tumors $<2$ cm. There were 1,259 patients treated with NCT, 1,642 treated with NCRT, and 28,605 UFS. Patients with tumors $>2$ cm were more likely to have higher T-stage, $P < 0.001$, positive lymph nodes, $P < 0.001$, poor histologic grade, $P < 0.001$, and R1 resections, $P < 0.001$. The median survival for patients with tumors $<2$ cm was 31.2 months compared to 22.3 months for those whose tumors were $>2$ cm, $P < 0.001$. In the $>2$ cm groups the median survival for NCT, NCRT, and UFS was 24.6 months, 25.4 months and 19.6 months, $P < 0.001$. MVA revealed that age, T-stage, N-stage, grade, tumor size $>2$ cm, R0 resection, and neoadjuvant therapy were predictors of survival.

Multivariate analysis of factors associated with receipt of surgical management, treatment delay, and survival.

<table>
<thead>
<tr>
<th>Race</th>
<th>Odds ratio of receiving surgery</th>
<th>P</th>
<th>Odds ratio of delayed surgery</th>
<th>P</th>
<th>Hazard ratio of death</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-hispanic white</td>
<td>Ref</td>
<td></td>
<td>Ref</td>
<td></td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Non-hispanic black</td>
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<td>0.307</td>
<td>1.15</td>
<td>0.172</td>
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<td>Hispanic</td>
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<td>0.408</td>
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<th>P</th>
<th>Hazard ratio of death</th>
<th>P</th>
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<td>Male</td>
<td>Ref</td>
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<td>Ref</td>
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<td>Female</td>
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<td>0.609</td>
<td>1.23</td>
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<th>Hazard ratio of death</th>
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<th>P</th>
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<th>% Not completed high school</th>
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<th>P</th>
<th>Odds ratio of delayed surgery</th>
<th>P</th>
<th>Hazard ratio of death</th>
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<td>$\geq 21%$</td>
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<td>13–20.9%</td>
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<td>0.998</td>
<td>0.95</td>
<td>0.629</td>
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<td>7–12.9%</td>
<td>0.68</td>
<td>0.204</td>
<td>1.02</td>
<td>0.856</td>
<td>**</td>
<td>**</td>
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<tr>
<td>&lt;7%</td>
<td>0.64</td>
<td>0.206</td>
<td>0.94</td>
<td>0.668</td>
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<th>Travel distance, miles</th>
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<th>P</th>
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<td>&lt;12.5</td>
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<td>12.5–49.9</td>
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<td>0.779</td>
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<td>50–249.9</td>
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<td>$\geq 250$</td>
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<td>1.08</td>
<td>0.645</td>
<td>0.57</td>
<td>0.033</td>
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* Only among surgery patients.
** Not all variables were used in each model.
Statistically significant associations shown in bold.
**Conclusion:** The size of pancreatic cancer correlates to pathologic stage and overall survival. Tumors >2 cm benefited from a neoadjuvant therapy. Utilizing this knowledge we can more accurately predict those patients with pancreatic cancer who would benefit from a neoadjuvant approach.

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**P44**  
**THE ROLE OF THE PROGNOSTIC NUTRITIONAL INDEX IN PREDICTING PERIOPERATIVE COMPLICATIONS AFTER PANCREATODUODENECTOMY**  
G. Sharma, G. Karagkounis, A. Jarrar, J. Hammel, R. M. Walsh and G. Morris-Stiff  
*Cleveland Clinic Foundation, Cleveland, OH, USA*

**Objective:** The Prognostic Nutritional Index (PNI) has been shown to predict the development of complications after certain gastrointestinal procedures, mainly in Far Eastern populations. However, its role in pancreatic surgery has not been adequately evaluated. The aim of this study is to assess the ability of PNI to predict the risk for complications after pancreaticoduodenectomy (PD) in a Western population.

**Methods:** Patients who underwent PD at a single academic tertiary care center were included. Clinicopathological, demographic and perioperative data were collected. The PNI was calculated for each patient according to the formula: 10 × serum albumin (g/dL) + 0.005 × blood lymphocyte count (per mm³), and two groups were generated (PNI ≥ 50, PNI < 50). The relationship between postoperative complications and PNI was assessed using linear logistic regression and chi-square.

**Results:** 210 patients (mean age 64.3 years) were included and analyzed. The median PNI score was 48.6 (Interquartile range 44.5–53.7). Malignant pathology was associated with a lower PNI; 35.2% of patients with malignant disease had PNI ≥ 50, compared to 67.3% of those with benign disease (p < 0.001). 148 patients developed complications, and the PNI did not predict the overall development of complications in either linear (p = 0.99) or dichotomized models (PNI ≥ or <50, p = 0.49). With regards to specific complications, both models failed to demonstrate an association between lower PNI and the occurrence of surgical site infections, postoperative sepsis, delayed gastric emptying, pancreatic fistula or hospital readmissions.

**Conclusion:** These findings do not support the use of PNI to delineate the postoperative complication risk for patients undergoing PD.

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**P45**  
**RECTAL DICLOFENAC AS ACUTE PANCREATITIS PROPHYLAXIS POST ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY**  
A. Troncoso, H. Losada, H. Herrera, J. Silva, L. Acencio, O. Arias and L. Burgos  
*Universidad de La Frontera, Temuco, Chile*

**Objective:** To determine whether the use of rectal diclofenac decrease the incidence of post-ERCP pancreatitis.

**Methods:** 1/4 Serie of cases between January 2015 and June 2016 in which two groups were analyzed. Group A: ERCP without prophylactic rectal diclofenac and group B: use of 100 mg of rectal diclofenac 20–30 minutes before procedure. Biometric variables, technical variables of ERCP and mortality were recorded. Analytical and descriptive statistics were used measures of central tendency and dispersion.

**Results:** 116 patients were included. Group A: 48 patients, Group B: 68 patients. Mean of age of group A and B: 53.1 ± 12.6 and 55.3 ± 11.9 years, respectively (p = 0.670). Of the total group of patients, five (4.3%) developed post-ERCP pancreatitis, 6.2% (3/48) in group A and 2.9% (2/68) in group B (p = 0.21). The main indication for ERCP in group A and group B was cholesterolithiasis (44/48 and 61/68, respectively). Sphincterotomy was performed in 71 patients (61.2%), 3 developed post-ERCP pancreatitis, all of them of group A. Difficult cannulation of the bile duct in 13 patients and one of them (group B) developed pancreatitis post-ERCP. There was cannulation of pancreatic duct in 12 patients (10.3%) and three of them developed post-ERCP pancreatitis, two in group A and one in group B (p = 0.804). There was no mortality and no adverse reactions to diclofenac.

**Conclusion:** The results in this group of patients support the use of diclofenac as prophylaxis for post-ERCP pancreatitis.

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**P46**  
**ROBOTIC PANCREATODUODENECTOMY AT AN EXPERIENCED INSTITUTION IS NOT ASSOCIATED WITH AN INCREASED RISK OF POST-PANCREATIC HEMORRHAGE**  
*University of Pittsburgh Medical Center, Pittsburgh, PA, USA*

**Objective:** Post-Pancreatic hemorrhage (PPH) is the Achilles heel of pancreaticoduodenectomy and reported to occur in 5–6% of patients. Early reports of minimally invasive pancreaticoduodenectomy have shown increased
incidence of PPH. Our objective is to determine whether PPH incidence is elevated in a mature series of robotic pancreatoduodenectomy (RPD) or if video review can identify technical factors which may contribute to PPH.

Methods: A retrospective review of RPDs between 10/2008–3/2016 was performed. PPH was classified by ISGPS criteria. Technical factors from video analysis were reviewed for variables including: anomalous arterial anatomy, trauma to vessels, method of GDA ligation, length of GDA stump, use of clip on arteries, and creation of falciform flap. Clinical and technical variables were analyzed using multivariate analysis (MVA).

Results: 400 patients underwent RPD with a PPH = 16(4%), 167 (42%) RPD had videos to review. MVA of clinical variables showed females, EBL>500 ml, long OR time, and neoadjuvant therapy were predictors of PPH (p = 0.042, R2 = 0.148). Falciform flaps were routinely performed after RPD#181 and were performed with less frequency in the PPH group (37.5% vs 75%, p = 0.033). On MVA of clinical and technical variables, suture ligation of GDA and long OR times were predictive of PPH (p = 0.06, R2 = 0.19). A negative relationship (Figure) was found between frequency of PPH and time (I = −0.533, p < 0.05). Routine use of falciform flaps dropped the PPH rate (Early-200 RPD = 6% vs Late-200 RPD = 2%, p < 0.05).

Conclusion: PPH for RPD in a mature series is on par with historical open control, however, improves with experience and use of a falciform flap.

P48
ASSESSING RELATIVE COST OF COMPLICATIONS FOLLOWING PANCREATIC RESECTION
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Objective: Improvements in surgical technique and perioperative care have augmented safety and decreased complications associated with pancreatic resection. However, post-operative complications continue to impose a clinical and financial burden on patients and the healthcare system. This study sought to identify the frequency and economic impact of complications following pancreatic resection.

Methods: The Premier Hospital Database was queried for patients undergoing pancreatic resection between 2008 and 2015. Complications were identified based on ICD-9 code and grouped based on complication type. Complication frequency as well as impact on clinical and economic outcomes was calculated. Cost differences were calculated with respect to patients undergoing pancreatic resection who did not experience each given complication. Differences were averaged within complication types. Complication frequency and effect on cost were ranked, with ranks summed to evaluate relative economic impact of complication types.

Results: A total of 3476 patients met inclusion criteria. The most common groups of complications following
pancreatic resection were pulmonary, gastrointestinal, and bleeding (Table 1). The complications with the greatest average percent effect on treatment-related costs were neurologic, deep vein thrombosis/pulmonary embolus (DVT/PE), and bleeding. After combining the ranks of complication frequency and percent of effect on cost, pulmonary, gastrointestinal, infectious, cardiac, and DVT/PE related complications had the greatest cumulative effect on cost related to pancreatic resection.

**Conclusion:** Financially significant complications following pancreatic resection stem from a range of postoperative factors. Efforts focused on improving postoperative pulmonary toilet, intravenous fluid administration, and early mobilization, minimizing narcotic utilization, and minimizing sources of infection can help improve cost-effectiveness of pancreatic resection.

### Table 1
Most frequent and financially significant complications following pancreatic resection.

<table>
<thead>
<tr>
<th>Complication group</th>
<th>Percent</th>
<th>Rank of frequency</th>
<th>Average effect on cost (%)</th>
<th>Rank of effect on cost</th>
<th>Combined rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary</td>
<td>31.31</td>
<td>1</td>
<td>0.25</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>23.86</td>
<td>2</td>
<td>0.20</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Infectious</td>
<td>15.50</td>
<td>4</td>
<td>0.15</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Cardiac</td>
<td>10.47</td>
<td>5</td>
<td>0.17</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Deep vein thrombosis/pulmonary embolus</td>
<td>1.41</td>
<td>8</td>
<td>0.32</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Bleeding</td>
<td>15.69</td>
<td>3</td>
<td>0.12</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Neurologic</td>
<td>0.64</td>
<td>11</td>
<td>0.41</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Renal</td>
<td>5.27</td>
<td>7</td>
<td>0.13</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>8.89</td>
<td>6</td>
<td>0.01</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Hepatic</td>
<td>0.83</td>
<td>10</td>
<td>0.03</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>1.12</td>
<td>9</td>
<td>0.02</td>
<td>10</td>
<td>19</td>
</tr>
</tbody>
</table>

**Conclusion:** The vast majority of patients requiring postoperative invasive abdominal procedures survive the 90-day postoperative period, and experience similar long-term survival as patients not undergoing these interventions.

**P49 RESCUE FOLLOWING PANCREATICODUODENECTOMY: A MULTI-CENTER OBSERVATIONAL POPULATION-BASED ANALYSIS**

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**Objective:** Rescue after surgery denotes patients who survive postoperative complications. We sought to measure short- and long-term survival among patients undergoing pancreatoduodenectomy (PD) with a subsequent drain placement or reoperation (rescued).

**Methods:** A retrospective population-based observational cohort study was performed. Patients undergoing PD between 2005 and 2013 were identified and linked to administrative healthcare databases (N = 2660). Patients undergoing PD at institutions performing <10 PDs/year were excluded (N = 97). Patients that had postoperative abdominal drain placement or reoperation were defined as having postoperative complications. 90-day survival rates following PD were observed. Patients experiencing postoperative interventions who survived 90 days following surgery were defined as rescued. Landmark survival analysis of pancreatic cancer patients surviving >90 days after surgery (N = 1886) was performed using Kaplan-Meier methods. Survival of patients requiring rescue was compared to those who did not undergo postoperative interventions using the log-rank test.

**Results:** Of 2563 PD patients, 119 died within 90 days of surgery (4.6%). 779 experienced at least one postoperative intervention during the 90-day postoperative period, of these, 728 (93.5%) survived (rescued), and 51 (6.5%) died within 90 days of surgery. Of the 1784 patients not undergoing postoperative drain insertion or reoperation, 68 died within 90 days of surgery (3.8%). Pancreatic cancer patients who experienced postoperative interventions and were rescued had similar long-term survival as those who did not (2.2 years, 95% CI: 2.0–2.5, versus 2.4 years, 95% CI: 2.2–2.6, respectively, p=0.14).

**P50 MICROBIOLOGY AND COMPLICATIONS IN DUODENOPANCREATECTOMY: THE IMPLICATIONS OF PRE-OPERATIVE ERCP**

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**Objective:** Patients undergoing pancreatoduodenectomy at the clinics hospital of the University of Sao Paulo between January/2009 and September/2014 were retrospectively reviewed.

**Methods:** We evaluated etiology and the impact of bile culture positivity on development of post-operative complications. Patients were divided into groups according to results of intraoperative bile culture and ECRP with prosthesis before the surgery.
Results: There were 114 patients submitted to pancreateoduodenectomy in the period. In 62 (54.4%) intraoperative bile cultures were positive. The most frequent bacteria found was Enterococcus sp.

The average BMI and age were similar in both groups (25.14 ± 5.78 positive culture group and 25.61 ± 5.80 negative culture group). Length of hospital stay (LOS) (12.78 ± 5.63 positive culture group and 12.73 ± 5.09 negative culture group) and surgical time were also similar (304.2 ± 54.10). Post-operative complications were identified in 52.6% of cases (46.8% in the positive culture group and 57.8% in the negative culture group). ERCP was done in 58.1% of the patients with positive bile culture: 90.1% had plastic prosthesis against 7% of metallic prosthesis (2.8% didn’t have any prosthesis).

Conclusion: According to our data, pre-operative biliary drainage was associated with positive biliary culture. Both groups were similar regarding age and BMI. However, there were no differences regarding post-operative complications, LOS and surgical time.

P51

XANTHOGRAVULOMATOUS CHOLECYSTITIS IS A PATHOLOGICAL DIAGNOSIS AND DOES NOT USUALLY MIMIC GALLBLADDER CARCINOMA

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Objective: Xanthogranulomatous cholecystitis (XGC) is a rare, benign histological variant of chronic cholecystitis that is characterized by either focal or diffuse destructive inflammation of the gallbladder, and its appearance is said to mimic gallbladder cancer. The aim of this study is to report a single centre experience with the diagnosis of XGC.

Methods: A retrospective case analysis was performed of the Institute’s database to identify all patients with a histological diagnosis of XGC. Pre-operative imaging was reviewed together with intra-operative findings and histopathological findings.

Results: During the period 2009–2014, XGC was diagnosed histopathologically in 57 (2.3%) surgically excised gallbladder specimens. The diffuse variant was more seen in 47 (82.5%) cases, 80% of the patients were aged older than 50, and the male to female ratio was 2:1. No radiological or clinical features lead to the pre-operative diagnosis of XGC. Intense inflammation lead to In 2 cases a gallbladder carcinoma was suspected pre-operatively, and in a further 9 patients the intra-operative appearance was concerning for malignancy. A frozen section biopsy was performed in 11 (19.3%) cases and intraoperative interpretation was consistent with the final pathological diagnosis in all cases.

Conclusion: XGC is a rare variant of chronic cholecystitis that cannot be differentiated by pre-operative factors. Frozen section analysis appears to be a reliable tool to rule out gallbladder carcinoma intraoperatively, this in turn can obviate the need for more radical and added morbidity.

P52

TREATMENT STRATEGY FOR MANAGEMENT OF BOUVERET SYNDROME

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Objective: Bouveret syndrome (gastric outlet obstruction secondary to impaction of gallstone in the pylorus or proximal duodenum) can be associated with a high mortality rate (12–37%) due to delay in diagnosis, advanced patient age and concomitant comorbidities. Most patients require surgical treatment but here is no consensus on the best form of treatment.

Methods: A treatment algorithm for management of Bouvet syndrome is described after retrospective review of single center experience and available literature. Patients were stratified at presentation based on overall risk and treatment strategy was individualized accordingly to optimize overall outcome.

Results: Steps of treatment algorithm are described (Fig. 1). After diagnosis, medical optimization is achieved through naso-gastric decompression, intravenous hydration, electrolyte correction and antibiotics if indicated. Patients are stratified as high risk or low risk. Stable patients can undergo EGD with stone fragmentation. Operative enterolithotomy is considered for unstable patients or if stone fragmentation is not successful. Consideration is given to fistula takedown/repair in stable and low risk patients. Consideration is also given to laparoscopic enterolithotomy after endoscopic lithotripsy if residual stone fragments are >1.5 cm.

Conclusion: Management of Bouveret syndrome can be complicated and needs to be individualized for every patient. Our proposed treatment algorithm provides a step wise management approach based on initial presentation and risk stratification in an attempt to optimize outcomes and minimize morbidity and mortality of this serious condition. Long term data is required to confirm efficacy.
P53
NEUTROPHIL/LYMPHOCYTE & PLATELET/LYMPHOCYTE RATIOS AS PREDICTOR MARKERS FOR ADVANCED GALLBLADDER CANCER, IS THERE A VALUE?
Hamad General Hospital, Doha, Qatar
Objective: Gallbladder cancer is a relatively rare cancer with a dismal prognosis. Our aim is to assess the prognostic values linked to metastatic disease at presentation.
Methods: Retrospective analysis of prospectively collected data on newly diagnosed patients with gallbladder cancer between 2011 and 2016 was done.
Results: We collected 36 patients with gallbladder cancer, histology-proven in 32 patients (88.8%) or by imaging in 4 patients (11.1%). Ten patients were females (27.7%) and 26 were males (72.2%). The median age was 55 (32–78).
Sixteen patients (44.4%) were incidentally found post cholecystectomy, 15 patients (41.67%) were proven via biopsy, 4 patients (11.1%) were diagnosed by imaging, and 1 patient (2.7%) by intraoperative frozen section.
Eight patients (22%) underwent definitive surgery. Six patients (75%) had central hepatectomy and 2 patients (25%) had central hepatectomy + CBD excision. One patient underwent redo surgery with left lateral segmentectomy.
Twenty-five patients (69%) had metastatic disease (24 on imaging and 1 patient detected intraoperatively). Neutrophil/lymphocyte ratio (NLR) in metastasis group (mean ± SD) is 4.6 ± 3.8, no metastasis group 2.9 ± 2.3 (P = 0.109) while Platelet/lymphocyte ratio (PLR) in metastasis group (mean ± SD) is 226.4 ± 166.6, no metastasis group 100.2 ± 48.9 (P = 0.001)
Conclusion: In our study for gallbladder cancer, we found a high prognostic yield for PLR in predicting metastasis which can be used in the work up of such patients.

P54
RETROSPECTIVE ANALYSIS OF LIRADS OBSERVATIONS: CORRELATION WITH CLINICAL AND PATHOLOGICAL OUTCOMES
E. Tang, G. Hall, D. Yu, W. Hopman, A. Menard and S. Nanji
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Objective: The Liver Imaging Reporting and Data System (LIRADS/LR) standardizes reporting of liver lesions in patients at risk for hepatoma. We sought to clarify the natural history of LR 3–5 lesions.
Methods: Our radiology database was searched for observations in cirrhotic patients. Chart review was performed on cirrhotic patients with two or more liver protocol CT/MRI studies. Radiographic features were assigned by a staff radiologist. Primary endpoint was diagnostic confirmation, a composite endpoint of radiographic progression, clinical progression, or histologic confirmation.
Results: Database search identified 638 relevant studies. Chart review resulted 138 lesions in 96 patients. Causes of cirrhosis were Hepatitis C (40%), alcoholism (25%), and Non-Alcoholic Fatty Liver Disease (22.5%). Assigned LR categories were LR 3 (n = 57, 41%), LR 4 (n = 38, 27.5%), LR 5 (n = 39, 28.3%). Multiple observations and liver segment were not associated with confirmation, while male gender and underlying diagnosis were (both p < 0.05).
Radiographic features (hyperenhancement, washout, interval growth, pseudocapsule) were all associated with diagnostic confirmation (P all < 0.05), as were lesions visible on US (LR 7.5, p = 0.02). Of these, 19/52(36.5%) LR-3, 25/35 (71%) LR-4, and 35/35 (100%) LR-5 were confirmed HCC. Median times to confirmation were 1395, 334, and 130 days for LR category 3, 4, and 5 observations respectively.
Conclusion: Compared to other series, our rates of HCC in LR 3/4 lesions were lower. The true incidence of HCC is likely higher than what we report given loss to follow up. Our results represent a probable lower limit of incidence.

P55
NEOADJUVANT AND ADJUVANT VACCINE THERAPY WITH OR WITHOUT PD1 CHECKPOINT INHIBITOR THERAPY IN PATIENTS WITH RESECTABLE PANCREATIC CANCER: A TRIAL IN PROGRESS
A. Blair, V. Kim, D. Thomas, C. Judkins, J. Uram, K. Foley, J. He, E. Jaffe, C. Wolfgang and L. Zheng
Johns Hopkins School of Medicine, Baltimore, MD, USA
Objective: Our group has developed an irradiated GM-CSF secreting allogenic pancreatic adenocarcinoma (PDA) vaccine (GVAX). Multiple trials have shown GVAX to be safe with a survival benefit associated with enhancement of intratumoral antigen specific T-cells. The PDA microenvironment inhibits the most effective immune response. Our preclinical model suggests GVAX primes the PDA microenvironment for PD-1 checkpoint inhibitor therapy (nivolumab), and in combination vaccine-induced anti-tumor T-cell responses may be enhanced.
Methods: 50 patients with resectable PDA will be enrolled and randomized to receive neoadjuvant treatment with GVAX plus cyclophosphamide (Cy/GVAX) or Cy/GVAX combined with nivolumab. All subjects will receive 5
adenocarcinoma. HPB 2017, -

SBRT dose was 40 Gy (range 30-50 Gy) in 5 fractions (range 4-6). A total of 36 lesions were treated with 100% local control. Elsewhere liver failure was 46.7%. The rate of distant metastatic disease outside of the liver parenchyma was 20%. MELD PFS at 6 month defined by <5 point increase in MELD score at follow up was 80%. Child-Pugh PFS at 6 months was 83.3% for Child-Pugh A and 55.6% for Child-Pugh B. On multivariate analysis combined tumor volume was the only factor associated with Child-Pugh progression (p = 0.01). Median overall survival was 12.5 months (range 5.2-44.83) with mOS of 20.9 months in Child-Pugh A and 10.4 months in Child-Pugh B patients.

Conclusion: SBRT for multifocal HCC provides excellent local control without hastening progression of cirrhosis in patients without bulky tumor burden. SBRT is safe and effective as a bridge to transplant and in the primary treatment of multifocal patients outside of Milan Criteria.

P58
SURGICAL MANAGEMENT OF SEVERE ACUTE NECROTIZING PANCREATITIS: IMPROVED OUTCOMES AND MORTALITY

University of Florida, Gainesville, FL, USA

Objective: The clinical course of acute pancreatitis has significant variability with mortality rates of 3% for mild

disease, 17% in the presence of necrosis, and 47% in patients with organ failure. The aim of this study was to evaluate our institutional surgical experience of severe acute necrotizing pancreatitis (ANP) treated by a delayed operative approach.

Methods: A retrospective review of a prospectively collected database from July 2005–June 2012 identified patients with severe ANP at a single academic institution. Severe ANP was defined according to the revised Atlanta classification. Management included resuscitation, enteral nutrition, and operative necrosectomy was performed 4–6 weeks following disease onset.

Results: Eighty patients were identified. The majority were male (72%) with a median age of 60 years and 81% were transferred from a lower acuity institution. Thirty-four patients (42.5%) had persistent multi-system organ failure, 28 patients (35%) experienced post-operative complications. Mortality during admission was 6.3% with a 5% 30-day and 7.5% 90-day mortality rate. The presence of infected necrosis (52.5%) did not affect outcomes.

Conclusion: Severe ANP can be safely and effectively managed with delayed operative intervention with mortality rates substantially lower than previously reported. To optimize outcomes and mortality, the management of patients with severe ANP should be regionalized at tertiary care facilities with experience in the management of pancreatitis.
P59
PREDICTIVE FACTORS OF NON-HOME DISCHARGE FOLLOWING PANCREATICODUODENECTOMY IN A NATIONAL COHORT OF PATIENTS
The University of Texas Southwestern, Houston, TX, USA

Objective: In spite of the improved surgical outcomes of pancreatic surgery and development of pathways to enhance recovery and discharge to home, a significant proportion of patients are discharged to inpatient facilities after pancreaticoduodenectomy. The aim of this study is to determine the rate and predictive factors of non-home discharge (NHD) following pancreaticoduodenectomy.

Methods: The National Surgical Quality Improvement Program was used to identify patients who underwent pancreaticoduodenectomy between 2011 and 2013. Patients that underwent NHD were identified and compared to the group of patients discharged to home. A multivariate logistic regression was used to determine patient and perioperative factors predictors of NHD.

Results: 6856 pancreaticoduodenectomy patients were identified of which 927 (15.6%) were NHD. Sixty-four percent were discharged to skilled care facility, 32% to a rehab facility and 3% to acute care facility. On multivariate analysis, predictors of NHD were female (OR = 1.63, 95% CI: 1.40–1.90), age ≥65 (OR = 4.33, 95% CI: 3.58–5.24), ASA class III/IV (OR = 2.03, 95% CI: 1.64–2.50), bile duct/ampullary neoplasm (OR = 1.22, 95% CI: 1.00–1.49) compared to pancreatic cancer, return to the OR (OR = 1.91, 95% CI: 1.43–2.55), length of stay ≥14d (OR = 3.24, 95% CI: 2.75–3.82), major inpatient complications (OR = 1.62, 95% CI: 1.38–1.92). Patients intubated >48 h, re-intubated, with septic shock or pneumonia have high rate of NHD (59.5%, 53.1%, 58.3% and 45.5%, respectively).

Conclusion: Female gender, age ≥65, ASA class III/IV and major postoperative complications are the main predictors for NHD after pancreaticoduodenectomy. Identifying factors that predispose patients to NHD can assist to set realistic expectations, perform adequate patient counseling and postoperative discharge planning.

Multivariate model for factors predicting discharge to non-home.

<table>
<thead>
<tr>
<th>Odds Ratio (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female vs male</td>
<td>1.63 (1.40, 1.90)</td>
</tr>
<tr>
<td>&gt;65 vs &lt;65 years old</td>
<td>4.33 (3.58, 5.24)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Asian vs white</td>
<td>1.02 (0.66, 1.58)</td>
</tr>
<tr>
<td>Black vs white</td>
<td>0.93 (0.70, 1.22)</td>
</tr>
<tr>
<td>Other/unknown vs white</td>
<td>0.54 (0.39, 0.74)</td>
</tr>
<tr>
<td>Diagnosis group</td>
<td></td>
</tr>
<tr>
<td>Bile duct/ampullary neoplasm vs Pancreatic cancer</td>
<td>1.22 (1.00, 1.49)</td>
</tr>
<tr>
<td>Chronic pancreatitis vs pancreatic cancer</td>
<td>0.52 (0.32, 0.84)</td>
</tr>
<tr>
<td>Duodenal neoplasm vs pancreatic cancer</td>
<td>1.06 (0.79, 1.41)</td>
</tr>
<tr>
<td>Neuroendocrine tumor vs pancreatic cancer</td>
<td>1.08 (0.57, 2.04)</td>
</tr>
<tr>
<td>ASA class III/IV vs ASA class I/II</td>
<td>2.03 (1.64, 2.50)</td>
</tr>
<tr>
<td>Return to OR vs No return</td>
<td>1.91 (1.43, 2.55)</td>
</tr>
<tr>
<td>Length of stay ≥14 vs &lt;14 days</td>
<td>3.24 (2.75, 3.82)</td>
</tr>
<tr>
<td>Inpatient complications</td>
<td></td>
</tr>
<tr>
<td>Major vs none</td>
<td>1.62 (1.38, 1.92)</td>
</tr>
<tr>
<td>Minor vs none</td>
<td>1.31 (0.92, 1.87)</td>
</tr>
</tbody>
</table>

P60
PROGNOSTIC FACTORS IN RESECTED HIGH GRADE AND INVASIVE INTRADUCTAL PAPILLARY MUCINOUS NEOPLASM. ANALYSIS OF THE NATIONAL CANCER DATABASE
E. Tang, J. Grendar, Z. Jutric, P. Hansen, R. Wolf and C. Hammill
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Objective: Consensus guidelines for management of IPMN primarily address the combined risk of specific lesions developing high grade dysplasia or an invasive component. Long term prognosis of resected high grade and invasive IPMN remains unclear. We sought to determine factors associated with survival in these cases.

Methods: We queried the NCDB from 2001–2006 for patients who underwent curative resection for high grade and invasive IPMN using ICD-O 3 codes. We evaluated the impact of demographic, facility, surgical and pathologic features on overall survival using Cox regression, univariate and multivariate analysis. P < 0.05 was considered significant.

Results: Of 581 patients who underwent surgery for invasive (n = 263) and high grade (n = 318) IPMN, increasing age (HR = 1.04/year) and medicare (HR = 1.35) vs private insurance status were negative prognostic indicators. Tumor features including increasing size, node positive disease, invasiveness, and margin status all negatively impacted survival (p < 0.05). Median survival for high-grade disease was 10.11 years. Median survival for invasive disease was 5.17 for node negative disease and 1.41 years for node positive (p < 0.01). Considering all patients, at multivariate analysis, only age, nodal status (HR: 4.24, CI: 2.97–6.04), and invasive disease (HR: 1.73, CI: 1.262.37) were associated with a worse outcome.

Conclusion: Based on our analysis of high grade and invasive IPMN in patients undergoing resection, age, nodal status and degree of invasiveness were the most important prognostic indicators. Overall survival for high grade lesions and invasive lesions without nodal disease is surprisingly similar. Nodal disease however is a significant predictor of poor outcome and similar to resected pancreas cancer in general.
P61
INPATIENT MORTALITY, TOTAL CHARGES, AND LENGTH OF STAY DISPARITIES EXIST FOR HEPATOCELLULAR CARCINOMA IN NEVADA COMPARED TO THE UNITED STATES

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University of Nevada School of Medicine, Las Vegas, NV, USA

Objective: Hepatocellular carcinoma (HCC) has an overall 5-year survival of 17.5%, and will lead to an estimated 27,170 deaths in the United States (US) in 2016. Previous evidence suggests that HCC outcomes are worse in Nevada (NV). This research investigated HCC inpatient outcomes, and examined putative HCC etiology and patient demographics for disparities.

Methods: Adult inpatient hospitalizations from 2008 to 2012 in NV and the US were retrospectively reviewed using the Nationwide Inpatient Sample and NV State Inpatient Database of the Healthcare Cost and Utilization Project. We identified 60,220 US and 2107 NV hospitalizations with diagnosed HCC using ICD-9-CM codes. Metabolic syndrome (MetS), alcohol use, and viral hepatitis ICD-9-CM codes were used to create putative etiology subgroups (Viral-HCC, MetS-HCC, Alcohol-HCC), a multiple-cause codes were used to create putative etiology subgroups (Multiple-HCC), and a cryptogenic subgroup (Other-HCC). Weighted logistic regression analyses were conducted using SAS/STAT software version 9.4.

Results: Overall-HCC, MetS-HCC, Alcohol-HCC, and Other-HCC accounted for significantly greater hospitalization charges in NV compared to the US (Table 1). Alcohol-HCC and Multiple-HCC had greater mean length of stay (LOS) in NV (Table 1). Other-HCC had lower in-hospital mortality in NV (p = 0.045). The US mortality odds ratio was 1.31 for African-American patients (p < 0.001) and 1.58 for Native American patients (p = 0.021) compared to Caucasian patients, and 1.84 (p < 0.001) for self-pay compared to Medicare patients.

Conclusion: Compared to the US, Nevadan HCC hospitalizations had increased LOS (Alcohol-HCC and Multiple-HCC) and increased total charges (MetS-HCC, Alcohol-HCC, Other-HCC, Overall-HCC). Confirming previous findings, disparities varied by ethnicity and insurance status, highlighting the need for further investigation and population health interventions.

Table 1 Outcomes of inpatient hospitalizations for hepatocellular carcinoma in the United States and Nevada, by putative etiology, from 2008–2012.

<table>
<thead>
<tr>
<th>Etiology</th>
<th>N</th>
<th>In-hospital mortality (%)</th>
<th>Length of stay (day)</th>
<th>Total charges ($1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US</td>
<td>NV</td>
<td>US</td>
<td>NV</td>
</tr>
<tr>
<td>MetS-HCC</td>
<td>3441</td>
<td>115</td>
<td>5.96</td>
<td>6.96</td>
</tr>
<tr>
<td>Alcohol-HCC</td>
<td>5228</td>
<td>556</td>
<td>11.67</td>
<td>14.77</td>
</tr>
<tr>
<td>Viral-HCC</td>
<td>17,954</td>
<td>176</td>
<td>9.06</td>
<td>12.95</td>
</tr>
<tr>
<td>Multiple-HCC</td>
<td>7935</td>
<td>271</td>
<td>8.53</td>
<td>10.33</td>
</tr>
<tr>
<td>Other-HCC</td>
<td>25,662</td>
<td>989</td>
<td>9.89</td>
<td>8.29</td>
</tr>
<tr>
<td>Overall-HCC</td>
<td>60,220</td>
<td>2107</td>
<td>9.49</td>
<td>10.24</td>
</tr>
</tbody>
</table>

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PRELIMINARY RESULTS OF SURGICAL REPAIR OF IATROGENIC BILIARY STRICTURES IN A SINGLE CENTER

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Objective: We aimed to evaluate the long-term results of surgical repair of iatrogenic biliary injury performed in a single Center.

Methods: We retrospectively evaluated 69 patients that underwent surgical reconstruction for iatrogenic biliary injury. Ten patients were excluded for insufficient data and 7 for other diagnosis.

Results: We included 52 patients (Table), 77% women with age of 42.73 ± 14.16 y. Etiologies of injury were cholecystectomy in 86.5% of cases, trauma in 9.7% and biliointestinal anastomosis for other diseases in 3.9%. Diagnosis was biliary duct stricture (BDS) in 28 (54%) cases and biliointestinal anastomosis stricture (BEAS) in 24 (46%). According to Bismuth, 42.3% of cases had B2-type injury, 40.4% B3, 9.6% B1, 5.8% B4 and 1.9% B5. Late follow-up evaluated for 24 patients in BDS group was 5.39 y (0.20–26.35 y) and for 20 patients in BEAS was 13.09 y (0.22–27.14 y). There were 2 reoperations and 1 liver transplant in BEAS group. Survival was 100% in 1 year for both groups, and 100% and 89% in 5 years for BDS and BEAS groups respectively. In BDS group, bilirubin before and after surgical repair was 4.23 ± 4.41 mg/dL and 1.74 ± 3.39 mg/dL respectively (p = 0.0296), ALT, 77 ± 83 UI/L and 33 ± 22 UI/L (p = 0.0219), AST, 55 ± 45 UI/L and 40 ± 36 UI/L, and GGT, 283 ± 292 UI/L and 241 ± 322 UI/L. In BEAS group, GGT before and after surgical repair was 457 ± 295 UI/L and 155 ± 160 UI/L (p = 0.0010), bilirubin, 5.42 ± 5.36 mg/dL and 5.11 ± 10.55 mg/dL, AST, 66 ± 38 UI/L and 46 ± 69 UI/L, and ALT, 74 ± 48 UI/L and 52 ± 86 UI/L.

Conclusion: Surgical repair of complex biliary stricture can achieve long-term success in 94% of patients when performed by experienced surgeons. Adult-women’s group is the most affected population.
A COMPARISON OF EARLY EXPERIENCE OUTCOMES OF ROBOTIC VS. LAPAROSCOPIC PANCREATICODUODENECTOMY AT A HIGH VOLUME INSTITUTION

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Objective: A comparison of early experience outcomes of robotic vs. laparoscopic pancreaticoduodenectomy at a high volume institution.

Methods: Using a prospectively-collected, institutionally-maintained database we reviewed the 1st 15 consecutive patients undergoing robotic pancreaticoduodenectomy (RPD) or total laparoscopic pancreaticoduodenectomy (TLPD) between the years 2011–2016. Dependent perioperative outcomes such as estimated blood loss (EBL), operative time (OR time), length of stay (LOS), perioperative death and pancreatic leak rates were compared between groups.

Results: Among the first 15 consecutive patients who underwent RPD or TLPD, demographic characteristics between RPD and TLPD patients were similar in terms of age, gender, use of preoperative biliary stenting, use of preoperative neoadjuvant chemo-radiation and size of primary tumor (mean diameter of 2.6 cm vs. 2.4 cm, p = 0.6). RPD and TLPD groups were significantly different in body mass index (23 vs. 26.1 kg/m², p = 0.02). Perioperative outcomes between RPD vs. TLPD such as operative time (465.9 vs. 405.2 minutes, p = 0.14), blood loss (370 vs. 279 mL, p = 0.42), rates of pancreatic leak type A (7% vs. 27%, p = 0.15) and type B/C (13% vs. 13%, p = 1) were similar between groups, length of stay (mean of 10.9 vs. 12.47 days, p = 0.55), 30-day readmission rates and 30-day mortality were not significantly different.

Conclusion: RPD in selected patients appeared to be equivalent to TLPD with similar perioperative outcomes. We surmise that RPD may be more intuitive and more readily adopted than TLPD as data mature and the learning curve of these two techniques is further clarified advantages and differences between both approaches may be realized.

THE VALUE OF DIAGNOSTIC LAPAROSCOPY AT THE TIME OF PANCREATECTODUODENECTOMY FOR PERIAMPUllaRY MALIGNANCIES

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Objective: To examine the yield of diagnostic laparoscopy (DL) at the time of resection for periampullary malignancies.

Methods: Patients who underwent exploration from January 2014 to December 2015 for radiographically resectable periampullary malignancies without neoadjuvant therapy were included. Prophylactic double bypass in patients with asymptomatic metastatic disease was not routinely performed. Patient data and imaging were reviewed by a multidisciplinary tumor board. Data regarding operative findings and pathology were collected.

Results: Among the 107 patients who underwent DL, the median age of patients was 64 years (range: 29–85), 54 (50%) were male, 67 (62%) had adenocarcinoma, 42 (39%) had neuroendocrine tumors, and 10 (9%) had other histologies. In total, 84 (78%) patients had malignant periampullary tumors, and 23 (22%) had non-malignant tumors. The rate of diagnostic laparoscopy was 79% (84 of 107 cases). The yield of diagnostic laparoscopy was 4% (4 of 107 cases), and the yield of malignant disease was 6% (7 of 107 cases). The yield of malignant disease was not statistically different between patients with malignant and non-malignant tumors (6% vs. 4%, p = 0.55). The median time from the last diagnostic laparoscopy to the date of resection was 0 days, and the median time from the date of resection to the date of diagnosis was 0 days.

Conclusion: The yield of diagnostic laparoscopy at the time of resection for periampullary malignancies was 6%, and the yield was not statistically different between patients with malignant and non-malignant tumors. The median time from the last diagnostic laparoscopy to the date of resection was 0 days, and the median time from the date of resection to the date of diagnosis was 0 days.
shown in Table 1. In 82 technically successful DLs, 20 patients (24%) underwent at least one biopsy and 3 (4%) revealed metastatic disease, all in patients with suspected PDAC. Sixty-seven patients underwent laparotomy after negative DL and an additional 7 biopsies (10%) were performed after mobilization. Overall, DL was successful in obtaining a biopsy in 20 of 22 patients (91%) with lesions expected to be visualized without mobilization. DL alone confirmed pathologic diagnosis of metastasis in 3 of 8 patients. 

Conclusion: In our experience, the yield of DL is 5% in radiographically resectable PDAC and zero in suspected non-pancreatic periampullary malignancies. The yield may be lower than in historical series due to increasing quality of imaging, anatomic definitions of resectability, and standardized radiographic review.

Results: Sixty-five patients formed the study group with a mean age of 67.45 ± 10.2 years. The three groups were comparable in terms of demographic and clinical characteristics. The 5-year survival was highest in Group 3 (24%) compared to Group 2 (9%). Using a cut-off value of 172.1 U/ml, post-operative CA 19-9 levels predicted mortality with a sensitivity of 70.6% and specificity of 64.5%, with an area under the ROC curve (aROC) of 0.68 (95% CI, 0.56–0.79, p < 0.006).

Conclusion: Patients with a decrease in post-operative CA 19-9 levels had a better survival. A cut-off value of 172.1 U/ml for post-operative CA 19-9 levels has the highest sensitivity and specificity in predicting long-term mortality in patients with resectable adenocarcinoma of pancreas.

<table>
<thead>
<tr>
<th>Preoperative diagnosis</th>
<th>Total</th>
<th>PDAC</th>
<th>CBD</th>
<th>Duodenal</th>
<th>Ampullary</th>
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</thead>
<tbody>
<tr>
<td>Number</td>
<td>107</td>
<td>68</td>
<td>14</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>DL attempted</td>
<td>84 (78)</td>
<td>58 (85)</td>
<td>12 (86)</td>
<td>6 (50)</td>
<td>8 (62)</td>
</tr>
<tr>
<td>DL successful</td>
<td>82 (98)</td>
<td>56 (97)</td>
<td>12</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Biopsy</td>
<td>20 (24)</td>
<td>13 (23)</td>
<td>5 (42)</td>
<td>0</td>
<td>2 (25)</td>
</tr>
<tr>
<td>Biopsy positive</td>
<td>3 (4)</td>
<td>3 (5)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MIS PD</td>
<td>14</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Exlap After DL</td>
<td>67</td>
<td>48</td>
<td>9</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Biopsy</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Without mobilization</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>With mobilization</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Biopsy positive</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Exlap without DL</td>
<td>23</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Biopsy</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Without mobilization</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>With mobilization</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Biopsy positive</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Metastatic</td>
<td>13</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Locally advanced</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Resected</td>
<td>88</td>
<td>52</td>
<td>14</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Pathology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDAC</td>
<td>46</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CBD</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Duodenal</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Ampullary</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Reported as number (percent).
PERIOPERATIVE PREDICTORS OF REHABILITATION PLACEMENT AFTER PANCREATICODUODENECTOMY

Beth Israel Deaconess Medical Center, Boston, MA, USA

Objective: Patients undergoing pancreaticoduodenectomy (PD) frequently require post-hospital recovery at rehabilitation facilities. Early identification of patients at risk for rehab placement may help with pre-operative education, risk stratification, and discharge planning. We evaluated the predictive role of early perioperative factors on rehabilitation facility placement to identify patients who may require this service.

Methods: The ACS-NSQIP pancreas-targeted database was queried to identify patients who underwent pancreaticoduodenectomy (PD) in 2014. Patients who originated from a facility, those with unknown or expired discharge disposition, and emergency cases were excluded. All perioperative variables were assessed via multivariate logistic regression analysis to identify predictors of discharge to a rehabilitation facility.

Table 1 Multivariate model for predictors of rehabilitation placement amongst patients undergoing pancreaticoduodenectomy.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>95% Confidence interval</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.094</td>
<td>1.077 1.110</td>
<td>.000</td>
</tr>
<tr>
<td>Female</td>
<td>1.214</td>
<td>.947 1.557</td>
<td>.126</td>
</tr>
<tr>
<td>ASA $\geq 3$</td>
<td>1.508</td>
<td>1.046 2.172</td>
<td>.028</td>
</tr>
<tr>
<td>BMI</td>
<td>1.036</td>
<td>1.014 1.059</td>
<td>.01</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.222</td>
<td>.977 1.409</td>
<td>.073</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>1.622</td>
<td>1.011 2.603</td>
<td>.045</td>
</tr>
<tr>
<td>Non-Caucasian</td>
<td>0.854</td>
<td>.567 1.287</td>
<td>.451</td>
</tr>
<tr>
<td>Active smoker</td>
<td>1.293</td>
<td>.999 1.500</td>
<td>.051</td>
</tr>
<tr>
<td>COPD</td>
<td>2.093</td>
<td>1.314 3.331</td>
<td>.002</td>
</tr>
<tr>
<td>Ascites</td>
<td>11.072</td>
<td>2.347 52.244</td>
<td>.002</td>
</tr>
<tr>
<td>CHF</td>
<td>2.576</td>
<td>.295 22.495</td>
<td>.392</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.185</td>
<td>.925 1.382</td>
<td>.148</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>1.167</td>
<td>.087 15.686</td>
<td>.908</td>
</tr>
<tr>
<td>Dialysis</td>
<td>36.666</td>
<td>1.938 693.878</td>
<td>.016</td>
</tr>
<tr>
<td>Open wound/infection present at time of surgery</td>
<td>1.190</td>
<td>.144 9.810</td>
<td>.872</td>
</tr>
<tr>
<td>Chronic steroids</td>
<td>1.352</td>
<td>.734 1.678</td>
<td>.204</td>
</tr>
<tr>
<td>Preop sepsis</td>
<td>.897</td>
<td>.272 2.958</td>
<td>.859</td>
</tr>
<tr>
<td>Transfusion with 72 hrs</td>
<td>1.440</td>
<td>.292 1.816</td>
<td>.308</td>
</tr>
<tr>
<td>Weight loss $&gt;10%$</td>
<td>1.157</td>
<td>.823 1.367</td>
<td>.353</td>
</tr>
<tr>
<td>Bleeding disorder</td>
<td>1.351</td>
<td>.534 1.391</td>
<td>.649</td>
</tr>
<tr>
<td>Wound classification $\geq 3$</td>
<td>1.251</td>
<td>.960 1.461</td>
<td>.085</td>
</tr>
<tr>
<td>Obstructive jaundice</td>
<td>.825</td>
<td>.605 1.126</td>
<td>.226</td>
</tr>
<tr>
<td>Preoperative biliary stent</td>
<td>0.933</td>
<td>.686 1.273</td>
<td>.663</td>
</tr>
<tr>
<td>Minimally-invasive approach</td>
<td>0.548</td>
<td>.290 1.033</td>
<td>.063</td>
</tr>
<tr>
<td>Vascular resection</td>
<td>0.984</td>
<td>.702 1.379</td>
<td>.925</td>
</tr>
<tr>
<td>Major concurrent procedure</td>
<td>2.245</td>
<td>1.468 3.435</td>
<td>.000</td>
</tr>
<tr>
<td>Malignant indication</td>
<td>0.504</td>
<td>.350 .728</td>
<td>.000</td>
</tr>
<tr>
<td>Pancreatitis histology</td>
<td>0.546</td>
<td>.301 .990</td>
<td>.046</td>
</tr>
</tbody>
</table>

Age, ASA score, BMI, dyspnea, COPD, ascites, chronic dialysis, and undergoing major concurrent procedure were predictive of rehabilitation placement. Malignant (compared to benign) indication and pancreatitis present on histology were protective against rehab placement.
Results: Of 3073 PD patients with complete data, 409 (13.3%) were discharged to rehab. Mean age was 64, 53.7% were male. Most PDs (80%, n = 2458) were performed for malignant disease. Vascular resection was performed in 16.4% of cases, while 7.1% underwent an additional major concurrent procedure, the most common of which were ventral hernia repair, partial colectomy, component separation, hepatic resection, and partial/total nephrectomy.

On multivariate analysis, age, ASA score, BMI, dyspnea, COPD, ascites, chronic dialysis, non-malignant indication, and major concurrent procedure were predictive of rehab disposition. Neoadjuvant therapy and vascular resection were not significant, even on subgroup analysis of exclusively malignant cases.

Conclusion: Perioperative risk factors that predict need for post-operative rehabilitation after PD include advancing age, BMI, ASA score, presence of major comorbidities, and undergoing a major concurrent procedure. At-risk patients may benefit from additional preoperative education/risk stratification, and earlier engagement of advanced discharge planning services.

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AGE AFFECTS ADJUVANT CHEMOTHERAPY RATES IN PATIENTS WITH RESECTED Pancreatic Adenocarcinoma

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Objective: Although surgical complications and functional status have been recognized as independent factors for halting adjuvant therapy in patients that undergo pancreatic resections, other elements may play a role in deciding which patients get treated postoperatively. In this study, we determined demographic characteristics of patients receiving adjuvant chemotherapy, with the primary intention to investigate if age alone affects rates of adjuvant therapy.

Methods: The National Cancer Data Base was queried for patients who underwent surgery for pancreatic cancer. Groups were divided in those that received adjuvant chemotherapy (n = 17,924) and those that did not (n = 12,947). Basic demographics and treatment characteristics were analyzed. Age was compared with an independent means test, all other comparisons were Chi-square test of independence.

Results: There was a statistical difference in age (adjuvant therapy 64.86 ± 9.89 vs. no therapy 67.78 ± 11.22, p < 0.001), insurance type, facility type and cancer stage for patients that received adjuvant therapy and those that did not (table). The average age of patients not receiving chemotherapy was significantly older by stage. Subset analysis of patients treated with chemotherapy showed that the majority of patients received single agent regimens (62%), at an average of 59 days following surgery, and at academic cancer programs (52%).

Conclusion: Regardless of postoperative complications and functional status, age alone appears to affect rates of adjuvant therapy in resected pancreatic cancer patients. Elderly patients should be offered tailored regimens that would allow them to complete the intended extent of treatment.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Chemotherapy (N = 17,924)</th>
<th>No Chemotherapy (N = 12,947)</th>
<th>p-value (10% sample used)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>64.86 ± 9.89</td>
<td>67.78 ± 11.22</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Female</td>
<td>8618 (48.1%)</td>
<td>6410 (49.5%)</td>
<td>0.443</td>
</tr>
<tr>
<td>Facility type</td>
<td></td>
<td></td>
<td>0.013</td>
</tr>
<tr>
<td>Community Cancer Program</td>
<td>976 (5.4%)</td>
<td>470 (3.6%)</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Community Cancer Program</td>
<td>6096 (34.0%)</td>
<td>4024 (31.1%)</td>
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</tr>
<tr>
<td>Academic/Research Program</td>
<td>9313 (52.0%)</td>
<td>7390 (57.1%)</td>
<td></td>
</tr>
<tr>
<td>Integrated Network Cancer Program</td>
<td>1539 (8.6%)</td>
<td>1063 (8.2%)</td>
<td></td>
</tr>
<tr>
<td>Residential group</td>
<td></td>
<td></td>
<td>0.825</td>
</tr>
<tr>
<td>Metro</td>
<td>14660 (81.8%)</td>
<td>10480 (80.9%)</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>2875 (16.0%)</td>
<td>2182 (16.9%)</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>389 (2.2%)</td>
<td>285 (2.2%)</td>
<td></td>
</tr>
<tr>
<td>Insurance type</td>
<td></td>
<td></td>
<td>0.008</td>
</tr>
<tr>
<td>Not insured</td>
<td>466 (2.6%)</td>
<td>386 (3.0%)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>7547 (42.1%)</td>
<td>4339 (33.5%)</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>9911 (55.3%)</td>
<td>8222 (63.5%)</td>
<td></td>
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<tr>
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<td>4</td>
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</table>
P69 PANCREATICODUODENECTOMY WITH VASCULAR RESECTION FOR BORDERLINE RESECTABLE PERIAMPULLARY MALIGNANCY

M. Younis, I. Nachmany, N. Lubezky, R. Nckache, Y. Goichman, N. Pencovich and J. Klausner
Tel-Aviv Sourasky Medical Center, TelAviv Outside US & Canada, Israel

Objective: To analyze whether pancreaticoduodenectomy with simultaneous mesenteric-portal venous (SMV-PV) resection is safe, and achieves acceptable oncologic outcome.

Methods: Between January 2008 and March 2016, 442 patients underwent radical pancreaticoduodenectomy (PD) for ampullary/peri-ampullary malignancy. Forty-eight also had portal/SMV resection (group 1), and were compared to 394 that underwent PD only (group 2).

Results: Median age, demographics and co-morbidities were similar between groups. There were 3 (7%) 60-day mortalities in group 1 and 19 (5%, p = 0.611) in group 2. Clinically significant Pancreatic fistula occurred in 7 patients in group 1 (9%) and 56 (14%) in group 2 (p = 0.661). Delayed post-pancreatectomy hemorrhage occurred in 3 patients (6%) in group 1, and 11 patients (3%) in group 2 (p = 0.51). Early thrombosis of the vascular reconstruction occurred in 1 patient (5%). This was treated successfully by surgical thrombectomy.

Tumor histology, size, grade, and lymph node involvement, were similar in both groups. Microscopic vascular invasion was seen in 15 patients in group 1 (31%). R0 resection was achieved in 40 patients in group 1 (85%) and 343 (87%) in group 2 (p = NS).

For patients with ductal adenocarcinoma, 1- and 3-year overall survival in group 1 were 63% and 15%, respectively and 71% and 25% in group 2 (p = NS).

Conclusion: Simultaneous resection of tumor-involved SMV-PV is a safe approach with acceptable short and long-term outcome, when compared with that of standard pancreaticoduodenectomy.

P70 PREDICTING PERIOPERATIVE FEEDING TUBE PLACEMENT IN PANCREATICODUODENECTOMY

Carolinas Medical Center, Charlotte, NC, USA

Objective: This retrospective review seeks to establish a predictive model for patients who may benefit from intraoperative feeding tube (FT) placement at the time of pancreaticoduodenectomy (PD) to decrease length of hospitalization, improve postoperative nutrition, or prevent post-PD abdominal procedures.

Methods: PD procedures performed by a quaternary hepatopancreatobiliary (HPB) referral center from January 1, 2008, to July 31, 2015, were analyzed. Factors correlating with FT placement and delayed gastric emptying (DGE) were examined with univariate and multivariate analysis. Models predicting FT requirement and DGE were devised.

Results: In all, 407 patients underwent PD: 336 (82.6%) patients had no feeding tube placed, while 71 (17.4%) underwent concomitant tube placement and 27 (8%) required tube placement within 90 postoperative days. Ninety-three patients (22.9%) developed DGE. The strongest predictors of FT requirement were increasing age (p = .002) and surgical blood loss (p = .003), American Society of Anesthesiologists (ASA) classification of V (p = .003), and occurrence of lymphovascular invasion (p = 0.016). Predictive models for tube placement within 90 days of PD (ROC: 0.637) and DGE (ROC: 0.655) were derived.

Conclusion: This review of patients undergoing PD identifies factors influencing FT placement, however, models for FT and DGE had moderate overall predictive ability. Low rates of Grade C DGE and POPF in this dataset may contribute to the models’ moderate predictive capacities. Expansion of this study with a larger sample size is planned to develop more effective predictive models for intraoperative FT placement at the time of PD.

P71 RESECTION OF HEPATIC METASTASES FROM BREAST CANCER: A SYSTEMATIC REVIEW & META-ANALYSIS

Imperial College London, London, United Kingdom

Objective: To systematically review the clinical evidence relating to liver resection for breast cancer metastases.

Methods: A systematic review, up to June 2016, was carried out in accordance with MOOSE guidelines. The primary outcome was to identify the odds ratio between prognostic factors influencing overall survival. Descriptive analysis was carried out where data heterogeneity did not allow for pooled analysis.
Results: A total of 40 observational studies (1416 patients) met the inclusion criteria (n = 5 case controlled studies, n = 35 case series). Median 5-year survival across the studies was 38% (range 18%–78%). Median disease free interval between studies was 55 (range 35–75) months. Pooled analysis identified the following variables associated with a greater overall survival: R0 resection compared to R1/2 (n = 6, OR = 4.07, p < 0.0001), positive hormone receptor status (n = 4, OR = 3.01, p = 0.0026), single hepatic metastasis (n = 4, OR = 2.20, p = 0.0221) and having metastases confined to the liver (n = 3, OR = 5.08, p = 0.0008). Review of prognostic factors identified three studies where a disease free interval greater than 12 months (HR = 5.15, p = 0.0097), 24 months (HR = 2.9, p < 0.05) and 36 months (HR = 8.69, p = 0.003) is associated with worse overall survival. One study identified that disease progression following neoadjuvant chemotherapy reduces overall survival (HR 3.8, p = 0.003).

Conclusion: Liver surgery for breast cancer liver metastases may improve outcomes in selected patients (positive hormone receptor, single metastasis confined to liver with long disease free interval) based on low level evidence available in literature. Prospective randomized controlled trials are necessary to determine the true clinical efficacy.

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Conclusion: Liver surgery for breast cancer liver metastases may improve outcomes in selected patients (positive hormone receptor, single metastasis confined to liver with long disease free interval) based on low level evidence available in literature. Prospective randomized controlled trials are necessary to determine the true clinical efficacy.

P73

STRUCTURED IMAGING REPORT OF HILAR CHOLANGIOCARCINOMA: HOW TO HIGHLIGHT THE CRITICAL FINDINGS

Hospital das Clínicas de Sao Paolo, Sao Paulo, Brazil

Objective: It is believed that the most commonly used type of conventional or free style imaging report tends to either fail to mention the critical aspects or hide them in lengthy reports that include unimportant incidental findings. For this reason, structured reports may provide better description of imaging findings, facilitating for surgeons to extract the most needed information. The aim of this study is to demonstrate how to build a structured report of multiphasic computed tomography (CT) or magnetic resonance imaging (MRI) for staging hilar cholangiocarcinoma in practice.

Methods: Several cases of hilar cholangiocarcinoma at different stages will be illustrated and reported by using a standardized template, emphasizing the most relevant findings for assessing resectability and surgical planning.

Results: Not applicable to this type of study.

Conclusion: Since surgical resection is the only potentially curative technique, proper determination of the extent of disease on imaging studies is one of the most important steps of patient management. The adoption of a standardized template for radiology reporting using universally accepted terminology improves the decision-making process for the management of patients with hilar cholangiocarcinoma.

P74

ADULT LDLT IN PAKISTAN: LARGEST SINGLE CENTER EXPERIENCE

Shifa International Hospital, Islamabad, Pakistan

Objective: Living donor liver transplantation (LDLT) remains the viable source of organ donation in regions with cadaveric organ organ shortage. In Pakistan, LDLT represents the only form of organ donation currently in practice. The objective of this study was to report the largest experience with living donor liver transplantation in Pakistan with respect to short and intermediate term outcomes.

Methods: We retrospectively reviewed patients who underwent LDLT between 2012 and 2016. A total of 336 adult LDLT’s were performed during this period. Primary objective was to determine 90 day mortality, 1 year and 4 year survival. Complications were graded based on Clavien Dindo classification. Kaplan Meier curves were used to determine 1 and 4 year overall survival.
**P75**

**EFFECT OF VESSEL PRESERVATION ON SPLENIC VOLUME AND FUNCTION IN PATIENTS WITH SPLENIC PRESERVING DISTAL PANCREATECTOMIES**

N. Brar, B. Lovejoy, I. McGilvray, C. A. Moulton, S. Gallinger, A. Wei and S. Cleary  
Toronto General Hospital, Toronto, Canada

**Objective:** The purpose of this study was to compare splenic function and volume between patients who underwent vessel sparing or vessel ligating (Warshaw) distal pancreatectomies with spleen preservation.

**Methods:** A retrospective cohort study was conducted on patients who received distal pancreatectomies with splenic vessel preservation or ligation at the Toronto General Hospital from 2006–2015. Using Myrian 3-D volumetry software, spleen volumes and hematologic parameters were obtained from pre- and post-operative CT scans. Additional information concerning lesion histology, post-operative complications and laboratory blood values were analyzed. Outcomes included overall and disease free survival.

**Results:** 83 patients received spleen preserving distal pancreatectomies, with volumes calculated on 44 patients. In patients whose spleen volumes were calculated, 8 had their splenic vessels preserved while 36 underwent the Warshaw procedure. Spleen volumes for the Warshaw group increased (mean 200–230 cm³, ANOVA p = 0.69) as well as for the vessel sparing group (mean 225–235 cm³, ANOVA p = 0.40). The average length of stay for patients undergoing the Warshaw procedure was 6.5 days and 10 days for those undergoing the vessel sparing procedure. 47% of patients who underwent the Warshaw procedure showed signs of splenic infarction within one year postoperatively.

**Conclusion:** When comparing pre- and post-operative spleen volumes and hematologic parameters between vessel-preserving and Warshaw techniques, there is no significant difference in spleen size or function. Our results suggest that the resection of the splenic artery and vein during a Warshaw procedure maintains sufficient splenic perfusion to preserve volume and function.

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**P76**

**LONG-TERM CLINICAL AND PATHOLOGICAL OUTCOMES AFTER IRREVERSIBLE ELECTROPORATION OF THE PANCREAS USING TWO PARALLEL PLATE ELECTRODES: A PORCINE MODEL**

S. Rombouts, W. van Dijck, M. Nijkamp, T. Derksen, L. Brosens, M. van leeuwen and F. Wittkamp en I Molenaar  
University Medical Center Cancer Center Utrecht, Utrecht, Netherlands

**Objective:** Irreversible electroporation (IRE) is explored as a new treatment option for locally advanced pancreatic cancer. The use of two plate electrodes (‘paddles’) may overcome the risk of pancreatic fistula by the conventional IRE-technique using needles. The long-term clinical, radiological and pathological outcomes of IRE using paddles are evaluated in a porcine model.

**Methods:** Six healthy pigs underwent. Each pig was treated with 2 separate ablations, 1 of the duodenal and 1 of splenic lobe of the pancreas, after which the abdomen was closed. The pigs were followed up for 2 weeks. Subsequently, a total pancreatectomy was performed after which pigs were terminated.

**Results:** All animals survived IRE ablation and the subsequent 14 days. None of the animals developed signs of infection and no significant abdominal distention occurred postoperatively. The serum amylase and lipase levels peaked significantly at day 1 postoperatively in all pigs, after which they returned to normal range, indicating the absence of pancreatic fistula. On CT-imaging the ablation zone was visible as an ill-defined, hypodense lesion. No abscess formation, cyst development or ascites was seen. At histology, a lesion was present in all the ablated areas of the pigs. This area showed influx of inflammatory cells, fibrosis and acinar to ductal metaplasia.

**Conclusion:** IRE ablation of healthy pancreatic tissue using two parallel plate electrodes is feasible and safe and can create a homogenous fibrotic lesion, in a porcine model. IRE-paddles should be tested on pancreatic cancer tissue to ensure the efficacy of the ablation of cancer tissue using plate electrodes as well.

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**P77**

**INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS (IPMN) SURGERY IN THE ELDERLY: RISKIER THAN YOU MIGHT THINK**

K. M. Lena, S. C. Agle, Y. L. Lin and K. M. Brown  
University of Texas Medical Branch, Round Rock, TX, USA

**Objective:** Surgical decision-making in older patients with IPMN takes into consideration the risk of invasive disease and the risk of surgical complications. The objective of our study is to describe perioperative outcomes in older patients undergoing surgery for IPMN to assist with preoperative decision-making.

**Methods:** Using Surveillance, Epidemiology, and End Results (SEER)-Medicare database (1992–2009) and...
Texas Cancer Registry (TCR)-Medicare database (2001–2010), we identified patients ≥66 years old who underwent resection for malignant IPMN. We calculated length of stay (LOS), discharge setting, 30-day postoperative complications, 30-day readmissions and 30- and 90-day mortality.

**Results:** Of 3449 patients with IPMN, 376 met inclusion criteria. Mean age was 73.7 ± 5.2 years, 86% were white and 53% were male. Whipple was the most common operation (68%), followed by distal (25%) and total (7%) pancreatectomy. Mean LOS was 11 days for distal and 17 days for Whipple and total pancreatectomy, 72% of all IPMN patients were discharged home and 6.9% to a nursing facility.

30-day mortality for Whipple, distal and total pancreatectomy were 5.9%, 9.5%, 12% and 90-day mortality were 7.4%, 14.7%, 16%. 30-day postoperative complications for Whipple, distal, and total were 27.4%, 24.4%, 27.3% and 30-day readmissions were 8.7%, 11.6% and 22.7% respectively.

**Conclusion:** Compared to the reported outcomes of patients undergoing pancreatic resection for other indications, patients with malignant IPMN have a lower 30- and 90-day mortality. However, these patients have a higher morbidity and longer LOS, which should be factored into the preoperative surgical decision-making.

**P78 BUILDING A HEPATO-PANCREATICOBILIARY PROGRAM IN A COMMUNITY HOSPITAL: A PRELIMINARY ANALYSIS**

S. Fox, M. Fillion, A. Adams and C. Kotwall
New Hanover Regional Medical Center, Wilmington, NC, USA

**Objective:** A hepatopancreaticobiliary program (HPBP) began at our academic-affiliated community teaching hospital in November 2014. Previously, most patients were referred to academic centers. This study evaluates our current progress.

**Methods:** Elective HPB cases by two fellowship-trained surgical oncolgists were prospectively tracked between 10/2012 and 8/2016. Procedure type, transfusions, length of stay (LOS), readmissions, morbidity and mortality were compared. Patients were grouped into pre-HPBP and post-HPBP. Analyses were run with SAS 9.4, with p < 0.05 considered significant.

**Results:** Operative volume increased significantly post-HPBP (22% versus 78%, p < 0.0001), with 24 cases post-HPBP year 1, and 23 in the first 8 months of year 2. Pancreaticoduodenectomies (PD) (14% vs 37%) and distal pancreatectomies (DP) (14% vs 26%) increased significantly (p = 0.0462). ICU admissions were similar between groups, but decreased between post-HPBP year 1 and 2 (OR 0.99, p = 0.0493). Fewer pre-HPBP patients required transfusion, but transfusion volume was similar (2 vs 2.5 units, p = 0.6089) between groups. Five (38%) pre-HPBP and 25 (53%) post-HPBP patients had complications (p = 0.1464). Thirty-day readmissions rose from 0 to 4 (16.7%) post-HPBP (p = 0.0690). Thirty-day mortality rose from 0 to 8.5% post-HPBP (p = 0.5754), but all 4 died in the first 8 months (celiac artery thrombosis, CVA, hemorrhage, liver failure), 3 after PD. Post-HPBP year 2, 30-day mortality was 0, but 4.2% at 90 days (2: sepsis, recurrent anaplastic pancreatic cancer in HIV positive patient).

**Conclusion:** The rapid growth of our HPBP revealed an unmet need for local services. The initial rise in mortality has declined, reflecting improved patient selection. Prospectively tracked data will improve outcomes and facilitate clinical pathways.

**P79 GAME OF DRAINS: SHOULD IR DRAINAGE BE THE FIRST OPTION IN PYOGENIC LIVER ABSCESS?**

D. Hashimoto, D. Gervais, J. Verge, T. Switaj, K. Lillemoe and C. Ferrone
Massachusetts General Hospital, Boston, MA, USA

**Objective:** Pyogenic liver abscess (PLA) has an incidence of 2.3 per 100,000. Treatment of PLA involves antibiotics and percutaneous or surgical drainage. Our aim was to compare laparoscopic PLA drainage with percutaneous drainage.

**Methods:** Clinicopathologic data were collected retrospectively for all patients presenting with a PLA between 1/1/2007 and 3/30/2015 at a single academic center. Patients diagnosed postoperatively with PLA were excluded. Percutaneous (IR), open surgical, and laparoscopic (lap) were compared. Hospitalization cost data from 9/2010 to 3/2015 was analyzed to determine average hospital costs for patients.

**Results:** A total of 43 patients were analyzed (IR = 36, Open = 4, Lap = 3) (Table 1). Seven IR patients required subsequent surgical drainage. Two open patients required subsequent IR drainage. When compared to IR drainage, lap patients had fewer median days with a drain (9, IQR = 4 vs 22, IQR = 19, p = 0.03) and fewer median inpatient days (5, IQR = 2 vs 13, IQR = 13, p = 0.01). Compared to the lap group, the IR group had a higher incidence of CD II (5 vs 1) and III (14 vs 0) complications. For cost analysis, 24 patients were analyzed (IR = 20, Open = 1, Lap = 3). Median lap PLA cost was 67.3% cheaper than IR management (p = 0.04).

**Conclusion:** Though limited by a small sample size, lap PLA drainage in appropriate patients results in a shorter length of stay, days with a drain, antibiotic course, and costs compared to IR drainage.
Table 1: Table demonstrating differences in endpoints between IR, Open surgical, and Laparoscopic surgical drainage of PLA. Values as Median (IQR) unless otherwise noted. Alpha = 0.05.

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<th>Open (n = 4)</th>
<th>Lap (n = 3)</th>
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<td>Length: 9.9 (5.8)</td>
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<td>Antibiotic Course (days)</td>
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<td>23 (23)</td>
<td>15 (14)</td>
<td>0.011*</td>
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<td>Days with drain</td>
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<td>46 (0)</td>
<td>9 (4)</td>
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<td>6 (38)</td>
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<td>2.5 (2)</td>
<td>1 (2)</td>
<td>0.939</td>
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</table>

P80
EIGHT-WEEK COMMUNITY BASED PROGRAM IMPROVES ANXIETY OF HEPATITIS C POSITIVE INDIVIDUALS

N. Nedley and F. Ramirez
Nedley Clinic, Weimar, CA, USA

Objective: Hepatitis C positive individuals tend to have higher levels of anxiety due to the disease and concern about their condition. We document the effect of an 8-week non-medical program on anxiety among individuals with hepatitis C.

Methods: Previously trained facilitators organized the educational program which consisted of 2-hour once a week for 8 weeks, the first hour they watched a DVD by a professional, the second hour they had small group facilitated discussions. The program was available in Spanish and English. The Depression and Anxiety Assessment Test (registration TX 7-398-022) was applied at baseline and at the end. It assessed depression, anxiety, demographics and hepatitis C positivity. The program taught various healthy habits like control of thoughts, exercise, nutrition, among other things.

Results: Of 5997 participants that finished the program, 71 (from USA, Canada, Australia, New Zealand and South Africa) reported to have hepatitis C. Average age was 52.4 (SD 17.7), 59% females, 88.7% Caucasian. Table 1 shows the effects on anxiety at baseline and at the end of the 8-weeks.

At the end, the hepatitis C individuals that at baseline had severe anxiety (n = 21), 100% of them improved to a lesser level. Those with moderate anxiety (n = 24), 87.5% improved, 2 stayed the same and 1 moved to severe. Those with mild anxiety (n = 16), 81% improved, 2 stayed the same and 1 moved to moderate.

Conclusion: The 8-week program effectively improves anxiety in most of hepatitis C positive individuals. A long-term follow study is need to see if the improvement will last.

P81
SURVIVAL BENEFIT OF NEOADJUVANT AND ADJUVANT CHEMO-RADIOTherAPY IN PATIENTS WITH PANCREATIC CANCER: A NATIONAL PERSPECTIVE

D. Pointer, Z. Al-Qurayshi, S. Srivastav, D. Slakey, J. Buell and E. Kandil
Tulane University, New Orleans, LA, USA

Objective: The administration of chemotherapy or chemoradiation before surgery in patients with pancreatic cancer has been a controversial topic. In this study, we aim to examine the survival benefit associated with utilization of neoadjuvant (NTx) or adjuvant (ATx) therapies.

Methods: Retrospective cohort study utilizing the National Cancer Data Base, 2006–2012. The study population included adult (≥18 years) patients with pancreatic cancer who underwent surgery with or without neoadjuvant or adjuvant chemo/chemoradiotherapy.

Results: A total of 18,642 patients were identified, median follow-up time was 19.3 months (interquartile range: 10.2–33.6). ATx was used in (58.5%), and NTx was used in (6.6%) of the study sample. In patients with stages IA & IB, ATx associated with a lower survival compared to surgery alone [HR: 1.55, 95% CI: (1.39, 1.74), p < 0.001], and survival was worse with NTx [HR: 2.53, 95% CI: (2.13, 2.99), p < 0.001]. In patients with stage IIA cancer, only ATx was associated with improved survival [HR: 0.86, 95% CI: (0.78, 0.94), p = 0.001], while no significant difference with NTx (p = 0.23). In patients with stages IIB & III, both ATx [HR: 0.78, 95% CI: (0.74, 0.82), p < 0.001] and NTx [HR: 0.87, 95% CI: (0.78, 0.97), p = 0.010] were associated with improved survival. There was no survival difference in adding radiation to NTx (p = 0.21), while
adding radiation to the ATx was associated with improved survival (p < 0.001).

**Conclusion:** There is no survival benefit in adding radiation to neoadjuvant chemotherapy in patients with pancreatic cancer. NTx and ATx have a survival benefit in patients with advanced disease only.

### P82

**READMISSEIONS AND COSTS ASSOCIATED WITH VASCULAR RECONSTRUCTION DURING PANCREATECTOMY FOR PANCREATIC CANCER**

J. Parreco, J. Buicko, C. Patel and A. Castillo
University of Miami, Miami, FL, USA

**Objective:** Previous studies comparing pancreatectomy with and without concomitant vascular reconstruction (VR) during pancreatectomy have shown similar outcomes. However, these studies have had limited cost and readmission results. The purpose of this study was to compare costs and readmissions after pancreatectomy with and without VR.

**Methods:** The Nationwide Readmission Database for 2013 was queried for all patients undergoing pancreatectomy for pancreatic cancer. Multivariate logistic regression was used to determine the odds ratios (OR) for the outcomes of interest.

**Results:** There were 3654 patients undergoing pancreatectomy during the study period. VR was performed in 295 (8.1%) patients. The mean length of stay was 12.2 (±10.1) days with VR and 12.7 (±11.4) days without (p = 0.55, 95% CI -0.9 to 1.8). The weighted mean cost of admission was $116,451 (±$87,262) with VR and was $91,785 (±$86,941) without (p < 0.01, 95% CI -35,105 to -14,228). There was no difference in the outcomes in patients undergoing VR: mortality (OR 1.10, p = 0.71, 95% CI 0.67–1.82), 30-day readmission (OR 1.24, p = 0.16, 95% CI 0.92–1.68), 60-day readmission (OR 1.31, p = 0.06, 95% CI 0.99–1.73), and 90-day readmission (OR 1.23, p = 0.13, 95% CI 0.94–1.62).

**Conclusion:** Initial admission costs are higher in patients undergoing VR with pancreatectomy, however there is no difference in mortality or readmission rates.

### P84

**POST-OPERATIVE IN-HOSPITAL COMPLICATIONS INCREASE THE LENGTH OF STAY AND IMPACT THE DISCHARGE DESTINATION FOR PATIENTS UNDERGOING PANCREATECTOMY: AN ASSESSMENT OF THE ACS-NSQIP DATABASE**

H. Keshava, C. Benlice and G. Morris-Stiff
Cleveland Clinic Foundation, Cleveland, OH, USA

**Objective:** The aim of this study was to interrogate the National Surgical Quality Improvement Project (NSQIP) database to determine factors affecting discharge destination in patients undergoing pancreatectomy.

**Methods:** Patients undergoing pancreatectomy between 2011 and 2014 were identified from the NSQIP database using primary procedure codes. Patients were classified into two groups depending on whether they were discharged to home/same preoperative facility or to a different/nursing facility. Patient demographics, preoperative comorbidities, length of stay, and in-hospital complications were compared between groups using chi-squared analysis. Multivariate logistic regression was conducted adjusting for significant factors between groups.

**Results:** Of 19,508 patients meeting the inclusion criteria, 2013 (10.3%) were discharged to a different/nursing facility. Demographic features and post-operative complications affecting the discharge destination are summarized in Table 1. The average length of stay was 17.4 versus 9.2 days when comparing different and same facilities (p < 0.001). Readmission rates for patient discharged to a nursing facility were 15.4% vs 16.8%, p = 0.22. After multivariate analysis, the significance did not change except for deep wound infection, pulmonary embolism, and cardiac arrest. The odds ratio for length of stay for each day increase was significant 1.056 CI (1.048–1.064).

**Conclusion:** The development of post-operative in-hospital complications lead a consequential increased length of stay and a change in discharge destination to a nursing facility. The development of such complications provides time for discharge planning considerations. Contrary to what may be expected, discharge destination did not affect readmission rate.

<table>
<thead>
<tr>
<th>Table 1 Comparison of in-hospital complications between patients who were discharged to a different facility or home.</th>
</tr>
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<tbody>
<tr>
<td><strong>Discharged to facility (N = 2013)</strong></td>
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<tr>
<td><strong>Age, year</strong></td>
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<td><strong>Gender (female)</strong></td>
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<td><strong>ASA classification</strong></td>
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<td>II</td>
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<td>III</td>
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<tr>
<td>IV</td>
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<tr>
<td><strong>Length of stay, day</strong></td>
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<td><strong>Specific complications</strong></td>
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(continued on next page)
THE ROLE OF RACE IN HEPATECTOMY SURGICAL APPROACH AND OUTCOMES

J. Silva, N. Berger, S. Tsai, K. Christians, C. Clarke, H. Mogal and T. C. Gamblin
Medical College of Wisconsin, Milwaukee, WI, USA

Objective: Surgical approach for hepatectomy influences perioperative outcomes. This study sought to examine the role of race in intended surgical approach for hepatectomy.

Methods: The National Surgical Quality Improvement Program Database identified African American (AA) and Caucasian patients undergoing hepatectomy in between January 1, 2014 and December 31, 2014. All other races were excluded. Demographic information, intended surgical approach, and short-term postoperative outcomes were compared.

Results: All 2280 patients included in the study were AA (9.9%, n = 225) or Caucasian (90.1%, n = 2055). Minimally invasive hepatectomy (MIS) (p = 0.621) and unplanned conversion to open hepatectomy (p = 0.832) were similar between groups. AA patients were more likely to smoke (p = 0.026), had higher BMI (p = 0.0312), and higher rates of diabetes (p = 0.003), hepatocellular carcinoma (p = 0.002), hypertension (p < 0.001), poor functional status (p < 0.001), and increased American Society of Anesthesiology (ASA) classification (p = 0.033).

Both cohorts had similar hospital length of stay, however AA patients had a higher rate of readmission (12.4% vs. 11.1%, p = 0.025). No significant difference in 30-day morbidity (34.2% vs. 33.8%, p = 0.892) or mortality (1.78% vs. 1.41%, p = 0.662) was seen between groups.

Conclusion: Despite differences in patient characteristics between AA and Caucasian patients, race does not appear to be associated with procedure selection or perioperative morbidity or mortality following hepatectomy. Increased readmission rates in AA patients could be explained by patient characteristics and comorbidities. Further analysis is necessary to establish the independent predictors of readmission and clarify the role of race.

PANCREATIC CANCER IN THE PATIENTS YOUNGER THAN 40 YEARS: A POPULATION SEER-BASED DEMOGRAPHIC AND SURVIVAL STUDY FROM 2004 TO 2012

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Tata Memorial Center, New York, NY, USA

Objective: Around 120 patients younger than 40 years of age are diagnosed with pancreatic cancer (PC) in USA every year. Younger patients have better 5-year survival and tolerate aggressive treatment. We studied survival and tumor characteristics of PC in younger population.

Methods: We used data from Surveillance, Epidemiology, and End Results (SEER) cancer registry and extracted 268 patients with PC at age <40 years between 2004 and 2012. Changes in incidence over time for PC was calculated and compared. We compared the demographics, tumor details, and survival (OS) to their older counterparts.

Results: Annual percent change was 1.25% (2004-2012) (p = ns). 56% and 11.9% young patients had metastatic disease and locally advanced disease compared to 49.3% and 9.8% in the older counterpart (p = 0.009). More young males were affected by PC (61.9% vs Older = 38.1%). Curative intent resection was higher in younger patients (20.9% vs old = 15.4%, p = 0.017), 71 (26.5%) underwent Radiation (old = 18.6%, p = 0.002). Operated early stage young and old patients had similar 5-year OS (15.3% vs Old = 10.8%, p = 0.26) while young patients operated for borderline/local advanced tumors had better OS (34.5% vs 13.4%, p < 0.001). Hazard ratio of older group with young group as reference was 1.43 (95% CI 1.25-1.64).
**Conclusions:** This population-based study showed the incidence of pancreatic cancer is slowly increasing in patients <40 years. Patients with early-stage cancers have same survival regardless of age but younger patients have better OS for locally advanced disease. Younger patients are offered more resections than older counterparts.

**Table 1** 3 and 5 year overall and cause specific survival of the young versus older population (% ages)

<table>
<thead>
<tr>
<th></th>
<th>Young</th>
<th>Old</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3/5 year OS/CSS</td>
<td>3/5 year OS/CSS</td>
</tr>
<tr>
<td>Early stage (Stage I)</td>
<td>Operated: 21/21</td>
<td>25.0/25.0</td>
</tr>
<tr>
<td></td>
<td>Non operated: 10/10</td>
<td>17.9/17.9</td>
</tr>
<tr>
<td>Resectable/Borderline (stage IIa, IIb, III)</td>
<td>Operated: 37/39</td>
<td>50.3/34.5</td>
</tr>
<tr>
<td></td>
<td>Non operated: 10/10</td>
<td>2.5/0.0</td>
</tr>
<tr>
<td>Metastatic (Stage IV)</td>
<td>6/7</td>
<td>5.4/4.3</td>
</tr>
</tbody>
</table>

**Methods:** This ACS-NSQIP database reviewed to identify cases with adequate information. Statistically significant differences were discovered between the first group and the third group in the following variables: 1) overall morbidity (47.8% vs 65.2%, p = 0.001), 2) pancreatic fistula (16.1% vs 30.4%, p ≤ 0.0005), 3) DSSI (2.6% vs 7.6%, p = 0.016), 4) OSSI (11.6% vs 20.7%, p < 0.0005), 4) PE (0.9% vs 2.2%, p = 0.048), PPRF (0.4% vs 3.3%, p = 0.003), CA (0.9% vs 4.3%, p = 0.002), UTI (4.2% vs 8.7%, p = 0.021) and SISSI (8.9% vs 15.2%, p = 0.046).

**Conclusion:** Class III Obesity associated with higher percentages of complications after Whipple procedure.

**Methods:** The ACS-NSQIP database reviewed to identify patients who underwent Whipple procedure. After excluding all non-elective cases and cases with inadequate information on the studied parameters, patients were divided into three groups based on BMI: Group 1-BMI < 30, Group 2-BMI 30–39.9 and Group 3-BMI ≥ 40. The three groups compared each other regarding with the percentages of mortality, morbidity, and each complication separated. Morbidity defined the occurrence of at least one of the complications of table 1.

**Results:** Of 4280 cases of pancreaticoduodenectomy, 3793 were elective and 2677 had adequate information. Statistically significant differences were discovered between the first group and the third group in the following variables: 1) overall morbidity (47.8% vs 65.2%, p = 0.001), 2) pancreatic fistula (16.1% vs 30.4%, p ≤ 0.0005), 3) DSSI (2.6% vs 7.6%, p = 0.016), 4) OSSI (11.6% vs 20.7%, p < 0.0005), 4) PE (0.9% vs 2.2%, p = 0.048), PPRF (0.4% vs 3.3%, p = 0.003), CA (0.9% vs 4.3%, p = 0.002), UTI (4.2% vs 8.7%, p = 0.021) and SISSI (8.9% vs 15.2%, p = 0.046).

**Conclusion:** Class III Obesity associated with higher percentages of complications after Whipple procedure.

**Table 1** Abbreviations of complications.

<table>
<thead>
<tr>
<th>Abbreviations of complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF</td>
</tr>
<tr>
<td>DSSI Deep incisional surgical specific infections</td>
</tr>
<tr>
<td>OSSI Organ spaceSSI</td>
</tr>
<tr>
<td>SISSI Superficial incisionalSSI</td>
</tr>
<tr>
<td>PNEU Pneumonia</td>
</tr>
<tr>
<td>UI Unplanned intubation</td>
</tr>
<tr>
<td>PE Pulmonary embolism</td>
</tr>
<tr>
<td>V48 Ventilation for &gt;48 hours after surgery completion</td>
</tr>
<tr>
<td>PPRF Progressive postoperative renal failure</td>
</tr>
<tr>
<td>APRF Acute postoperative renal failure</td>
</tr>
<tr>
<td>UTI Urinary tract infection</td>
</tr>
<tr>
<td>CVA Cerebrovascular accident</td>
</tr>
<tr>
<td>CA Cardiac arrest</td>
</tr>
<tr>
<td>MI Myocardial infarction</td>
</tr>
<tr>
<td>Blee Bleeding (intraoperative or postoperative)</td>
</tr>
<tr>
<td>DVT Deep vein thrombosis</td>
</tr>
<tr>
<td>S Sepsis</td>
</tr>
<tr>
<td>SS Septic shock</td>
</tr>
</tbody>
</table>
P89
ROBOTIC VS OPEN PANCREATECTOMY. CASE MATCHED STUDY
E. Vicente, R. Caruso, E. Vicente, Y. Quijano, B. Ielpo, H. Duran, E. Diaz, I. Fabra, L. Malave, V. Ferri, S. Lazzaro, D. Kalivaci, L. Manino and A. Zafra
Sanchinarro University Hospital, Madrid, Spain

Objective: Robotic surgery is gaining worldwide acceptance among surgeons. However, in the pancreatic field, its advantages are still under investigation. The aim of this study is to report our early experience with robotic pancreatectomies and compare with the conventional open approach.

Methods: Our robotic pancreatectomies experience was compared to a case-matched series of open pancreatectomies patients at the same center. Matching was according to benign/malignant diagnosis and main preoperative data. Patient data were obtained retrospectively. The main outcomes and measures were operative time, estimated blood loss, conversion rate (robotic to open), resection margin size, complication rates, stay length, readmission rate, and 90-day mortality rate.

Results: Forty-six robotic pancreatectomies were performed in 2011–2016 at the Sanchinarro Hospital. There were 15 duodenal pancreatectomies (DP), 21 distal pancreatectomies (DP) and 9 pancreatic enucleations (PE). Compared to 47 matched patients who underwent open pancreatectomies (17 DP, 21 PD, 9 PE), there was a higher mean operative time in the robotic group (Robotic: 378 min, Open: 192 min, P = 0.02), a lower median estimated blood loss (Robotic: 300 ml, Open: 525 ml, P = 0.03) and a slight shorter mean hospital stay in the robotic group. There was a 15.2 % conversion rate in the robotic group. Post-operative complication rate and margin status, as well, were similar in both groups.

Conclusion: Robotic pancreatectomy is safe and effective. Increasing experience will allow definition of which patient and type of tumor can be performed robotically, and will enable optimization of outcomes. Further studies are needed to confirm our early results.

P90
PRE-OPERATIVE STAGING IN PANCREAS CANCER WITHIN THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM DATABASE
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Beth Israel Deaconess Medical Center, Boston, MA, USA

Objective: Routine pre-operative staging in pancreatic cancer is controversial. We sought to evaluate the rates of diagnostic laparoscopy (DLAP) and laparotomy without resection (XLAP) for pancreas cancer patients over time.

Methods: The National Surgical Quality Improvement Program (NSQIP) was queried for patients with pancreas cancer (2005–2016). Groups were as follows: DLAP, XLAP, pancreatic resection (RSXN) or palliative biliary and/or gastro-duodenal bypass (PALL). Comparisons were based on demographics, comorbidities, post-operative complications and 30-day mortality (chi-square: P < .05) as well as trends over time (R2: 0–1).

Results: Among 18,399 patients, relative frequencies were RSXN: 76.2%, XLAP: 15.4%, PALL: 7.7%, and DLAP: 4.3% with some having multiple CPT codes. Only 2% (n = 269) of RSXN patients underwent DLAP prior to resection. Of the remaining DLAP patients, 82% had no other operation. The percentage of patients undergoing RSXN increased 20.3% over time (R2: 0.81) while DLAP decreased 52.6% (R2:0.92) (Figure). XLAP patients without other operations decreased from 4.2% to 2.4%, although not linearly (R2:0.31). DLAP patients were more often white (91.3% vs. 83.1%, P = .05) and less often hypertensive (49.5% vs. 57.7%, P = .01) than XLAP patients. Wound infection, urinary tract infection and venous thromboembolism were significantly less common with DLAP (all P < .05). 30-day mortality was no different for DLAP (5.1%), XLAP (6.0%) or PALL (6.2%) patients, but was lower for RSXN (2.5%, P < .01).

Conclusion: Diagnostic laparoscopy for pancreas malignancy is becoming less common but could benefit a subset of patients who undergo open exploration without resection or palliative bypass.
Patients with a hybrid approach, vascular resections, and other major concomitant organ resection were excluded. Propensity scoring was used to match cohorts of patients having undergone open, laparoscopic, and robotic PD.

**Results:** The median age was 65, and 56% were men. Fifteen percent of patients were pretreated with neoadjuvant therapy, 51% had pancreatic adenocarcinoma. Patient cohorts were similar with respect to patient demographics, comorbidities, neoadjuvant therapy, and pancreatic gland texture and duct size. Operative time was longer in patients having undergone MI-PD. Post-operative outcomes are shown in the table.

**Conclusion:** Laparoscopic and robotic approaches to pancreateoduodenectomy are safe and can be performed with comparable morbidity and mortality but take longer to perform. A robotic approach may reduce the need for conversion to open surgery compared to traditional laparoscopy.

**P93**

**A MULTI-VISCERAL STUDY COMPARING THREE PROPRIETARY MICROWAVE ABLATION DEVICES**

J. Rostas, Y. Hong, B. Schulz, M. Sanders and R. Martin

*University of Louisville, Louisville, KY, USA*

<table>
<thead>
<tr>
<th>Conversion to open (%)</th>
<th>Operative time (min)</th>
<th>Overall morbidity (%)</th>
<th>CR-POPF (%)</th>
<th>DGE (%)</th>
<th>Percutaneous drain (%)</th>
<th>30-day mortality (n, %)</th>
<th>Length of stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open (n = 530)</td>
<td>–</td>
<td>353.0*</td>
<td>27.9</td>
<td>14.7</td>
<td>16.0</td>
<td>11.5</td>
<td>9, 1.7</td>
</tr>
<tr>
<td>Laparoscopic (n = 81)</td>
<td>32.7†</td>
<td>436.8</td>
<td>27.1</td>
<td>19.6</td>
<td>26.0†</td>
<td>13.9</td>
<td>2, 2.5</td>
</tr>
<tr>
<td>Robotic (n = 77)</td>
<td>12.5</td>
<td>421.6</td>
<td>26.0</td>
<td>18.1</td>
<td>11.8</td>
<td>10.5</td>
<td>1, 1.3</td>
</tr>
</tbody>
</table>

*P < 0.01 vs Lap/Robotic.
†P < 0.05 vs Robotic

CR-POPF: clinically relevant-postoperative pancreatic fistula; DGE: Delayed gastric emptying.
P100
TOTAL LAPAROSCOPIC PANCREATICODUODENECTOMY AT A SPECIALIZED HIGH VOLUME CENTER WITH A FOCUS ON OUTCOMES FOR PANCREATIC ADENOCARCINOMA

K. Leung, V. Bendersky and A. Perez
Duke University Medical Center, Durham, NC, USA

Objective: Total laparoscopic pancreaticoduodenectomy at a specialized high volume center with a focus on outcomes for pancreatic adenocarcinoma.

Methods: Using an institutionally maintained database we reviewed all patients undergoing total laparoscopic pancreaticoduodenectomy (TLPD) and open pancreaticoduodenectomy (OPD). We compared time to adjuvant, time to recurrence and overall survival.

Results: In comparing the TLPD group OPD: baseline characteristics were not significantly different. TLPD was associated with comparable operative time, decreased blood loss, equivalent margin positivity and increased lymph node harvest.

In patients who underwent TLPD or OPD for an indication of PDC adjuvant therapy was initiated in 68% (13/19 patients declined, 3 patients lost to follow-up, 1 death) vs. 84% (42/50) patients respectively, the average mean time to adjuvant, time to recurrence and overall survival.

Conclusion: At our institution it appears that TLPD is safe and is associated with similar perioperative and oncologic outcomes. TLPD is also associated with several improved parameters such as LN harvest, blood loss and occurrence of SSI compared to traditional OPD. Rates of adjuvant, times to adjuvant, disease free survival and overall survival were not significantly different between groups. As experience matures and data compiles additional important benefits may emerge.
pancreatitis (CP, n = 343). Overall morbidity was defined in three ways: a) standard NSQIP, b) NSQIP plus bleeding/transfusion (B/T) and c) NSQIP plus pancreatic fistula (PF) and delayed gastric emptying (DGE). Subgroups were compared by Chi-squared and McNemar analyses.

Results: Mortality (30-day) and overall morbidity (three definitions) are presented in the Table. Mortality is increased in patients with pancreatic cancer. Overall morbidity is increased in patients with periamplullary adenocarcinomas regardless of definition. Overall morbidity also is increased when either bleeding/transfusion or pancreatectomy-specific outcomes are included in the definition.

Conclusion: Morbidity and mortality differ significantly depending on diagnosis and definition of morbidity. Bleeding/transfusions should be considered a risk-factor, not an outcome, whereas pancreas-specific complications should be routinely reported in morbidity for pancreatic surgery.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Mortality (%)</th>
<th>Overall Morbidity (%)</th>
<th>NSQIP + B/T</th>
<th>NSQIP + PF/DGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDAC</td>
<td>2.3†</td>
<td>31.7†</td>
<td>45.1*</td>
<td>43.2†</td>
</tr>
<tr>
<td>NET</td>
<td>1.6</td>
<td>27.4‡</td>
<td>33.6*</td>
<td>42.1†</td>
</tr>
<tr>
<td>AMP</td>
<td>1.7</td>
<td>40.6†</td>
<td>49.3‡</td>
<td>54.1‡</td>
</tr>
<tr>
<td>CN</td>
<td>1.1</td>
<td>28.9</td>
<td>38.0*</td>
<td>43.9†</td>
</tr>
<tr>
<td>IPMN</td>
<td>0.7</td>
<td>25.3†</td>
<td>30.0*</td>
<td>39.3†</td>
</tr>
<tr>
<td>CP</td>
<td>1.5</td>
<td>28.0</td>
<td>41.1*</td>
<td>40.1*</td>
</tr>
<tr>
<td>Total</td>
<td>1.7</td>
<td>30.6‡</td>
<td>41.2‡</td>
<td>43.5‡</td>
</tr>
</tbody>
</table>

*p < 0.01 vs NSQIP (McNemar).
†p < 0.01 vs NSQIP + B/T (McNemar).
‡p < 0.01 by diagnosis (Chi-squared).

P103
IRREVERSIBLE ELECTROPORATION AS A BRIDGE TO LIVER TRANSPLANTATION FOR HIGH RISK HCC
R. Cannon, D. Bolus, S. Gray and J. White
University of Alabama at Birmingham, Birmingham, AL, USA

Objective: HCC in proximity to major hepatic vasculature poses a risk for invasion which would contraindicate liver transplantation, yet is difficult to treat with thermal ablation. This study was undertaken to evaluate the feasibility of irreversible electroporation (IRE) as a bridge to transplantation for patients high risk tumors.

Methods: All patients with HCC in proximity to major hepatic vasculature treated with laparoscopic IRE as a bridge to transplant over a 14-month period were studied. Patient and tumor characteristics, length of stay, and treatment related complications were recorded. Tumor response was assessed with CT and explant pathology, when available.

Results: Five patients underwent IRE, all had HCV related cirrhosis and a median MELD of 13 (7–21). Median tumor size was 2.7 cm (1.5–3.7 cm). Adjacent structures included the right portal vein (2 cases), hepatic veins/IVC (1 case), and left portal vein (2 cases). Three (60%) patients had previous treatment with TACE or microwave ablation. LOS was 1 day for all patients. One patient suffered portal vein thrombosis, presumably treatment related. Four patients subsequently were transplanted at a median of 136.5 (47–162) days after IRE. Pathologic necrosis ranged from 30%-100%. There was no vascular invasion in any specimen, through 3 of 4 patients did have small satellite nodules. The remaining patient has not experienced tumor progression and remains on the transplant list. All patients are alive at a median follow up of 314 (59–431) days. No recurrences have been observed.

Conclusion: In this preliminary early experience, laparoscopic IRE appears to be a viable bridge to liver transplant for tumors in high risk locations.

P104
S. Patil, J. Parikh and M. Jacobs
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Objective: Pancreatic debridement (PD) is the standard of care for infected pancreatic necrosis. Mortality following PD is reduced due to recent advances. The morbidity following PD has not been widely published. The goal of this study was to perform a detailed analysis of morbidity following PD using population-based database.

Methods: The National Inpatient Database (1998–2010) was used to identify patients with acute pancreatitis. Patients who had PD were compared against those without PD. Three age groups were created (18–40 years, 41–65 years, and ≥66 years) to compare complication rates. Multivariate analysis was conducted.

Results: Acute pancreatitis was identified in 643,441 patients, but 0.3% required PD. Patients who underwent PD were older, Caucasian, males, had a Charlson score ≥3, higher length of stay, higher rates of discharge to nursing homes, and higher mortality compared to those without PD. Both medical and surgical complications were higher in patients with PD. In patients with PD, respiratory and intra-abdominal abscess were most common. On subgroup analysis MI, renal failure, and urinary complications, which were significantly higher in patients >65 years of age. On multivariate analysis, urinary complications (odds ratio, OR, 4.6), cardiac complications (OR, 3.4), post-op hemorrhage (OR, 3.2), and respiratory complications (OR, 1.4) all significantly affected mortality.

Conclusion: Patients receiving PD account for only 0.3% of pancreatitis. Both medical and surgical complications were more common in patients receiving PD. On multivariate analysis, urinary, cardiac, and respiratory complications significantly affected mortality in PD patients. The results of this study will potentiate risk reduction strategies in those patients in need of PD.
**Table 1** Medical and surgical complications among 643,441 patients with acute pancreatitis from National Inpatient Sample Database (1998–2010), separated according to primary procedure; no pancreatic debridement versus pancreatic debridement.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th>No pancreatic debridement</th>
<th>Pancreatic debridement</th>
<th>National estimates/100,000†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical complications, N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>47 (0.007)</td>
<td>43 (0.06)</td>
<td>4 (0.2)</td>
<td>0.5</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>582 (0.1)</td>
<td>563 (0.1)</td>
<td>19 (0.9)</td>
<td>3.0</td>
</tr>
<tr>
<td>MI</td>
<td>799 (0.1)</td>
<td>753 (0.1)</td>
<td>46 (2.2)</td>
<td>7.5</td>
</tr>
<tr>
<td>Respiratory</td>
<td>3438 (0.5)</td>
<td>3078 (0.5)</td>
<td>360 (16.9)</td>
<td>56.0</td>
</tr>
<tr>
<td>Surgical complications, N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>106 (0.01)</td>
<td>98 (0.01)</td>
<td>8 (0.4)</td>
<td>1.4</td>
</tr>
<tr>
<td>Urinary complications</td>
<td>582 (0.1)</td>
<td>563 (0.1)</td>
<td>19 (0.9)</td>
<td>3.0</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>24 (0.003)</td>
<td>24 (1.1)</td>
<td>24 (1.1)</td>
<td>3.8</td>
</tr>
<tr>
<td>Enteric fistula</td>
<td>259 (0.04)</td>
<td>215 (0.03)</td>
<td>44 (2.1)</td>
<td>7.0</td>
</tr>
<tr>
<td>DVT</td>
<td>1,172 (0.2)</td>
<td>1,117 (0.2)</td>
<td>55 (2.6)</td>
<td>8.6</td>
</tr>
<tr>
<td>Intra abdominal bleeding</td>
<td>1,100 (0.2)</td>
<td>1,030 (0.2)</td>
<td>70 (3.3)</td>
<td>10.9</td>
</tr>
<tr>
<td>GI complications</td>
<td>2,842 (0.4)</td>
<td>2,731 (0.4)</td>
<td>111 (5.2)</td>
<td>17.4</td>
</tr>
<tr>
<td>Sepsis</td>
<td>3,099 (0.5)</td>
<td>2,980 (0.5)</td>
<td>119 (5.6)</td>
<td>18.3</td>
</tr>
<tr>
<td>Intra abdominal abscess</td>
<td>1,235 (0.2)</td>
<td>1,071 (0.2)</td>
<td>164 (7.7)</td>
<td>25.9</td>
</tr>
</tbody>
</table>

Abbreviations: N; number of patients, MI; Myocardial infarction, PE; pulmonary embolism, DVT; deep venous thrombosis, GI; gastrointestinal. †National estimates calculated for patients with pancreatic debridement group.

**P105**

**SPLENIC INVOLVEMENT IN PANCREATIC ADENOCARCINOMA MAY CARRY SIGNIFICANT CLINICAL IMPACT**


*Indiana University School of Medicine, Indianapolis, IN, USA*

**Objective:** The spleen is routinely resected but infrequently involved in pancreatic body/tail adenocarcinomas. We hypothesize, that when involved, a careful distinction of contiguous versus non-contiguous involvement may dictate a different treatment approach and prognosis.

**Methods:** We retrospectively reviewed all patients who underwent distal pancreatectomy/splenectomy for adenocarcinoma at a single institution (2006 to 2016). Splenic involvement was assessed on surgical pathology. Contiguous was defined as direct extension of adenocarcinoma from the pancreas into the spleen and was distinguished from non-contiguous adenocarcinoma within the spleen or accessory spleen (i.e., splenic metastasis). Non-spleen adjacent organ involvement was also similarly assessed.

**Results:** Among 135 patients, 16 patients (11.9%) had splenic involvement: 12 contiguous and 4 metastatic. Patients with splenic metastases had a median survival of only 6.5 months compared to 26 months in patients with contiguous splenic invasion (p = 0.14). Eight patients had involvement of non-spleen adjacent organs, and all were contiguous with a median survival of 7 months (p = 0.05 vs contiguous splenic involvement). Patients with isolated liver metastasis had a median survival of 16 months (p = 0.06 vs splenic metastasis).

**Conclusion:** Surgeons and pathologists should be aware of the possibility of splenic involvement as it may significantly impact survival. Contiguous splenic involvement may actually improve survival whereas contiguous involvement of other organs may negatively impact survival. Splenic metastases are associated with a poor survival possibly even worse than isolated liver metastases. The spleen deserves more careful prospective assessment for appropriate preoperative staging and postoperative prognostication.

**P106**

**LIVER TRANSPLANT WITH PORTAL THROMBOSIS IN MEXICO, REPORT OF THE LARGEST TRANSPLANT CENTER IN MEXICO**

A. Bandan-Musa, P. Martanez-Calderan, A. Contreras-Saldivar, R. Jaramillo-Jante, R. Cruz-Martanez, O. Grimaldo-Rico and M. Vilatoba-Chapa

*Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran, Mexico City, Mexico*

**Objective:** To demonstrate that in Mexico, liver transplant candidates with portal thrombosis (PT) diagnosis have the same complications and survival compared with patients without PT.

**Methods:** Retrospective analysis of all liver transplants made in our institution from March 2006 to June 2016. We identified all cases of PT, included causes of transplant, intra and post-operative variables. We compared live expectancies at 1 year and at 21 months with cases without PT using Kaplan Meier analysis. We also report complications using Clavien classification.
Results: There were 218 liver transplants in the period of time. Of which 10.09% (n = 22) have PT. According to Yerdel classification, 18 were grade 1–2, three were grade 3 and 1 case grade 4. The etiology of cirrhosis was similar in both groups. When we compare intra and postoperative variables there was no statistical differences between the two groups. We observe the same survival at 1 year (96% TP vs 95% no TP) and at 21 months there was also no statistical difference (95% TP vs 85% no TP, P = 0.22).

Conclusion: Liver transplant in cases with portal thrombosis is accepted in major transplant centers of North America and Europe. In Mexico this is the first report that demonstrate the same results. Portal thrombosis should be expected in almost 25% of the cases, even with proper image studies, 50% of these will be discovered during the surgery. Surgical techniques of vascular reconstruction should be of knowledge of all liver transplant surgeons.

P107
ROBOTIC HEPATOBILIARY AND PANCREATIC SURGERY: A 10-YEAR SINGLE SURGEON EXPERIENCE
Carolinas Medical Center, Charlotte, NC, USA

Objective: Robotics in Hepatopancreatobiliary (HPB) surgery is a relatively new approach. In this presentation, we report the outcomes from a high volume robotic HPB surgery program, with attention to case versatility and learning curves.

Methods: Robotic surgeries performed by a single surgeon (JBM) from 2006 to 2016 were reported and categorized into four system categories: Liver, Biliary, Pancreas, and Gastro-duodenal. Cholecystectomies were designated as difficult (DC) if there was a preoperative diagnosis of necrotizing pancreatitis, history of previously attempted cholecystectomy, significant hepatic dysfunction, or presence of aberrant anatomy. Operative time and open conversion rates for major surgeries in two separate time periods were examined, to demonstrate learning curves.

Results: 439 robotic HPB surgeries were performed. 215 patients had a primary surgery involving the pancreas, 76 for liver, 103 for biliary, and 45 for gastro-duodenal. The most common operations were the following: distal pancreatectomy (n = 101), pancreaticoduodenectomy (PD) (n = 64), DC (n = 43), duodenal sleeve or wedge resection (n = 28), and right hepatectomy (n = 17). The ratio of robotic conversions to procedures decreased from 1:4 (2006) to 1:32 (2015). For the robotic PD, there was a non-significant decrease in operative time by 31 minutes within a 4-year span (441 minutes vs. 410 minutes, p = 0.326). 90-day mortality was only observed in the pancreas and liver groups, in 9 of 291 patients (3%).

Conclusion: Robotic assisted surgery is a safe, useful technique can be applied to all types of HPB surgeries.
P109
MESOHEPATECTOMY WITHOUT HILAR DISSECTION FOR CENTRAL HEPATOCellular CANCER IN CIRRhotics
A. Sharma, R. Seth, S. Bethel, A. Gupta, Y. Shi, S. Matherly, J. Kim and M. Levy
Virginia Commonwealth University, Richmond, VA, USA
Objective: To study the outcomes of mesohepatectomy without performing hilar dissection for centrally located (segments 4, 5, 8) hepatocellular cancer (HCC) in cirrhotic patients.
Methods: Retrospective analysis of our center’s database was performed to identify patients who had undergone a mesohepatectomy (01/2011 to 08/2016). Operative technique and peri-operative outcomes are reported here. Statistical analysis was performed with GraphPad Prism (version 4.0).
Results: Fourteen mesohepatectomies were performed using non-hilar dissection technique. Twelve were for HCC in well-compensated, Child A cirrhosis (92%) with mean age of 60.5 ± 7.1 years. The (median) length of hospital stay was 6 days, ICU – 1.5 days and median follow-up of 5 months (range 0.3–42). Median total bilirubin and INR on POD 5 were 1.7 mg/dL (range 0.6–6.7) and 1.3 (range 1.2–1.6) respectively. Mean tumor size was 4.8 ± 2.1 cm.
All 12 patients had an R0 resection, are alive and tumor free. Five patients had six complications: bile leak and pleural effusion (1 patient), ascites (1), delirium (1), Clostridium difficile infection (1) and tumor recurrence requiring right posterior sectionectomy (1). The main limitation of our study is a relatively short follow-up after mesohepatectomy.
Conclusion: We report the largest series (12 patients) using the non-hilar dissection method for mesohepatectomies in the United States. We conclude that mesohepatectomy without hilar dissection can be performed safely in well-compensated cirrhotic patients who have central hepatocellular cancer in segments 4, 5 and/or 8. The procedure helps avoid the need for extended heptatectomies as well as liver transplantation.

P110
ISOLATED HEPATIC PERFUSION CHEMOTHERAPY FOR UNRESECTABLE MALIGNANT HEPATIC TUMORS. PRELIMINARY RESULTS OF THE FIRST NATIONAL MULTIHOSPITALARIA SERIES WITH TWO DIFFERENT TECHNIQUES
J. Pueyo, J. Farre, Y. Quijano, A. Arrivi, P. Bretcha, A. Echenagusia, A. Jose and B. Ielpo
Sanchinarro University Hospital, Madrid, Spain
Objective: Unresectable liver tumors can be treated through different approaches which aim is to control its progression. Selective liver perfusion with Melfalan is one of these options.
Methods: 8 patients with liver malignancies have been retrospectively reviewed: 5 cases of ocular melanoma liver metastases, 2 intrahepatic cholangiocarcinomas, 1 neuroendocrine liver metastases. PHPC treatment included the Melfalan perfusion throughout the hepatic artery (120–240 mg) with a liver selective isolation from systemic perfusion using double baloon catheter in the inferior vena cava with a concomitant venous-venous by pass with a filter to wean off the drug at the end of the procedure. PHA is performed throughout an open approach with vascular clamps.
Results: Three patients (37.5%) suffered from haematologic toxicity during the following 2 weeks, mainly represented by pancitopenia. 6 patients (87.5%) showed a partial response to the treatment. One patient had a progressive disease one month after the PHPC treatment. Survival after the procedure was as follow: ocular liver metastases: 2, 14, 19 and 23 months, respectively. The last patients which underwent the treatment is still alive with stable disease after 3 months from the procedure. Intrahepatic cholangiocarcinoma: 5 and 6 months, respectively. Both patients died of peritoneal progressive disease. Neuroendocrine liver metastases: alive with stable disease after 10 months from the PHPC treatment.
Conclusion: Post procedure morbidity is low if the percutaneous procedure is performed and it is associated only to haematologic reversible toxicity. Oncological results are still limited by the only drug that can be used for this technique (Melfalan).

P111
PREDICTORS OF PROLONGED VENTILATION AND SEPTIC SHOCK AFTER PANCREATODUODENECTOMY – NATIONAL EXPERIENCE
V. Vilchez, T. Nguyen, H. Keshava, R. Gedaly and G. Morris-Stiff
Cleveland Clinic Foundation, Cleveland, OH, USA
Objective: To identify specific perioperative risk factors of prolonged ventilation and septic shock in patients undergoing pancreateodudenoectomy (PD).
Methods: The ACS-NSQIP database was queried from 2008 to 2014. Patients who underwent PD were analyzed. Primary end-points were critical care related complications (CCC) including prolonged ventilation (>48 h), septic...
shock, renal failure, cardiac arrest/AMI, pulmonary embolism (PE). Other end-points were length of stay (LOS) and readmission rate. Wilcoxon’s and Pearson test were used for potential predictors.

Results: During the study period a total of 20,412 patients underwent a PD. Forty-eight percent were female with a mean age of 64 ± 12 years. Five percent of patients were found to have prolonged ventilation and 4% septic shock. Mean operative time (OT) was 371.2 ± 133.8 minutes. Mean LOS was 12.7 ± 10 days. Readmission rate (from 2011) was 16%. Predictors of prolonged ventilation and septic shock included age, female sex, BMI, ASA Class, preoperative bleeding disorders, steroid use, dyspnea, albumin, creatinine and sodium plasma levels, and OT (p < .001). Predictors of increased LOS included age, black vs. white race, diabetes, preoperative albumin levels, and OT. Independent predictors of readmission rate included BMI and preoperative total bilirubin levels. Age, preoperative albumin levels and OT were independent predictors of mortality.

Conclusion: The most common CCCs after PD were septic shock and prolonged ventilation (4–5%). Independent predictors included age, sex, ASA Class, BMI, albumin, creatinine and sodium plasma levels, and operative time. Postoperative outcomes after PD including septic shock and prolonged ventilator requirements could be reduced with preoperative identification of high risk patients.

P112
SAFETY OF NEXT GENERATION HIGH FREQUENCY IRREVERSIBLE ELECTROPORATION (H-FIRE) IN A PORCINE PANCREATIC CANCER TREATMENT MODEL
C. Clark, C. Byron, S. Bhonsle, M. Lorenzo, C. Arena, J. Robertson and R. Duvalos
Wake Forest Baptist Health, Winston Salem, NC, USA

Objective: Irreversible electroporation (IRE) is a non-thermal treatment modality, used in the management of locally-advanced pancreatic cancer that has significantly improved median overall survival. Unfortunately, IRE requires long treatment intervals, use of neuropaalytics, and synchronization with the cardiac cycle. The aim of our study was to investigate the safety of next generation high-frequency irreversible electroporation (H-FIRE) that overcomes these limitations in a porcine pancreatic cancer model.

Methods: A porcine pancreatic cancer survival model was developed using 4–8 month old healthy female swine. Bursts (100\(^{1/2}\) s long applied at 1 burst/s for 80 or 200 seconds) of ultra-short high voltage bipolar pulses were used to non-thermally ablate pancreatic tissue using two monopolar electrodes spaced 10 mm apart (0.5 cm exposure). Intraoperative evaluation was performed with ultrasound along with pre- and post-treatment computed tomography (CT) imaging. Intraoperative and post-operative safety was evaluated with cardiac monitoring, motion sensing, serial laboratory studies, peritoneal and serum amylase analysis, and histopathology.

Results: Porcine pancreatic tissue was successfully treated in two animals using H-FIRE at 1350, 2200, and 2400 V. Treatment zones were visible on ultrasound and CT. No cardiac dysrhythmia was detected using asynchronous pulses. No gross skeletal muscle contractions were noted. At time of sacrifice (post-operative day zero and two), no complications were detected and there was no evidence of treatment-associated pancreatitis.

Conclusion: H-FIRE is a novel target treatment modality for pancreatic cancer with potential benefits over current IRE technology.

P113
ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP) ASSISTED ENucleation OF DEEP PancreATIC NEUROENDOCRINE TUMORS (pNETs): A NOVEL TECHNIQUE TO INCREASE PROCEDURE SAFETY AND DECREASE RISK OF POST-OPERATIVE PANCREATIC FISTULAE
A. Khan, D. Mullady and M. Doyle
Washington University in St Louis, St. Louis, MO, USA

Objective: Pancreatic neuroendocrine tumors (pNETs) account for 1–2% of all pancreatic malignancies and usually follow an indolent course. Enucleation of low grade pNETs has the advantage of avoiding short and long term morbidity related to formal resections but carries a risk of significant post-operative pancreatic fistula (POPF), especially if the tumor is close to the main pancreatic duct (MDP). We have recently started using intra-operative ERCP to facilitate enucleation of pNETs ≤ 3 mm from MDP in order to enhance the safety associated with the surgery. This technique has not previously been described in literature.

Methods: Intraoperative ERCP is considered for patients with pNETs ≤ 3 mm from MDP who are being considered for enucleation. Intraoperative pancreatography is done after enucleation to assess for extravasation of contrast from MDP or major side branches at site of enucleation, which is considered an indicator for development of significant POPF. If no extravasation is noted, a pancreatic stent is deployed and the procedure terminated after placement of intra abdominal drain. If significant extravasation is noted, then the procedure is converted to a formal resection.

Results: Steps of technique are described with accompanying images from patient cases. A treatment algorithm is provided detailing step by step approach in patients being considered for ERCP assisted enucleation.

Conclusion: The described technique of ERCP assisted enucleation can allow safe resection of pNETs ≤ 3 mm from MDP. It can potentially increase procedural safety though earlier assessment of MDP integrity, decreasing risk of development of significant POPF, and avoiding morbidity of major pancreatic resections.
P114
IMPACT OF RACE IN PATIENTS WITH LOCALIZED PANCREATIC CANCER IN AN INTEGRATED SYSTEM
C. K. Chang, Peter D. Peng, Austin Spitzer, Alexander L. Chang and George Kazantsev
Kaiser Permanente, Oakland, CA, USA

Objective:
Methods: A retrospective review was undertaken to identify patients with pancreatic cancer treated in Northern California Kaiser Permanente facilities. All patients received their treatment between January 1988 and June 2014. The chi-square test of relevant clinicopathologic factors determined which factors were predictive for overall survival.

Results: We identified 7810 patients with pancreatic cancer, with 735 (9.4%) of these patients being identified with localized disease. The mean survival (OS) was 12.3 months compared to 44 months in these patients with localized disease without surgery and with surgery, respectively. Sex, histology, location, and use of radiation were not statistically different among the various ethnicities, however age, stage, surgical resection and use of chemotherapy were different among the various racial groups. In patients with localized pancreatic cancer, African-American were less likely to have surgery, however treatment radiation and chemotherapy were similar among all ethnicities. Overall survival was not statistically significant among the various ethnicities in patients with localized disease.

Conclusion: There were no differences in patients with advance disease at the time of diagnosis. However, African-Americans had a lower incidence of localized disease. Also African-Americans with localized disease were less likely to undergo surgery in comparison. Overall survival was not impacted by race in patients with localized disease. Asian-Americans were more likely to use all treatment modalities. Reducing the influence of non-clinical factors and bias may increase treatment options among the various groups but overall did not impact overall survival in patients with localized disease.

P115
PRELIMINARY OUTCOMES OF LAPAROSCOPIC VERSUS OPEN COMMON BILE DUCT EXPLORATION: THE MATER EXPERIENCE
Mater Misericordiae University Hospital, Dublin, Ireland

Objective: ERCP is the gold standard treatment for stones in the common bile duct (CBD). Open or laparoscopic exploration of the CBD is only warranted where ERCP is unsuccessful, or if the patient’s anatomy is unamenable to ERCP such as in cases of prior gastrectomy. We report the outcomes of open and preliminary outcomes of laparoscopic approaches.

Methods: An audit of outcomes of CBD exploration for gallstones from 1 Jan 2008 to July 2016 was performed. Demographic and clinical data of patients in the study group is included below. Mater Morbidity and Mortality Audit data was used to identify complications, which were then graded using the Clavien–Dindo classification.

Results: A total of 30 patients underwent CBD exploration: 20 open and 10 via laparoscopic approach. The mean age at surgery was 67 in the open group, 61 in laparoscopic group, (range: 30–80). In the open CBD cohort, 10% (2/20) were performed due to complication of ERCP compared to 0% in the laparoscopic cohort. The duct was cleared in 90% (18/20) of cases in those who underwent open procedure compared to 70% duct clearance (7/10) of those who underwent laparoscopic approach. The 30-day mortality in the open cohort was 5% (1/20) compared to 0% in patients explored laparoscopically.

Conclusion: Laparoscopic CBD exploration is a new treatment modality available for CBD stones. Preliminary results suggest that both open and laparoscopic approaches are safe and effective in cases of unsuccessful ERCP.

P116
HEPATECTOMY TRANSFUSION REQUIREMENTS IN ALBERTA: DECREASED BLOOD LOSS IN LIVER SURGERY
B. Anderson, J. Nostedt, O. Bathe and D. Bigam
University of Alberta, Edmonton, Canada

Objective: Despite improved outcomes with oncologic liver resections high transfusion rates persist, reported between 25 and 50% in large series. Given that intraoperative blood loss is a predictor of perioperative outcomes, including disease free survival, the objective of this study was to perform a quality assurance assessment of hepatectomy transfusion rates for liver resections performed for malignancy on a provincial level in Alberta, Canada.

Methods: Prospective clinical data were collected from Cancer Care Alberta records on 703 patients who underwent elective liver resection between 2009 and 2015. Indication for resection included hepatocellular carcinoma, cholangiocarcinoma, and hepatic metastases. Cases of synchronous resection of other organs were excluded.

Results: Intraoperative transfusion rate was found to be 6.97% + 2.15% (2.83%—9.09%) which is comparable to
recent publications from large cancer centers in the US (6%) and superior to previously reported transfusion rates across Canada (25%). Provincially, strategies utilized to minimize parenchymal bleeding included low central venous pressure anesthesia, ultrasonic dissection or saline-cooled radiofrequency coagulation, hepatic vascular inflow occlusion when deemed appropriate, and conservative transfusion triggers.

**Conclusion:** Patient and tumor factors significantly impact intraoperative bleeding and therefore transfusion requirements in liver surgery, however anesthetic management and surgical technique can limit blood loss and transfusion. This has implications not only for the patient but also at a healthcare system level. Decreasing operative blood loss may further improve patient outcomes and lessen the strain on blood bank resources. Analysis of transfusion patterns related to oncologic liver resections will aid in improving technical standards and quality of care.

**P117 UNDERSTANDING THE CHALLENGES IN ACHIEVING ADEQUATE LYMPHADENECTOMY IN DISTAL PANCREATECTOMY: OPPORTUNITIES FOR IMPROVEMENT**

S. Meade, A. Goldar-Naja, R. Jenkins and T. Schnelldorfer
Lahey Hospital and Medical Center, Burlington, MA, USA

**Objective:** Emerging literature is increasingly emphasizing the importance of the number of lymph nodes required for adequate staging after distal pancreatectomy for pancreatic malignancy. Yet, the factors influencing this lymph node yield are unknown.

**Methods:** A retrospectively case-control study was conducted analyzing factors correlating to lymph node yield at a single institution for 159 consecutive patients undergoing distal pancreatectomy between 2003 and 2016.

**Results:** Of 159 patients, 66 underwent a resection for malignancy, including 42 patients (64%) with <11 LNs evaluated. The mean number of lymph nodes identified in the 66 patients was 6 ± 7 (range 0 and 36). Univariate analysis showed an association between low lymph node recovery (<11 LNs) and earlier time point in the study period (p = 0.006), low surgeon volume (p = 0.025), and open rather than laparoscopic resection (p = 0.042). Neither the pathologist, nor the pathology technician, nor the extent of pancreatic resection correlated with low lymph node yield (p > 0.05).

**Conclusion:** General awareness of the need for detailed lymph node assessment as well as the expertise of a dedicated pancreatic surgeon can enhance the number of lymph nodes retrieved and examined after distal pancreatectomy. Identifying the challenges restricting sufficient lymph node resection will allow surgeons and their colleagues to ameliorate their approach to resection and specimen handling in an effort to improve the diagnosis and outcomes for patients undergoing distal pancreatectomy for malignant disease.

**P118 OUR STRATEGY OF PANCREATICOJEJUNOSTOMY FOR REDUCING PANCREATIC FISTULA**

Satoshi Kaihara, Koji Kitamura, Kenji Uryuhara and Ryo Hosotani
Kobe City Medical Center General Hospital, Kobe City, Japan

**Objective:** Postoperative pancreatic fistula (POPF) has traditionally been a source of significant morbidity and mortality after pancreatectoduodenectomy (PD). There is still no established technique for pancreaticojejunostomy. We have applied the modified Blumgart anastomosis method instead of Kakita method from August 2014. The aim of this retrospective study was to analyze the efficacy of modified Blumgart anastomosis method for reducing POPF by means of univariate analysis and multivariate analysis. Operative method is below: In duct-to-mucosa pancreaticojejunostomy we keep lost stent, and two transpancreatic/jejunal seromuscular sutures to completely cover the pancreatic stump with jejunal serosa.

**Methods:** 99 patients (66 males and 33 females) who underwent PD in our hospital between 2011 and 2015 were reviewed. We gauged drain fluid pancreatic amylase in postoperative day 1, 3, 5 and defined POPF in according with the ISGPS. **Results:** 66 patients was Kakita group and 33 patients was Blumgart group. The rate of POPF (≥Grade B) was 32% in Kakita group and 24% in Blumgart group. Soft-pancreas cases developed POPF rate in both group (p = 0.0002), and modified Blumgart method reduced POPF in soft-pancreas cases by means of univariate analysis (p = 0.045). Multivariate analysis revealed that independent predictor of preventing POPF were hard-pancreas (p = 0.001, Odds ratio 9.91) and modified Blumgart method (p = 0.0186, Odds ratio 3.596).

**Conclusion:** We suggest that modified Blumgart anastomosis method is suitable for use as a standard method of pancreaticojejunostomy in soft-pancreas cases which are one of the risk factor of POPF.

**P119 PANCREATECTODUODENECTOMY FOR PANCREATIC MALIGNANCIES: THE IMPACT OF PERFORMING VENOUS RESECTIONS**

Hospital Universitario Fundacion Favaloro, Buenos Aires, Argentina

**Objective:** Pancreatectodudenedectomy is the gold standard treatment for malignancies involving the pancreatic head, modifying outcome, but most of the cases are not resectable at the time of diagnoses. Resectability can be increased by including vascular structures, although that will increase R0 resections, increased complication rates and a worse outcome has been published. We aim here to report the outcome of patients undergoing pancreatectoduodenectomy with vascular resection (VR+PD), compared to the group of patients resected without vascular resection (VR – PD) in a single HPB surgical center.
Methods: Retrospective review from 1/2008 to 12/2015. Demographics, tumor characteristics, including histologically proven vascular invasion, post operative complications stratified by Dindo–Clavien, overall patient and recurrence free survival, were analyzed using SPSS® v.20, p < 0.05 was considered significant.

Results: One hundred nineteen pancreatic resections were performed, 76 were PD, and 65 (85.5%) PD for malignancies. From them, 18 required VR+, and all have histologically proved vascular involvement.

No significant differences between groups were found in terms of age, sex, pathology and transfusion requirement. Significant differences are shown in Table 1. With a mean follow up of 39.5 months (SD: 28.2 months), the long term patient and disease free survivals were no different between groups (Figures 1 and 2).

Conclusion: VR + PD can be performed in order to extend the indication in patients with pancreatic malignancies. Patients will benefit from achieving increased R0 resections, with reduced complication rate in our series, VR + PD did not affect overall patient or disease free survival, therefore VR + PD should not longer be considered a contraindication for surgery.

<table>
<thead>
<tr>
<th>Table 1 Significant differences.</th>
<th>VR + PD (N = 18)</th>
<th>VR – PD (N = 47)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical length (Hs)</td>
<td>8.5</td>
<td>7</td>
<td>0.03</td>
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<tr>
<td>Re-operation rate (%)</td>
<td>0</td>
<td>11</td>
<td>0.002</td>
</tr>
<tr>
<td>Dindo Clavien &gt;3 (%)</td>
<td>0</td>
<td>19</td>
<td>0.0001</td>
</tr>
<tr>
<td>PTE (%)</td>
<td>0</td>
<td>11</td>
<td>0.0002</td>
</tr>
<tr>
<td>Length of Stay (days)</td>
<td>9.5</td>
<td>15.2</td>
<td>0.0034</td>
</tr>
<tr>
<td>RO resections (%)</td>
<td>50</td>
<td>78</td>
<td>0.006</td>
</tr>
</tbody>
</table>

P120
A NEW TECHNIQUE FOR HEPATIC PARENCHYMAL TRANSECTION USING AN ARTICULATING 5 CM RADIOFREQUENCY DEVICE: RESULTS FROM THE FIRST 100 CASES
Cleveland Clinic Foundation, Cleveland, OH, USA

Objective: Parenchymal transection is still challenging in liver resections (LR) although various devices are available on the market. We present our initial 100 -case experience with a novel radiofrequency (RF) vessel-sealer for hepatic parenchymal transection (PT).

Methods: Within a 30-month duration, a 5 cm, bipolar articulating vessel sealer Caiman®, Aesculap Inc., Center Valley, PA) was used in 100 liver resections, both open (OLR) and laparoscopic (LLR), at a single center. This device was used for PT to limit the stapler use only for main

<table>
<thead>
<tr>
<th>Table</th>
<th>Parameters</th>
<th>Overall experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of approach</td>
<td>Laparoscopic</td>
<td>50 (50%)</td>
</tr>
<tr>
<td></td>
<td>Open</td>
<td>50 (50%)</td>
</tr>
<tr>
<td>Type of resection</td>
<td>Minor</td>
<td>51 (51%)</td>
</tr>
<tr>
<td></td>
<td>Major</td>
<td>49 (49%)</td>
</tr>
<tr>
<td>Combined procedure</td>
<td>9 (9%)</td>
<td></td>
</tr>
<tr>
<td>Inflow occlusion</td>
<td>38 (38%)</td>
<td></td>
</tr>
<tr>
<td>Number of staplers</td>
<td>1.1 ± 0.2</td>
<td></td>
</tr>
<tr>
<td>Extra staplers use</td>
<td>0.4 ± 1.0</td>
<td></td>
</tr>
<tr>
<td>Parenchymal transection time (minutes)</td>
<td>29.9 ± 2.3</td>
<td></td>
</tr>
<tr>
<td>Operative time (minutes)</td>
<td>270.9 ± 15.7</td>
<td></td>
</tr>
<tr>
<td>Estimated blood loss (mL)</td>
<td>300 [100–575] (Median)</td>
<td></td>
</tr>
<tr>
<td>Transfusion</td>
<td>23 (23%)</td>
<td></td>
</tr>
<tr>
<td>Number of PRBCs</td>
<td>2 [1–2] (Median)</td>
<td></td>
</tr>
<tr>
<td>R0 resection</td>
<td>69 (86.3%)</td>
<td></td>
</tr>
<tr>
<td>Margin width (cm)</td>
<td>0.54 ± 0.07</td>
<td></td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>5.9 ± 0.5 (Mean)</td>
<td></td>
</tr>
<tr>
<td>Complications</td>
<td>10 (10%)</td>
<td></td>
</tr>
<tr>
<td>Bile leak</td>
<td>4 (4%)</td>
<td></td>
</tr>
<tr>
<td>≤ II Clavien–Dindo classification</td>
<td>5 (5%)</td>
<td></td>
</tr>
<tr>
<td>≥ III Clavien–Dindo classification</td>
<td>5 (5%)</td>
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</table>
Results: Fifty patients underwent OLR and 50 patients underwent LLR. Eighty hepatocarcinomas (80%) were performed for malignancy, measuring 5 cm in size on average. Forty-nine procedures (49%) were major LR. The mean PT time was 29.9 ± 2.3 minutes. With this device, extra staplers for PT were used in 6.1% of major LR and 25.4% of minor LR. Median estimated blood loss (EBL) was 300 cc. R0 resection was achieved in 86.3% of patients. The length of stay was 6 days with 10% overall complication rate and 4% bile leak rate.

Conclusion: Our experience in this multi-surgeon series suggested that the use of this RF device provided the favorable speed of PT without increasing rate of bile leak. Additionally, this device helped decrease the number of instruments, including staplers used during PT in our previous technique, which can help reduce the operating rooms cost of LR.

P122 SPONTANEOUS RUPTURE OF HEPATOCELLULAR CARCINOMA, MIDDLE-EASTERN EXPERIENCE
Hamad General Hospital, Doha, Qatar

Objective: Spontaneous rupture of hepatocellular carcinoma (HCC) has a very poor prognosis. Incidence of HCC rupture is less than 3% in Western community compared to 3.26% in the Asian community. The aim of this study is to report a single center’s experience a nine-year period.

Methods: A retrospective analysis of all the patients with HCC who presented to Hamad General Hospital (HGH) during the period between 2006 and 2015 was done. The collected data included demographic findings, clinical features, treatment strategies and survival outcome. Statistical methods included univariate analysis and Kaplan-Meier survival with Log-rank test.

Results: A cohort of 13 patients was identified (12 male and 1 female). The median age at presentation was 57. Ten patients (78%) had evidence of liver cirrhosis at presentation. The mean tumor size was 7 cm with both liver lobes affected in 4 patients (30.8%) and multilicentricity in 5 patients (38.5%). Seven patients (62%) had subcapsular location of their HCC. Definitive treatment strategies included liver resection (2 patients 15.4%), TAE (6 patients 46.1%) and conservative management (5 patients 38.5%). Child-Pugh score (median 10) and subcapsular location were strongly correlated with poor survival (P < 0.001). The recorded 30-day mortality was 53.8% with none detected among the patients treated surgically.

Conclusion: Treatment strategy of spontaneously ruptured HCC is challenging. Many factors interfere with the outcome including time performance status, background of chronic liver disease, Child-Pugh score at presentation and site & location of the HCC. Median survival of patient treated surgical was noticeably better than those treated by TAE.

P123 PANCREATIC DUCTAL ADENOCARCINOMA: METHODS APPLIED TO QUANTIFY TUMOR SIZE ON COMPUTED TOMOGRAPHY, A REVIEW OF THE LITERATURE
S. Rombouts, W. van Dijck, N. Haj Mohammad, L. Verkooijen, R. Scholten, I. Molenaar and M. van Leeuwen
University Medical Center, Cancer Center Utrecht, Utrecht, Netherlands

Objective: Accurate assessment of tumor extent in pancreatic ductal adenocarcinoma (PDAC) by computed tomography (CT) is crucial in the determination of resectability and treatment response. However, PDAC tumor characteristics often lead to indistinct size measurements. This review seeks to provide an overview of measurement and quantification methods used to define PDAC tumor extent and to assess treatment response.

Methods: A systematic search in PubMed, Embase and the Cochrane Library from May 2011 to May 2016 was performed to identify 1) medical-oncological studies, including PDAC, CT-imaging and (modified) FOLFIRINOX or nab-paclitaxel plus gemcitabine and 2) surgical studies involving PDAC with all surgical treatments and CT-imaging. Primary endpoints were methods for measuring tumor size and extent of disease, and methods for measuring disease progression over time.

Results: After screening 1086 articles, 15 medical-oncological studies (n = 994 patients) and 11 surgical studies (n = 1222 patients) were included. The medical-oncological studies used Response Evaluation Criteria in Solid Tumors (n = 15), tumor diameter (n = 15) and resectability criteria (n = 6) to quantify tumor size. The surgical studies measured tumor diameter (n = 6), circumferential vascular involvement (n = 10) or longitudinal vascular involvement (n = 1). None of the 26 articles specified definitions for assessments of tumor border nor described how to account for infiltrative growth-pattern or how to distinguish inflammation or fibrosis from viable tumor tissue.

Conclusion: Although accurate size measurement is crucial for making treatment decisions, no uniform method for quantification of the primary tumor in PDAC was found. Therefore, a standardized measuring and quantification protocol, taking into account the morphological characteristics of PDAC, should be agreed upon.

P124 FATE OF PANCREATIC CANCER AT A MEDIUM SIZED HOSPITAL
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Objective: A majority of published literature on pancreatic adenocarcinoma occurs at tertiary centers and little is known about the outcomes at medium sized hospitals. We investigated the journey of patients with newly diagnosed pancreatic cancer in an effort to improve on outcomes.

Methods: We retrospectively reviewed patients with newly diagnosed pancreatic cancer who were admitted from the emergency department from 2009 to 2014. Labs, imaging
and pathology results were collected. Dates of diagnosis, consultations, procedures and operations were recorded. Data are presented as median.

Results: Thirty-seven patients were evaluated with a median age of 71. Adenocarcinoma was most frequently identified (20), followed by neuroendocrine (3), squamous cell (1) and fourteen without biopsy results. Length of stay was nine days. Thirty-six patients (97%) had CT imaging on presentation and none had a pancreas CT protocol. The consult frequencies were as follows: gastroenterology (66%), oncology (61%), and general surgery (39%). The time from diagnosis to port placement was 22.5 days and operation was ten days. Twenty-two patients had ERCPs undertaken, and 86% had a CA 19-9 ordered prior to this procedure. Fifteen patients (39%) went to hospice or expired within the first month. Overall long-term survival was 2.6%.

Conclusion: Long-term mortality was consistent with the national average in patients with newly diagnosed pancreatic cancer at a medium sized hospital. However, pancreas CT protocols were severely underutilized. CA 19-9 was frequently ordered, inappropriately, prior to ERCP. General surgery consults were likely underutilized and potentially could have lead to earlier Mediport placement and surgical intervention.

P125
COMPLEX PORTAL VENOUS INFLOW RECONSTRUCTION IN LIVER TRANSPLANTATION: THE OPTION OF LEFT RENAL PORTAL VEIN TRANSPOSITION
C. Kensinger, S. Geevargheese and D. L. Gorden
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Objective: Portal vein thrombosis (PVT) is a technically challenging complication of portal hypertension arising in 25% of liver transplant candidates. Management largely depends on anatomy and extent of the thrombosis. There is a growing need for innovative options for portal inflow reconstruction. In complicated cases where reconstruction options are limited, strategies to avoid the morbidity associated with portocaval transposition should be considered. In these circumstances, a renal-portal transposition may be a unique option for establishing portal inflow. We report a case of a patient who underwent successful transplant by performing a left renal-portal transposition.

Methods: Pre-operative CT imaging demonstrated splenoportal varices and a large spontaneous splenorenal shunt. Attempts at intraoperative primary thrombectomy were unsuccessful. The donor portal vein was anastomosed end-to-end to the left renal vein. Portal inflow was measured to be 1.8 liters/minute.

Results: Successful portal inflow was established by utilizing an enlarged left renal vein for a renal-portal transposition. The patient had an uncomplicated post transplant course. At one year, the patient is doing well with good graft function and patent portal inflow (Figure 1).

Conclusion: Patients with portal vein thrombosis manifest various patterns of venous collaterals. Large varices communicating with spontaneous splenorenal shunts can be a viable source of splanchnic venous inflow for portal vein reconstruction. In highly selected patients, a renal-portal transposition is a unique reconstructive option that should be considered as an alternative to performing a portocaval transposition.

P126
OLDER AGE DID NOT INCREASE SHORT-TERM SURGICAL COMPLICATIONS AFTER LAPAROSCOPIC CHOLECYSTECTOMY
Hospital das Clínicas de Sao Paulo, Sao Paulo, Brazil
Objective: We aimed to evaluate short-term results of laparoscopic cholecystectomy (LC) in patients over 60 years to provide additional information on best treatment of elderly patients.

Methods: We retrospectively evaluated 334 patients over 60 years that underwent LC at our Institution. Complications were graded according to Clavien–Dindo classification. Patients were allocated into 2 groups according to age: 60–70 (G1) and more than 70 years (G2).

Results: The table shows 67.4% of patients were female (age of 67.46 ± 6.47 y and BMI of 28.14 ± 5.29 kg/m², 82.03% had comorbidities, and 20.95% did not have biliary symptoms. The mean duration of surgery was 154.7 ± 61.73 min, and 21.86% of patients had complications with median grade of highest complication of I (IV) and rate of early postoperative death of 0.60%. G2 patients showed increased mortality: 154.76 vs. 154.71 (P < 0.05). G2 patients showed decreased Karnofsky status [80 (50–100) vs. 90 (40–100)], and increased ASA score (2.15 ± 0.56 vs. 1.98 ± 0.53), incidence of acute cholecystitis (28.20% vs. 11.71%), admissions to ICU (20.51% vs. 7.81%), insertions of abdominal drains (26.92 vs. 10.15), and length of stay [2 (117) vs. 1 (117)] compared to G1.

Conclusion: The study showed that elective LC is a safe procedure in aged patients. Patients over 70 years presented increased ASA scores and worse performance status compared to patients over 60. Despite presenting significantly more cases of acute cholecystitis, more admissions to ICU, more cases of abdominal drainage, and prolonged hospital stay, patients over 70 years did not present increased morbidity and mortality. This suggests laparoscopic cholecystectomy is a safe procedure in aged patients. However elderly patients may be at risk of developing adverse events related to increased incidence of comorbidities.

P127
CHOLANGIOHYDATIDOSIS AS AN EVOLUTIVE COMPLICATION OF LIVER HIDATIDOSIS
A. Troncoso, H. Herrera, H. Losada, J. Silva, L. Acencio, O. Arias and L. Burgos
Universidad de La Frontera, Temuco, Chile
Objective: To describe the clinical features of a series of patients with cholangiohydatidosis between 2006 and 2015 at Hospital Temuco.
**P128**

**PERIHEPATIC CHOLANGIOCARCINOMA: RESULTS AFTER SURGICAL TREATMENT IN A SINGLE INSTITUTION IN MEDELLIN – COLOMBIA**

Jaime Ramirez, Luis Barrera, Camilo Tarazona, Fabio Vergara and Diana Tamayo

**IPS Universitaria, Medellin, Colombia**

**Objective:** To describe the clinical and pathological features and prognostic factors of patients treated through surgery.

**Methods:** Hilar cholangiocarcinoma are rare neoplasms that, due to their anatomical location, create important technical difficulties in surgical resection. Long-term survival is achieved only in cases of resection, therefore it is important to identify patients with risk factors, diagnose early, and have resectability assessed by a group of experts in this area. This procedure has undergone significant changes from initial non-radical local resections, to large resections with hepatectomy, attempting to achieve complete removal of the tumor.

Observational, descriptive, retrospective research from March of 2011 to March of 2016, of patients diagnosed with hilar cholangiocarcinoma who were treated through surgery. The evaluated results included: mortality, survival, time spent without an occurrence of disease and the prognostic factors.

**Results:** 57 patients with hilar cholangiocarcinoma, 11 (19.2%) were surgically treated, Hepatic resection was associated with resection of segment 1, extrahepatic bile duct and lymphadenectomy in all cases. 7 (63.3%) males, 4 (36.7%) females, 8 (72.2%) R0 resection, 7 (63.63%) presented some type of post-operative complication. The overall survival time was 469 days, periporaloperative mortality was 18.18%.

**Conclusion:** While morbidity and mortality rates are high among patients treated surgically, curative resection offers the best results in terms of long-term survival.

**P129**

**LAPAROSCOPIC CENTRAL PANCREATECTOMY WITH LONG SLEEVE PANCREATEICO-GASTROSTOMY (LSPG)**

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**Imperial College London, London, United Kingdom**

**Objective:** To present a novel technique for pancreatic anastomosis following central pancreatectomy for benign or neuroendocrine pancreatic tumours laparoscopically.

**Methods:** A total of 5 cases performed for pancreatic and spleen preservation central pancreatectomy consisting of mucinous cystic neoplasm (n = 1), serous cystadenoma (n = 1), intraductal papillary mucinous neoplasm (n = 1), neuroendocrine tumour (n = 1) and metastatic melanoma (n = 1). Following laparoscopic central pancreatectomy, a sleeve gastric tube was created with Endo GIA for reformation of an end-to-end pancreatico-gastrostomy laparoscopically.

**Results:** Five patients underwent central pancreatectomy for resection of pancreatic lesions at body or neck of pancreas with aim to preserve pancreas and spleen to prevent long term problems related to distal pancreatectomy and/or splenectomy. None of the patients had dilated pancreatic duct on preoperative imaging. All had a soft pancreas intraoperatively. The median operative time was 240 min (150–285) with median 36 min (28–50) for long sleeve pancreatico-gastrostomy. One patient developed a grade A pancreatic fistula managed conservatively. There was no mortality.

**Conclusion:** Central pancreatectomy should be considered in patients with benign pancreatic tumours for spleen and pancreas preservation. A new reconstruction technique can facilitate this by making the anastomosis of the pancreatic stump easier and less technically demanding with fewer complications than conventional pancreatico-jejunoanastomosis in soft pancreas with non-dilated pancreatic duct.

**P130**

**THE EFFECTS OF HUMAN PLASMA PROTEIN SOLUTION 5% ON BLOOD COAGULATION AND CHEMISTRY, AN EXPERIMENTAL IN-VITRO STUDY**

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**Hamad General Hospital, Doha, Qatar**

**Objective:** The effect of different fluids used for resuscitation was studied in the literature in vitro and the results were different and not consistent. This study aims to study the in-vitro effect on coagulation of a newly used Human Plasma Protein (PP) solution 5% solution as a primary end point and its effect on blood SID and PH as secondary end points.

**Methods:** In an experimental in-vitro study, different dilutions 10, 30 and 50% of PP 5% solution and fresh blood samples collected from volunteers, in which one cc of PP 5% is mixed to 9 cc of blood (10% dilution), 3 cc of PP 5% to 7 cc of Blood (30% dilution), and 2.5 cc of PP 5% to 2.5 cc of blood (50% dilution). Blood samples were
analyzed for slandered Thrombo-Elastogram (TEG) and functional Fibrinogen level. TEG measurements included: r time, K time, θ angle, ma (Maximum Amplitude), CI (Coagulation index), and LY 30 (lysis after 30 min of MA).

Results: Reference figure below.

Conclusion: The changes in coagulation induced by 30 and 50% dilution were significant. Changes in fibrinogen with extreme dilution of 50% do not indicate fibrinogen transfusion and haemoglobin level stay within the acceptable range and below transfusion trigger for healthy patients.

P131

PANCREATIC RESECTION AT HIGH VOLUME CENTERS IMPROVES SURVIVAL

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Objective: Surgical volume has shown to improve morbidity with pancreatic resection. We sought to examine the impact of surgical volume on survival in patients with pancreatic adenocarcinoma (PAC).

Methods: Utilizing the National Cancer Database we identified patients with PAC who underwent surgery at institutions with varying volumes: low volume (LV) <10, medium volume (MV) 10–20, and high volume (HV) >20/year. Patient characteristics and survival were compared with Mann–Whitney U, Pearson’s Chi-square, and the Kaplan–Meier method. Multivariable analysis (MVA) was developed to identify predictors of survival. All tests were two-sided and P < 0.05 was significant.

Results: We identified 19,024 patients: 10,309 HV, 3232, MV, and 5483 LV. Mortality (30 and 90-day) was higher in LV (5.5%, 10.9%) and MV (4.2%, 8.4%) compared to HV (2.6%, 5.8%), p < 0.001 and p < 0.001. Patients in LV and MV institutions were less likely to receive neoadjuvant therapy 8.4% vs 9.9% vs 17.3%, p < 0.001, obtain R0 resection 72.8% vs 75.6% vs 80.1%, p < 0.001 and had lower lymph node harvest 11 vs 13 vs 17, p < 0.001. The median survival for LV, MV, and HV was 21 months, 24.5 months, and 25.8 months, p < 0.001. Patients undergoing pancreatecoduodenectomy and distal resections similarly had improvement in survival with increasing volume, p < 0.001 and p < 0.001. MVA revealed that age, T-stage, N-stage, tumor size >2 cm, R0 resection, and institutional volume were predictors of survival.

Conclusion: Institutions with greater than 20 pancreatic resections per year demonstrate improved survival over lower volume centers. Pancreatic cancer patients should be regionalized to high volume centers for resection.

P134

TRANSITION TO A VIRGIN HEPATOBILIARY HOSPITAL THE SURGEON CAN DRIVE OUTCOME!

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Objective: Hepato-pancreato-biliary (HPB) surgeries are highly complex and complicated surgical procedures that require a high degree of skill and expertise as well as a multidisciplinary team approach for good patient outcomes. The aim of this study is to demonstrate that complex HPB cases can be safely performed at a virgin hospital with favorable surgical outcome.

Methods: A retrospective chart review of 31 patients was completed. Perioperative and postoperative outcomes were measured. All resections were performed by 1 of 2 senior hepatobiliary staff surgeons, each of whom performed either robotic, laparoscopic and open resections.

Results: Between July 2015 and April 2016, 31 patients with mean age of 59 underwent 19 liver resections and 12 pancreatic surgeries. Type of surgery (laparoscopic vs open) as well as perioperative outcomes are listed in Table
1. There were 3 patients with postoperative complications (5.3%) after liver surgery including one postoperative liver abscess. There were 3 patients (25%) with postoperative complications after pancreatic surgery including 2 patients had pancreatic leaks (16%). 30-day mortality was 0% for all groups (Table 1).

**Conclusion:** This study demonstrates that the surgeon with the expertise and experience to perform HPB procedures is the single most important factor in determining patient outcome. In addition by virtue of performing greater than 15 cases of HPB surgery thus far in one year period, it is safe to say that Methodist Richardson Medical Center can be considered a high volume center.

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Liver resections (n = 19)</th>
<th>Pancreas resections (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Laparoscopic (n = 3)</td>
<td>Open (n = 16)</td>
</tr>
<tr>
<td>Mean operative time (min)</td>
<td>120.5</td>
<td>119.5</td>
</tr>
<tr>
<td>Estimated blood loss (mL)</td>
<td>125</td>
<td>540</td>
</tr>
<tr>
<td>Mean length of stay (Days)</td>
<td>3.8</td>
<td>7.6</td>
</tr>
<tr>
<td>Postoperative complications</td>
<td>2 complications</td>
<td>3 complications</td>
</tr>
<tr>
<td>1. Prolonged ileus</td>
<td></td>
<td>1. Pancreatic leak × 2</td>
</tr>
<tr>
<td>2. Liver abscess (POD 14)</td>
<td></td>
<td>2. Pulmonary embolism</td>
</tr>
<tr>
<td>Mortality (%)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**P135**

A CARE DELIVERY MODEL FOR HEPATOPANCREATOBILIARY PATIENTS UTILIZING ADVANCED PRACTICE PROVIDERS

J. Flood-Caldwell

*Memorial Sloan Kettering Cancer Center, New York, NY, USA*

**Objective:** Present an inpatient care delivery model utilizing advanced practice providers (APP) on the Hepatopancreatobiliary (HPB) service at Memorial Sloan Kettering Cancer Center.

**Methods:** The role and efficacy of APPs in managing patients in acute care settings has been well described and established in publications dating back to 2005. HPB is a specialty surgical practice that requires APP’s to have advanced understanding of the HPB disease processes, critical care principles, and general surgery principles. It also requires the APP to have advanced competencies for radiology, gastroenterology and interventional radiology. The APP surgeon relationship is integral to the success of the model, as maintaining open communication within the surgical team, with nursing staff and with the multidisciplinary team.

**Results:** The APP provides direct patient care from admission through discharge, ensuring continuity. The APP is paired with one or two surgeons, fellows and a resident. The APP functions with a high level of independence and makes important decisions while maintaining open communication within and between teams to achieve optimal patient throughput. The APP is the primary contact for staff nurses, consults, and other multidisciplinary services while the HPB teams (surgeon, fellow and resident) are in the operating room, clinic or attending to academic responsibility. The APP facilitates complex discharges with case management and ensures timely and smooth transitions of care.

**Conclusion:** APP’s provide high level, patient centered care, to the multifaceted complex HPB patient. The development of future HPB APPs requires specialty training, and perhaps an HPB APP fellowship.

**P136**

BODY MASS INDEX AND POST-OPERATIVE COMPLICATIONS PREDICT EARLY READMISSION IN PATIENTS UNDERGOING Pancreatic SURGERY: A RETROSPECTIVE REVIEW OF 383 CASES


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**Objective:** Pancreatectomies have been identified as procedures with an increased risk of readmission. In surgical patients, readmissions within 30 days of discharge are usually attributed to the index surgical procedure. We sought to determine predictors of 30-day readmission following pancreatic resections in a large healthcare system.

**Methods:** We retrospectively collected information from the records of 383 patients who underwent pancreatic resections from 2004 to 2013. We performed a univariate screen of possible variables using the Fisher’s exact test for categorical variables and the Mann-Whitney-U test for continuous variables. Multivariate logistic regression analysis was used to determine the independent effects of each factor.

**Results:** 58 (18.1%) patients were readmitted within 30 days of discharge. Of the patients readmitted, the most common reasons for readmission were sepsis (17.5%), and dehydration (8.8%). Multivariate logistic regression found that development of intra-abdominal fluid collections (OR = 5.32, p < 0.0001), new thromboembolic events (OR = 4.08, p = 0.016), and pre-operative BMI (OR = 1.06, p = 0.040) were associated with readmissions within 30 days of discharge.
Conclusion: Our data demonstrates that factors predictive of 30-day readmission are a combination of patient factors and the development of post-operative complications. Rates of readmission can be reduced by taking measures to address these specific issues. Future research will focus on factors that predispose to the development of intra-abdominal collections.

P137
SELECTIVE NEOCROSECTOMY FOR INFECTED PANCREATIC NECROSIS
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Objective: Until recently, a diagnosis of infected pancreatic necrosis (IPN) warranted necrosectomy, which was associated with high morbidity and mortality rates greater than 20%. Our objective was to assess how pre-operative percutaneous drainage changed the management of IPN in this institution in terms of need for necrosectomy and morbidity associated with IPN.

Methods: In 2008 this institution changed its approach to the management of such cases opting instead for percutaneous drainage with selective deferred necrosectomy. A total of 38 consecutive patients with infected pancreatic necrosis from January 2008 to December 2014 were included.

Results: All 38 underwent percutaneous radiological drainage and selective necrosectomy was performed on 15 where the infected necrosis did not completely resolve. 23 patients did not require surgery and were managed with pancreatic drain insertion, optimal nutritional and critical care interventions. Median peak APACHE and SOFA scores were 10 (range 0–18) and 3 (range 0–10) prior to radiological intervention. Overall mortality was 5% (n = 2).

Conclusion: This study demonstrates that radiological guided drainage of infected pancreatic collections can, in most cases, prove curative and, if not, facilitate delayed surgical intervention with improved outcomes.

P138
REAL FIVE YEAR SURVIVAL AFTER RADICAL SURGERY FOR PANCREATIC CARCINOMA: CAN IT BE PREDICTED WITH THE USUAL PROGNOSTIC FACTORS?
E. Vicente, H. Duran, E. Vicente, Y. Quijano, B. Ielpo, R. Caruso, E. Diaz, I. Fabra, L. Malave, V. Ferri, S. Lazzaro, D. Kalivaci, L. Manino and A. Zafra
Sanchoinarro University Hospital, Madrid, Spain
Objective: Surgery of pancreatic adenocarcinoma with curative intent is the only treatment that offer a long-term survival possibility, with a reported 5-year overall survival rate ranging from 15% to 25%. However, it is only an estimation of long term survival in the majority of reports, that could be higher than expected. Our aim is to report the real 5-year overall survival rate based on a large series from a single centre and match it with similar reports.

Methods: This is a retrospective analysis of patients with pancreatic adenocarcinoma presenting with 5-year survival rate after the operation performed between 2004 and 2010. We also performed a review of the literature searching for similar series to compare to.

Results: A total of 128 patients had pancreatic adenocarcinoma resection. Seven patients were lost during the follow up and 4 passed in the early post operative period. The 5-year survival rate of the series is 7.69% (9/117). The analysis of our series and the 8 similar series (388 patients) found in literature shows that some of the well known bad prognostic factors as positive lymph node, poor differentiation grade, R1 resection may be present in these patients. The only bad prognostic factor never present in all patients, including ours, is the post operative AJCC stage III and IV.

Conclusion: Well known bad prognostic factors can be singled-out in patients with actual 5-year survival rates, post pancreatectomy. The only bad prognostic factors are never present are a T4 and/or M1 stage diagnosis.

P139
HIDATID CYSTS OF THE LIVER IN PEDIATRICS POPULATION. EXPERIENCE OF A PUBLIC HOSPITAL
H. Questa, G. berberian and J. Siffredi
National Hospital of Pediatrics Juan P. Garrahan, CABA, Argentina
Objective: Describe hidatics cyst of liver in children’s.

Methods: A retrospective, descriptive and observational study of 23 medical records of patients with liver Echinococcus granulosus infection, treated between January 1993 and June 2016 at the National Hospital of Pediatrics J.P.Garrahan were reviewed. They were diagnosed based on international diagnostic criteria of OMS, which is considered the epidemiology, clinical, typical lesion imaging, pathology, serology, and parasitology.

Results: Of the 23 cases, only 16 patients (69.5%) had hepatic cysts and 7 (30.4%) also presented cysts associated in other sites (lung, spleen, retroperitoneum).

All patients received deworming treatment between 2 and 3 months prior to surgery and 2 months after, except for one patient who did not receive preoperative treatment and received albendazole plus praziquantel postsurgical for cyst breakage. Of the total, 21 patients (91.3%) received surgical treatment, 15 of which (65.2%) were approached by open technique, 5 (23.8%) laparoscopic and 1 (4.7%) by percutaneous puncture (PAIR). We used always laparoscopic control in the surgery. The systematic surgical treatment included percutaneous puncture, aspiration and sending the material to pathology for diagnosis, injection saline solution and re- aspiration, previous marsupialization.

Conclusion: Hydatid disease remains a prevalent disease in our environment and in the pediatric population. The best approach cysts are in the location emerging and in hepatic lateral side segments. Intraoperative ultrasound is useful to confirm the location and assess the relationship with vascular elements.
P140
INCIDENTAL GALLBLADDER CARCINOMA AFTER LAPAROSCOPIC CHOLECYSTECTOMY IN UNIVERSITY HOSPITAL IN PLZEN BETWEEN 2005 AND 2015
V. Treska, J. Fichtl, V. Liska and A. Skalicky
Charles University Prague, University Hospital Pilsen, Pilsen, Czech Republic
Objective: The aim of the study is retrospective analysis of 34 patients who underwent surgery for incidental gallbladder carcinoma after laparoscopic cholecystectomy in University Hospital in Plzen between 2005 and 2015.
Methods: The group of 34 patients after laparoscopic cholecystectomy with accidental carcinoma final histology was analysed. All of them underwent radical cholecystectomy in our institution.
Results: We have 0% postoperative mortality, morbidity was 42%. The most common complication was collection of fluid and right side fluidothorax.
The average 5 year survival was in our group 68%, of course it was dependent on tumor staging.
Conclusion: Due to early stage of malignant disease in accidental gallbladder carcinoma after laparoscopic cholecystectomy the prognosis can be very good if the treatment is radical and is performed in high volume centers.

P141
THE INCIDENCE AND EPIDEMIOLOGY OF GALLBLADDER CANCER IN QATAR
Hamad General Hospital, Doha, Qatar
Objective: To study the incidence and epidemiology of Gallbladder cancer in Qatar.
Methods: This is a retrospective analysis of the cases of gallbladder cancer in Hamad General Hospital in Qatar from 2009 to 2016.
Results: 37 patients presented with gallbladder cancer in the period of the study, 10 females (27%) and 27 males (73%). 14 patients (37.8%) were diagnosed incidentally after laparoscopic cholecystectomy, 16 (43.2%) were diagnosed pathologically, and 4 patients were diagnosed radiologically.
The mean age at the time of diagnosis is 53 years (31–78). 70% of disease occurred in patients less than 60 years old when compared to other age groups. Metastatic disease was discovered in 25 patients (67.6%) versus no metastasis in 12 patients (32.4%). The most common sites for metastasis were the liver (64%), peritoneum (36%), and lymph nodes (36%). Curative resection was done in 9 patients (8-Central resection, 1-Extended right hepatectomy).
Histopathology showed adenocarcinoma in 33 patients (89.1%), neuroendocrine tumor in 3 patients (8.1%) and high-grade dysplasia in 1 patient (2.7%). 33 patients have regular follow up (up to 7 years), with 26 still alive. 4 patients died during follow up with survival after diagnosis from 1 month to 2 years.
Conclusion: In Qatar, due to the unique demographics, gallbladder cancer is more common in males and in younger age groups. Most of the patients present late with metastasis, but curative resection is associated with long-term survival.

P142
CAVOATRIAL THROMBECTOMY FOR ABDOMINAL TUMORS WITHOUT CARDIOPULMONARY BYPASS. SINGLE CENTRE EXPERIENCE AND STATE OF THE ART
Y. Quijano, B. Ielpo, H. Duran, R. Caruso, E. Diaz, I. Fabra, L. Malave, V. Ferri, S. Lazzaro, D. Kalivaci, L. Manino and A. Zafra
Sanchinarro University Hospital, Madrid, Spain
Objective: Surgical resection of a tumor with thrombus formation extending from the inferior vena cava (IVC) to the right atrium can be performed without the use of a cardiopulmonary bypass. However, this technique is not widely known or used by general surgeons. Our aim was to present our single centre experience and a literature review.
Methods: Retrospective analysis of 3 cases with successful cavaoatrial thrombectomy without the use of cardiopulmonary bypass by a transabdominal, transdiaphragmatic, and transpericardic approach. We also performed a review of the English literature of this procedure.
Results: Three cases are presented: right-sided hepatocellular carcinoma, a right renal carcinoma, and a recurrent hepatic hydatid cyst all which required surgery. An approach from the right atrium to the IVC was used, and then, after cavoatrial occlusion, a cavotomy was performed to carry out the thrombectomy. In all cases, a transesophageal echocardiography was performed during surgery. We only found 6 other similar cases that were performed successfully in current medical literature.
Conclusion: Our own experiences and cases identified through a literature review demonstrate that a thrombectomy for IVC thrombus in the setting of abdominal pathology can be performed successfully in selected cases without the support of cardiopulmonary bypass.

P144
COMPARISON OF SPECTRUM OF COMPLICATIONS AFTER PANCREATICODUODENECTOMY IN PATIENTS WITH OR WITHOUT PREOPERATIVE BILIARY DRAINAGE
H. Poudel, T. Yadav, V. Gupta, R. Kochhar, S. Sinha and V. Singh
BPKIHS, Dharan, Nepal
Objective: Preoperative Biliary Drainage had a conflicting role in resectable peripancreatic carcinoma with regard to post-operative complications. The debate has surfaced again with use of neoadjuvant chemotherapy for peri-ampullary tumors. We performed prospective study to evaluate outcomes of surgery in patients who have undergone pancreaticoduodenectomy with or without preoperative biliary stents in terms of morbidity and mortality.
Methods: Patients who underwent pancreaticoduodenectomy with or without PBD were followed prospectively for post-operative morbidity and mortality. Study was done in
P145
MINIMALLY INVASIVE VERSUS OPEN SURGERY IN TREATMENT OF DISTAL PANCREATIC LESIONS
John C. McDonald Regional Transplant Center, Shreveport, LA, USA

Objective: To study and report our result about management of minimally invasive versus open surgery in treatment of pancreatic lesions.

Methods: Patients who underwent minimally invasive distal pancreatectomy (MIDP, n = 56) and matched patients with open distal pancreatectomy (ODP, n = 56) were analyzed retrospectively with IRB approval. Hospital stay, morbidity, professional fee, narcotic dose, mortality and survival were studied.

Results: MIDP were utilized in 56/487 patients with pancreatic lesions and 56 patients with ODP matched for age, sex, race, tumor size, and type of surgery were used for comparison. Malignant lesions accounted for 27 vs. 22 in MIDP vs. ODP group. Patients with MIDP had significantly less blood loss than ODP (239 ± 174 vs 637 ± 622 ml, p-value: 0.007). 14.8% vs 18.2% of patients with MIDP vs ODP had positive resection margin (p-value: 0.75). No differences were identified between OR time, hospital stay, professional fee, narcotic usage, tumor size, stage, morbidity and survival time. The mean survival time was 31.4 ± 25.3 vs 34.4 ± 26.4 months (p-value: 0.74) in malignant patients with MIDP vs ODP respectively. In comparison, patients with pancreatic adenocarcinoma who underwent MIDP vs. ODP had only significantly less estimated blood loss (268.2 ± 115 vs 619.12 ± 611 ml, p-value: 0.033). Mean survival time in patients with pancreatic adenocarcinoma who underwent MIDP vs. ODP was 23.3 ± 2.15 vs 26.2 ± 23.6 months, p-value: 0.75).

Conclusion: Considering the limitation of this study MIDP can be performed safely with significantly lower blood loss compared to open surgery in distal pancreatectomy.

P146
CHOLANGIOCARCINOMA: RESULTS AFTER TREATMENT IN A SINGLE INSTITUTION IN MEDELLIN-COLOMBIA
Jaime Ramirez, Luis Barrera, Camilo Tarazona, Fabio Vergara and Diana Tamayo
IPS Universitaria, Medellin, Colombia

Objective: To describe the clinical and pathological features and prognostic factors and treatment outcomes in patients diagnosed with cholangiocarcinoma.

Methods: Malignant Tumors of the bile duct originate specifically in the epithelium of the gallbladder and bile ducts. They are rare and correspond to 15% of hepatobiliary malignancies. The incidence rate in the United States of America is low, 1–2 cases for every 100,000 citizens, a slightly higher rate than that of Israel and Japan. In Colombia there is insufficient information available and therefore we don’t understand the behavior of the illness among our population.

Observational, descriptive, retrospective research from March of 2011 to March of 2016 of patients diagnosed with cholangiocarcinoma in the service of hepatobiliarypancreatic diseases and transplants by the “IPS UNIVERSITARIA”. The evaluated results included: mortality, survival with surgical management and palliative, time of disease free and prognostic factors.

Results: 109 patients were diagnosed with cholangiocarcinoma, 56 (51.37%) males, 53 (48.62%) females, of which 17 (15.59%) were intrahepatic, 57 (52.29%) hilar and 35 (32.11%) distal. Palliative treatment in 81 (74.31%) patients and surgical treatment in 28 (25.68%), of which 14 (50%) were Whipple and 14 (50%) hepatectomy, being achieved R0 resection in 22 (78.57%) patients and R1 resection in 6 (21.42%). The average overall survival time was 422 days, perioperative mortality of 14.28%.

Conclusion: Cholangiocarcinoma is a complex and aggressive disease with a poor prognosis. Detection among patients in early stages and curative resection offer the best results for survival, though also high rates of morbidity and mortality.

P148
WHEN SHOULD REOPERATIVE INTERVENTION BE CONSIDERED OVER ENDOSCOPIC STENTING IN PATIENTS WITH POST-BILIARY-ENTERIC STRICTURES?
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Objective: Endoscopy is a widely used intervention for benign or malignant biliary strictures. Complete transection of the common bile duct requires a biliary-enteric reconstruction. Subsequent anastomotic stricture can present with repeat bouts of cholangitis and its long term sequelae of cholangiocarcinoma. Distinguishing between benign and malignant strictures may be extremely challenging, given the 5.5% of incidence of cholangiocarcinoma following biliary-enteric anastomosis. This ultimately plays a role in
the treatment options offered, which may include endotherapy and percutaneous transhepatic cholangiography with stenting or a biliary bypass with bile duct resection. The feasibility and lower morbidity of stent placement could potentially obscure the diagnosis of an underlying malignant or pre-malignant process.

Methods: We present a presumptively benign biliary stricture that developed following hepaticoenterostomy for a CBD injury. The patient had repeat bouts of cholangitis requiring an endoscopic stent and PTC drain over the course of one year. Revision of the biliary anastomosis was ultimately performed, and pathological review of the stricture revealed low grade epithelial dysplasia.

Results: In patients with postoperative strictures and repeat bouts of cholangitis, negotiation of the stricture itself is technically challenging due to the angulation and dense fibrous tissue. This may not suggest a malignancy, but having a low threshold to operate may be better substantiated if the malignant potential is considered in select patients.

Conclusion: Although endoscopic therapy of biliary strictures has lower associated morbidity and its availability has increased substantially, definitive surgical intervention has the benefit of resecting imperceptible dysplastic or malignant strictures and may be associated with longer survival.

P149
ARTERIAL SUPPLY TO THE LIVER IN AN UNSELECTED WEST INDIAN POPULATION
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University of the West Indies, St. Augustine, Trinidad and Tobago

Objective: There are many known variations in the arterial supply to the liver. We sought to document the existing variations in an unselected population in the West Indies. This information is invaluable to optimize hepatobiliary services in the West Indies.

Methods: Over 18 months, 205 CT scans were evaluated at a hepatobiliary referral centre in Trinidad & Tobago. We described the arterial supply of the liver using the conventional classification proposed by Michels et al.

Results: In this West Indian population, 112 persons (54.6%) had conventional Type 1 anatomy. The distribution of variants was similar to those described in medical literature. However, we found a significantly greater incidence of type 2 replaced right hepatic arteries in 30/205 (14.6%) persons (P 0.483 and a significantly lower incidence of Type 6 accessory right hepatic arteries in 5 (2.4%, P Value 0.349) of persons. The incidence of the remaining variations was similar to that in medical literature.

Conclusion: Although 54.6% persons in this West Indian population have conventional arterial supply to the liver, the distribution of anatomic variants is quite different to that seen in North American and European centres. We found a higher incidence or replaced right hepatic arteries and a lower incidence of accessory right hepatic arteries. Hepatobiliary surgeons in the West Indies should be cognizant of these differences in order to optimize outcomes.

P150
LIVER TRANSPLANT FOR HEPATOCELLULAR CARCINOMA IN QATAR: AN INITIAL EXPERIENCE
K. Ahmed, W. Elmoghazy, A. Elaffandi and H. Khalaf
Hamad General Hospital, Doha, Qatar

Objective: Liver transplant is the best available option for early unresectable hepatocellular carcinoma (HCC). Liver transplant program in Qatar started by the end of 2011 and has progressed steadily since then, and here we report our initial experience.

Methods: From December 2011 till present, 16 patients were transplanted, 8 of whom had HCC diagnosed on magnetic resonance imaging. Milan criteria was used to select the patients. Patients were divided into two groups: HCC versus non-HCC groups. Data were summarized as mean ± SD. Survival was calculated using Kaplan–Meir curves, and SPSS was used for analysis.

Results: Over the study period, sixteen patients were transplanted with a mean follow-up of 1.5 ± 1.3 years. Twelve patients had HCV infection. Fifteen patients were males with a mean age of 52.6 ± 7.4 years at time of transplant. The average length of stay in the intensive care was 2.1 ± 0.7 days and for hospital stay was 12.5 ± 3.4 days. There was no significant difference in the study groups regarding age, sex, average post-operative stay in intensive care unit and in the hospital and survival. There were no reported cases of vascular or biliary complications in both groups.

One-year and overall patient survivals after liver transplant are 93% and 87%, respectively. No reported cases of HCC recurrence after transplant. One patient was lost from each group.

Conclusion: Despite the initial small number, outcome of transplants is excellent in terms of patient survival, surgical complications and HCC recurrence compared to the international figures.

P151
LIVER WEDGE RESECTION IN GALLBLADDER CANCER. SURVIVAL AND SURGICAL RESULTS
Universidad de La Frontera, Temuco, Chile

Objective: To describe survival and surgical outcomes in terms of postoperative morbidity and mortality of patients undergoing wedge liver resection plus lymphadenectomy between 2008 and 2016.

Methods: Case series of patients undergoing liver wedge resection between 2008 and 2016 at Hospital Temuco and Clinica Alemana Temuco. Biodemographic, surgical and clinical outcome variables were recorded. All patients were evaluated with chest-abdominal-pelvis CT for staging and tumor markers in a multidisciplinary meeting. Descriptive statistics were used measures of central tendency and dispersion.

Results: Total of 22 patients, 21 females and 1 male. Preoperative T stage (TNM): stage T1a (n = 2, both with compromise of Rokitansky Aschoff sinuses), stage T1b
(n = 3), stage T2 (n = 16) and stage T3 (n = 1). Gallbladder biopsy: cystic node compromise (n = 2), vascular infiltration (n = 2), lymphatic infiltration (n = 2) and perineural infiltration (n = 3). Mean of days between cholecystectomy and liver wedge resection was 120 ± 58.3 days. Morbidity: atelectasis (n = 2) and incisional hernia (n = 1). Mean of hospital stay of 4.7 ± 6.36 days. Mean of follow-up of 54.8 ± 41 months. Two patients died.

**Conclusion:** Our results are comparable in terms of morbidity, mortality and survival with national and international series.

![Image](image.png)

**P152**

**LAPAROSCOPIC TOTAL PERICYSTECTOMY: SURGICAL MANAGEMENT FOR HEPATIC HYDATID CYST**

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**Objective:** This report documents the case of a female patient with hepatic recurrent hydatid cyst, managed with laparoscopic total pericistectomy.

**Methods:** 35-year-old female patient which starts 6 previous months with abdominal pain in right upper quadrant of moderate intensity. It irradiates to the right shoulder with no added symptoms. An abdominal ultrasound demonstrates a simple liver cyst of 10 × 10 cm and she receives no treatment. 2 months later she presents liver cyst rupture with anaphylactic shock. She is treated with surgical lavage and unroofing of the cyst. Final pathology reports a ruptured hydatid liver cyst. The patient receives oral albendazol for three months.

On clinical 6-month follow-up the patient is asymptomatic. The abdominal US shows a recurrent cyst of 7 × 6.5 cm that occupies the right hepatic lobe (segment 7 and 8) (Fig. 1).

**Results:** Because of the high risk of rupture, a laparoscopic pericystectomy and lavage with hypertonic saline solution was performed without procedure complications (Fig. 2). Postoperative examinations confirm the diagnosis (Fig. 3).

**Conclusion:** Currently, hepatic hydatid cyst with surgical indications are treated more successfully with radical surgery (total cystectomy) vs conservative surgery (unroofing, partial excision, surgical drainage). Morbidity rates of radical treatment vs conservative approach are 3−24% vs 11−25% respectively. The rates of mortality range from 1−1.8% vs 2−5%, and the recurrence rates are 2−6.4% vs 10.4−40%. The laparoscopic approach represents a safe and effective management. It doesn’t increase morbidity or mortality and it reflects already known advantages of laparoscopy.

![Image](image.png)

**P153**

**OBSTRUCTIVE JAUNDICE AND LOW CEA PREDICT NON-METASTATIC PANCREATIC ADENOCARCINOMA AT A MEDIUM SIZED HOSPITAL**

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**Objective:** Survival after the diagnosis of pancreatic adenocarcinoma is dismal. Pancreatic head tumors are more likely to be resectable at the time of diagnosis, likely due to the presentation with obstructive jaundice. However, most data regarding presentation for patients with pancreatic cancer were reported from tertiary centers. This study was undertaken to delineate the most predictive pattern at presentation for patients with non-metastatic (e.g. potentially resectable) pancreatic adenocarcinoma compared to patients with metastatic pancreatic adenocarcinoma who present to a medium sized hospital.

**Methods:** Data were collected at a medium sized hospital from 2009−2014 for patients with newly diagnosed pancreatic adenocarcinoma. Laboratory values (e.g. total bilirubin, CEA, CA 19-9), CT scans, pathology reports and ERCP results were obtained. Data are presented as median.

**Results:** Thirty-three patients were found to have newly diagnosed pancreatic adenocarcinoma. Patients with non-
metastatic disease were significantly more likely to present with a pancreatic head tumor (13/17 patients, 76%) compared to patients with metastatic disease (4/16 patients, 25%), p < 0.01. Patients with non-metastatic disease at presentation did have a significantly higher bilirubin (10.8 mg/dL vs. 0.9, p < 0.05) and lower CEA (6.0 vs. 23.4 ng/mL, p < 0.04). However, CA 19-9 did not show significant predictive value in metastatic vs. non-metastatic disease (4,591 vs. 468 U/mL, p = NS).

**Conclusion:** Pancreatic head masses were highly associated with non-metastatic pancreatic adenocarcinoma likely as a result of earlier diagnosis. An elevated bilirubin and low CEA is more predictive of non-metastatic disease than CA 19-9 at presentation.

P155
HEPATIC INTRADUCTAL ONCOCYTIC PAPILLARY NEOPLASM MASQUERADING AS A HEMANGIOMA: A CASE REPORT
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**Objective:** Intraductal oncocytic papillary neoplasm (IOPN) of the liver is a rare morphological variant of intraductal papillary mucinous neoplasm (IPMN) with malignant potential. To the base of our knowledge, less than 10 cases of hepatic IOPN have been reported.

**Methods:** The authors present a case of a symptomatic 51-year-old male with a CT and MRI findings of a 4.4 x 3.7 x 4 cm lesion in the left liver compatible with a hemangioma. A follow up CT after 3 months showed increase in size of the lesion to 4.4 x 4 x 4 cm. Tumor markers were within normal limits.

**Results:** Patient underwent a left lateral sectionectomy. Final pathology revealed a 5 x 4 x 2.5 cm cyst filled with mucinous material. Microscopic examination showed multicystic cystically dilated ducts with an intraductal arborizing complex papillary proliferation (Image 1). The lining of the epithelium was oncocytic with intracytoplasmic mucinous vacuoles in some areas (Image 2). There was focal extravasated mucin within the stroma and associated stromal reaction without evidence of stromal invasion. A final pathologic diagnosis was IOPN of the liver with high grade dysplasia.

**Conclusion:** The patient recovered well after surgery. The oncocytic variant can be distinguished from biliary cystadenoma and cystadenocarcinoma by the lack of ovarian stroma and presence of prominent oncocytic epithelium. Although most reported cases of IOPN usually result in a benign course following resection, 2 deaths have been described due to progression of IOPN to oncocyic biliary cystadenocarcinoma with associated peritoneal dissemination. This shows the need for consideratin of IOPN in the differential of liver cystic lesion, and for surgical intervention.

P156
COIL EMBOLIZATION OF BLEEDING ILEAL CONDUIT VARICES
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**Objective:** Varices are a common complication of liver cirrhosis with portal hypertension. Typically, are found in gastro-esophageal region. Ectopic bypasses such as stomal varices cause only 15% of all variceal bleeding. The scarce case reports in the literature unanimously recommend Transjugular Intrahepatic Portosystemic Shunt (TIPS). However, this reduces hepatic clearance leading to hepatic encephalopathy. We present successful percutaneous transhepatic endovascular embolization (PTEE) without TIPS.

**Methods:** Case report with literature review. We present the case of a 55-year-old woman with copious, recurrent ileal conduit bleeding from stomal varices. Bleeding was successfully managed by PTEE. In view of absence of clinically significant other varices or ascites, attempts were made to visualize the peristomal varices with an 8–12 MHz linear array ultrasound probe Even though the presence of
varices around the stoma where established they were not accessible for cannulation. A percutaneous transhepatic access to the right porta hepatis using AccuStick Kit was obtained. This led access to the portal vein and from there to the superior mesenteric vein. Venography confirmed the position of the varices, which then were coil embolized successfully using Tornado coils time 6.

**Results:** Following successful coil embolization, she was observed post procedure in the hospital for 2 days and subsequently discharged. She did not have further bleeding or ischemic complications and has been event free for the last 4 months.

**Conclusion:** Although rare, when a patient with ileal conduit stoma, hepatic dysfunction, and recurrent episodes of macrohaematuria, bleeding peristomal varices should be considered. Percutaneous transhepatic endovascular embolization is a reasonably good approach.

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**P157**

**PERCUITANEOUS STENTING FOR TRANSHEPATIC CHOLANGIOJEJUNOSTOMY**

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**Objective:** To describe a new technique that can be used for palliative treatment for unresectable cholangiocarcinoma.

**Methods:** The procedure was performed on a patient with recurrence of IC after two years of a left hepatectomy. Since it was a case of advanced disease with no possibility of resection, we performed a modified Longmire procedure (intrahepatic cholangiojejunostomy). Levels of bilirubin remained elevated after the surgical procedure, we decided to associate an internal drainage using a stent promoting jaundice relief using the preview modified Longmire procedure.

**Results:** Patient remained jaundice free until she died of other complications of the disease after 04 months. During this period of time patients presented normal levels of bilirubin. Did not present acute cholangitis and referred better quality of life since she did not have external drains.

**Conclusion:** We conclude that this technique can be an alternative palliative treatment for patients with advanced cholangiocarcinoma or even in cases of complex benign strictures of the biliary tree.

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**P158**

**LAPAROSCOPIC CHOLECYSTECTOMY RETROSPECTIVE STUDY OF 1423 CASES**


Military Hospital of Oran, Oran, Algeria

**Objective:** The aim of this study was to analyze the frequency, the conversion rate, the rate of injuries of the bile duct and the morbidity and mortality.

**Methods:** This is a retrospective study of 1423 patients operated by laparoscopy for symptomatic gallbladder stones and cholecystitis, over a period stretching from 2005 to 2016.

**Results:** The conversion rate in our series is 8.87% (98 patients) the causes of the conversion is in large part related to difficult dissection unrecognizable anatomy usually related to acute cholecystitis with pediculite. Laparoscopic uncontrolled bleeding during surgery trauma of suspicion of the bile duct, the level of surgeon experience and latest technical and material factors. The trauma of the rate of bile duct is 0.35% of our entire series.

06 patients had trauma to the bile duct, 04 women and men on February 1. We had a patient in 2005 and 2006, 1 patient in 2008, 1 patient in 2010, and 1 patient in 2013 a patient in 2015.

**Conclusion:** Objective assessments enable self-criticism as well as insurance and accreditation for the development of this technique.

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**P159**

**IMPACT OF HOSPITAL VOLUME ON PATIENT OUTCOME POST PANCREATICODUODENECTOMY IN TWO DIFFERENT ERAS, A SINGLE INSTITUTIONAL EXPERIENCE**


Hamad General Hospital, Doha, Qatar

**Objective:** Pancreaticoduodenectomy is a complex procedure. Both short and long-term outcomes strongly depend on the cumulative number of cases per institute. Our primary endpoint is to study the difference in patient outcome between two eras and secondary endpoint to compare it to international standards in high volume centers.

**Methods:** A retrospective analysis of all the patients undergoing PD at Hamad General Hospital (HGH) during the period between 2003 and 2016 was done. The collected data was further subgrouped into two different eras. Group A included PD between 2003 and 2013 and Group B between 2014 and 2016.
**Results:** Between 2003 and 2016 a total number of 29 patients underwent PD (Group A 14, Group B 15). The mean intraoperative blood loss and blood transfusion improved in Group B (686.7 mL Vs 728.5 mL), However the mean operating time showed no difference in both groups (448.5 minutes for group A Vs 508 for group B). Increased procedural volume in Group B has led to shorter hospital and ICU stay (12.9 and 1.47 Vs 20.1 and 4.8 days respectively). Lower incidence of delayed gastric emptying and pancreatic fistula was observed in Group B (13.3% and 0% versus 21.4% and 14.2% respectively). Post PD hemorrhage was similarly recorded in both groups. Finally, the mortality rate dropped from 7% in Group A to 0% in Group B.

**Conclusion:** The two-time eras compared showed improvement in the outcome falling within accepted international standards. Multidisciplinary team approach supported by institutional resources had strong positive influence on patient outcome.

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**P160**

**LEFT LATERAL LAPAROSCOPIC SEGMENTECTOMY. INITIAL EXPERIENCE**

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**Objective:** To describe the indications and outcomes in terms of morbidity and mortality in a serie of patients who underwent left lateral segmentectomy laparoscopically between 2014 and 2016.

**Methods:** Serie of cases with patients undergoing left lateral laparoscopic segmentectomy between 2014 and 2016 at Hospital Temuco and Clinica Alemana Temuco. Biodemographic, surgical and clinical evolution variables were measured. Descriptive statistics were used with measures of central tendency and dispersion.

**Results:** Our serie has 14 patients. Mean of age 57 ± 12 years. Eight female patients and 6 male patients.

Indications were hepatolithiasis associated to Caroli disease (n = 4), hepatolithiasis without Caroli disease (n = 4), metastatic colorectal cancer (n = 3), metastatic breast cancer (n = 1), hydatidic liver disease (n = 1) and complicated simple liver cyst (n = 1).

Mean operating time was 180 ± 23 minutes. Mean length of stay was 4.3 ± 3 days. Total of patients (n = 4) with oncologic resections were considered as R0. In this serie, 1 patient was converted to open surgery by injury of the left hepatic vein and CO2 suspected embolism.

Morbidity in 2 patients: a biliary fistula and atelectasia. Regarding the severity of the disease according to the classification of Clavien and Dindo they were classified as I and II. There was no mortality.

**Conclusion:** In this first serie of left lateral laparoscopic segmentectomy the results are comparable in terms of morbidity and mortality with national and international serie.

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**P161**

**PORTAL HYPERTENSION AND ASCITES SECONDARY TO A SPONTANEOUS SPLENIC ARTERIOVENOUS FISTULA: CASE REPORT**

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**Objective:** Portal hypertension is a result of chronic liver disease in the majority of cases. We present a rare case of a spontaneous splenic arterio-venous fistula (AVF) causing portal hypertension and ascites in a 56-year-old male.

**Methods:** This patient presented with a 3-week history of abdominal pain, distension, fatigue. CT showed a focal saccular splenic artery aneurysm with a fistula to the splenic vein (Image 1). There was evidence of portal hypertension with ascites and splenomegaly on the scan.

**Results:** Patient was taken to the IR suite for splenic embolization. Pre-embolization arteriogram was obtained (Picture 2). Due to the size of the vessels and the brisk flow, a 1 cm Amplatzer vascular plug was deployed to embolize the distal aspect of the splenic artery at the level of the fistula. Then multiple interlock coils were deployed for further embolization of the distal splenic artery. Arteriogram after embolization was obtained (Picture 3). CT obtained on postoperative day 1 showed splenic infarction along with nonocclusive thrombus of the splenic vein and portal vein (Image 4). After anticoagulation therapy, 4 month follow up CT showed resolution of the thrombus (Image 5).

**Conclusion:** Spontaneous splenic AVF are rare occurrences that can lead to portal hypertension. Splenic embolization seems to be a safe and effective first line treatment in these cases.

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![Image 1 Arterial phase CT showing contrast passing into splenic vein (red arrow).](image-url)
Objective: Colorectal liver metastases (CRLM) has a relatively high affinity, and sometimes is accompanied by biliary invasion. Generally, small nodular CRLM is indicated for RFA. On the other hand, it was reported that CRLM with biliary invasion requires hepatectomy with enough surgical margin. Therefore, accurate diagnostic imaging on the presence or absence of biliary invasion is important for the appropriate therapeutic choice for CRLM.

Methods: A 30-years-old man who underwent a sigmoidectomy and systemic chemotherapy for sigmoid colon cancer with simultaneous multiple liver metastases. Then, we planned Surgery for remaining multiple CRLM. Preoperative CT and MRI showed multiple CRLM with no biliary invasion. We performed contrast enhanced ultrasoundography (CEUS) preoperatively for further evaluation.

Results: CEUS revealed contrast defect in bile duct (B2 + 3) from portal to Kupffer phase and it was suspected to be a biliary invasion. Therefore, we performed left lobectomy of the liver and it was demonstrated that the lesion was accompanied by biliary invasion in histopathological examination.

Conclusion: Although CT and EOB-MRI are goes up to the candidate in the modality to diagnose the CRLM with biliary invasion, they sometimes can’t reveal presence of the lesion with biliary invasion, let alone the area of biliary invasion. Preoperative and intraoperative CEUS are very useful not only to diagnose the presense and the area of biliary invasion, but also to select appropriate therapeutics for CRLM.
P163
A STUDY OF ANATOMICAL VARIANTS AND CONGENITAL ANOMALIES OF THE BILIARY TREE IN A CARIBBEAN POPULATION
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Objective: To familiarize the viewer with normal biliary anatomy and to analyze the variants of the biliary anatomy within a Caribbean population.

Methods: A review of all MRCP procedures done at a large tertiary institution from April 31st, 2013 to March 31st, 2014.

Results: Of 82 examinations analyzed, 59 (72%) demonstrated type A (normal) biliary anatomy. 18% demonstrated type B (trifurcation/triple confluence of the ducts) anatomy. 6% demonstrated the C (RP drains directly into the left hepatic duct) and 4% demonstrated type D (RA drains directly into left hepatic duct).

Conclusion: Despite a wide variety of ethnic groups in Trinidad and Tobago the majority of patients demonstrate normal biliary anatomy. However a significant proportion (18%) demonstrate triple confluence/trifurcation variant of their biliary anatomy.

P164
AN ANATOMIC STUDY OF ACCESSORY SULCI ON THE VISCERAL SURFACE OF THE LIVER
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Objective: To provide an overview of the anatomical variations that exist on the inferior surface of the liver in Caribbean populations.

Methods: Two investigators independently observed 69 cadaveric dissections over five years and described the variations in surface anatomy.

Results: In this population 88% of cadaveric livers had conventional hepatic surface anatomy. However 12% had accessory sulcus present on the visceral surface of the liver, with a 7:1 male preponderance. When present, there was 100% correlation between the presence of Rouviere’s sulcus and the right branch of portal pedicle.

Conclusion: Abnormal surface anatomy is present in 12% of unselected specimens in this Caribbean population. Interventional radiologists and hepatobiliary surgeons practicing in the Caribbean must be cognizant of these differences in order to minimize morbidity during invasive procedures.

P165
ENDOSCOPIC OR PERCUTANEOUS PALLIATIVE TREATMENT IN MALIGNANT OBSTRUCTION OF BILIARY DUCT
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O. Arias and L. Burgos
Universidad de La Frontera, Temuco, Chile

Objective: To describe the indication, type of palliative treatment and overall survival in malignant bile duct obstruction.

Methods: Retrospective cohort study of patients undergoing palliative treatment for malignant bile duct obstruction between 2009 and 2016 in Clinica Alemana de Temuco. Biodemographic variables, morbidity and overall survival were measured. Descriptive statistics were used measures of central tendency and dispersion.

Results: Total of 41 patients, 60.9% (n = 25) were male. Mean of age 70.6 ± 12.4 years. Diagnosis: 12 patients with gallbladder cancer, 12 patients with biliary tract cancer, 14 patients with pancreatic cancer and 3 patients with papillary tumors. Type of intervention performed: 35 patients underwent endoscopic stent installation. Six patients required percutaneous external biliary drainage. Of these 6 patients, 3 patients required internal/external biliary drainage. Morbidity: 2 patients developed acute pancreatitis after endoscopic cholangiography, and 1 patient developed an hepatic subcapsular hematoma after installation of a percutaneous stent. Mean of follow-up of 24 ± 20.5 months, 26 patients died during the follow-up period.

Conclusion: We found similar results as international literature in terms of morbidity and mortality.

P166
SURGICAL MANAGEMENT FOR NON-INVASIVE MUCINOUS NEOPLASIA: CASE-REPORT
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Objective: To present the case of a total resection for Non-Invasive mucinous neoplasia previously treated as a simple hepatic cyst.

Methods: 65-year-old woman who is incidentally diagnosed with a simple hepatic cyst in the IV liver segment of 7.7 × 7.3 cm. Two previous years she presents epigastric abdominal pain and hyporexia. Two percutaneous liver cyst are performed with clinical recurrence of the cyst and symptoms. A laparoscopic unroofing and lavage of the cyst is performed. Postoperative examination of the cyst demonstrated a Non-Invasive mucinous neoplasic and a reintervention is performed. The surgery is initiated by laparoscopy but it presents adhesions that lead to conversion of it. The lesion is enucleated without complications. The final pathology report confirms the diagnosis.

Results: The patient shows no clinical or radiologic recurrence one year after surgery.

Conclusion: Cystic tumors of the liver are presented in 5—10% of population. Non-Invasive Mucinous Neoplasia previously known as cystadenoma represents 5%. The main associated symptoms are abdominal pain, hyporexia, and abdominal mass. Surgical complete excision is mandatory for the malignant potential.

Radiology advances for studying hepatic lesions are highly important for the appropriate initial diagnosis for cystic lesions and determining the initial management according to clinical suspicion. The surgical treatment for Non-Invasive Mucinous neoplasia is feasible with a laparoscopic approach with low morbidity rates. Surgical complete excision or enucleation are mandatory, and have
the same long-term results. The surgical approach is chosen by patient characteristics and lesion localization. Central tumors with vascular involvement or biliary structures will be favored by enucleation.

P167

PANCREATIC TUBERCULOSIS

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Objective: Use of Endoscopic Ultra Sound (EUS) and histological and cytological examination of pancreatic lesion can help identifying pancreatic TB and avoid unnecessary surgical procedures.

Methods: We retrospectively reviewed the charts of all patients presenting with a pancreatic mass over a period of 3 years (2007–2009). We identified 6 patients with proven diagnosis of TB. The data pertaining to demographic features, sign and symptoms, duration of illness, imaging (X-ray chest, ultrasonography [US], contrast enhanced CT scan), cytology and/or histopathology, and follow up with anti tuberculous therapy (ATT) were obtained. The samples for cytology and/or histology were obtained by US guided aspiration. The histological findings of granuloma with caseation or positive culture were used as the criteria for confirming the diagnosis of TB.

Results: * Cases of pancreatic TB were identified, diagnosed and successfully treated.

Conclusion: Isolated pancreatic TB can occur especially in endemic areas. In any patient presenting with a pancreatic mass suspicious for carcinoma, EUS and FNA should be performed in order to confirm malignancy and to rule out benign conditions, like TB, that can be treated medically and hence, avoid unnecessary surgical procedures.

P173

IMPLEMENTING FRAILTY ASSESSMENT OF ELDERLY PATIENTS UNDERGOING PANCREATECTOMY

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Objective: To implement an efficient and proactive frailty assessment tool to help identify which patients are fit for surgery.

Methods: Two frailty metrics-based assessment tools are utilized in the preoperative setting to evaluate patients over age 50, undergoing pancreatectomy for pancreas cancer. The first assessment tool is a questionnaire designed to subjectively evaluate physical and cognitive performance related to everyday life activity. The second assessment tool is a physical evaluation conducted by any clinic staff member in which the patient is scored on his or her ability to complete and speed in performing the following exercises: standing stability, semi-tandem standing, tandem standing, gait speed and chair standing.

Clinic staff underwent training at an in-service. Clinic staff rehearsed the physical portion of the test, timed the test and documented the results at the training session. Laminated pocket cards with reminders to assess patients for frailty were given to clinic staff.

Post clinic huddle included hand off of the completed questionnaires and confirmation of documentation of results in the chart.

Results: A reasonably wide distribution of frailty scores was seen amongst patients tested. Only a small minority of patients were unable to complete the test.

Conclusion: We are all aware that readmission is believed to be an indicator of suboptimal care. This tool can be easily integrated into existing workflow patterns and efficiently identifies patients with declining functional status. Further research will need to be conducted to determine if the tool can function as an accurate predictor of surgical outcomes.

P174

LIVER TRANSPLANT FOR HEPATOCELLULAR CARCINOMA ASSOCIATED WITH VERY HIGH SERUM ALFA-FETOPROTEIN

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Objective: Selection of patients with hepatocellular carcinoma (HCC) for liver transplant is still debatable. Milan criteria remain the gold standard. However, some centers consider biological behavior of HCC, as reflected by serum Alfa-fetoprotein (AFP), in patient selection. AFP higher than 400 IU/mL was considered as an exclusion criterion. Here, we present a case of HCC associated with very high
levels of AFP that had loco-regional treatment followed by liver transplant with no tumor recurrence 24 months post-transplant.

Methods:

Results: This is a case of a 55-year-old male who had end-stage liver disease due to Hepatitis C Virus (HCV) infection since 2008, and was treated with ribavirin and interferon. He was diagnosed with HCC lesion 2.6 cm in the maximal diameter in April 2014. AFP was 341 IU/mL that jumped to 2599 IU/mL. He underwent transarterial chemoembolization that showed a dramatic drop of AFP down to 21 IU/mL after six weeks.

The patient was listed for liver transplant as HCC was within Milan criteria. He underwent liver transplant in September 2014 when AFP was 9 IU/mL. He had an uneventful liver transplant with uncomplicated post-operative course and was discharged in a good condition on the twelfth post-operative day.

Serial follow-up of the patient with dynamic magnetic resonance imaging and serum AFP for 24 months post-transplant showed no recurrence of HCC with normal levels of AFP.

Conclusion: Exclusion of patients based on their initial serum Alpha-fetoprotein levels at time of diagnosis of HCC could preclude patients with potentially favorable outcome.

P175
CONSECUTIVE SERIES OF LIVER RESECTIONS. ANALYSIS OF MORBIMORTALITY IN A NEWLY CREATED CENTER

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Objective: To analyse consecutive cases of liver resections and their morbimortality in a developing center.

Methods: Between June 2014 and September 2016 62 liver resections were performed in 59 patients. The most frequent indications were hepatic metastases in 22 cases (35.5%), hepatocellular carcinoma in 11 (17.7%), intrahepatic cholangiocarcinoma in 10 (16.1%), benign disease in 9 (14.7%), and others in 12 cases. Complications were stratified by Dindo-Clavien classification.

Results: 50% of the patients were men, mean age was 51.2 years (r 16-77), 32% were major resections (more than 3 segments), multivisceral resections were associated in 6 patients, and partial vascular exclusion (Pringle’s Maneuver) was performed in 3 patients. During surgery 17 patients needed blood transfusion. The surgical average time was 225 min (r 60-450), UCI stay was 2.6 days (r 0-12), average hospital stay was 7.5 days (r 2-32). Morbidity was 27.1% (17 cases), being Dindo-Clavien > IIIrd 19%. Mortality during hospital stay was 0%. Morbidity was higher in those patients who received blood transfusion (p < 0.001). Blood transfusion was more required in patients who needed major surgery, multivisceral resections and prolonged surgical time.

Conclusion: Liver resection can be performed with a low rate of morbimortality at centers with suitable infrastructure and surgical units specialized in treatment of hepatic pathology.

P176
PANCREATOJEJUNOANASTOMOSIS WITH BLUMGART TECHNIQUE FOR RECONSTRUCTION POST-PANCREATODUODENECTOMY

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Objective: To determine the incidence of pancreatic fistula and its treatment in a series of patients who underwent pancreatojejunostomy with Blumgart technique for reconstruction post-pancreatoduodenectomy.

Methods: Series of patients who were undergone pancreatoduodenectomy between 2005 and 2016 at Hospital Temuco and Clinica Alemana Temuco. Biodemographic variables were recorded, clinical morbidity and mortality. Descriptive statistics were used and measures of central tendency and dispersion.

Results: Total of 18 patients, 55.5% (n = 10) were male. Mean of age 59 ± 8.9 years, 50% (n = 9) with a history of cholecystectomy. The indication for surgery was oncologic resection in all patients and the most frequent diagnosis was periampullar tumour (66.6%). Six patients were reconstructed with Blumgart technique and only one had pancreatic fistula type A and was treated conservatively. Of the other 12 patients who were primarily reconstructed with pancreatogastrostomy (7 patients), 6 had pancreatic fistula and in 3 of them was used Octeotride as medical treatment and 2 required reoperation (pancreatic fistula type C). Mean of hospital stay of 29.3 ± 20.2 days and mean of follow-up of 32 ± 31 months. Three patients died in this series.

Conclusion: We found similar results in national and international studies in terms of pancreatic fistula after pancreatoduodenectomy for reconstruction with Blumgart technique.

P177
RARE NEURONAL TUMORS MASQUERADING AS NEUROENDOCRINE TUMOR AND GIST TUMOR: 2 CASE REPORTS

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Objective: Paragangliomas are rare tumors derived from neural crest cells in sympathetic or parasympathetic ganglia. Ganglioneuroblastomas are types of neuroblastic tumor derived from tissues of the sympathetic nervous system. To the best of our knowledge, there have been only a few case reports of gangliocytic paragangliomas of the duodenum and no reported cases of ganglioneuroblastomas of the pancreas.

Methods: The authors present 2 cases of rare neuronal tumors of the duodenum and pancreas. The first is a 38-year-old male with an incidental finding of a submucosal periampullary mass and enlarged lymph node (LN) during surveillance EGD/EUS. Biopsy of the mass was negative for malignancy while LN biopsy revealed a well differentiated neuroendocrine tumor.

In the second case, 48-year-old male was discovered to have a 2.8×3×3 cm mass in the second/third portion of
the duodenum. EUS/FNA showed uniform spindled cells with a fascicular growth pattern suggestive of a GIST.

**Results:** Both patients were taken to surgery. The first underwent a pylorus-sparing pancreaticoduodenectomy (PPPD). Tumor involved the peripancreatic/periduodenal retroperitoneal soft tissues, pancreas, duodenum, ampulla of vater and 20/33 LNs positive. Final pathology revealed a ganglioneuroblastoma (Images 1 and 2). In accordance with the International Neuroblastoma Staging System, the tumor was staged at IIB.

The second patient underwent a Whipple procedure. Subsequent pathology revealed gangliocytic paraganglioma (Image 3), 3/28 LNs positive.

**Conclusion:** Both patients did well after surgery. Gangliocytic paragangliomas and ganglioneuroblastomas should be kept in the differential in malignant appearing duodenal and pancreatic lesions, respectively.

**P179 INVASIVE ADENOCARCINOMA IN INTRADUCTAL PAPILLARY NEOPLASM OF THE BILE DUCT**

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**Objective:** To describe a rare variant of intraductal papillary neoplasm of the bile duct (IPNB) with invasive adenocarcinoma.

**Methods:** 61-year-old nonverbal female with learning disability presented 7 months previously with jaundice, total bilirubin of 7.3 mg/dl, dilated intrahepatic and extrahepatic bile ducts. Endoscopic Retrograde Cholangiopancreatography (ERCP) was attempted but failed to cannulate the Ampulla of Vater. Jaundice completely resolved a month later. Five months later, she returned with recurrent jaundice with elevated bilirubin to 8. Percutaneous-transhepatic drain was placed. Endoscopic Ultrasound showed choledocholithiasis, a 25 mm dilated...
common bile duct (CBD) and no evidence of neoplasm in the bile duct, duodenum or pancreas. A laparoscopic cholecystectomy, CBD exploration and possible choledochoduodenostomy were decided on. Intra-operatively, choledochotomy was performed, multiple stones and mucoid material extracted from the supraduodenal bile duct and choledochoscopy showed a distal retro-duodenal CBD with intraluminal papillary tumor projections and an inflamed common hepatic duct with no tumor. Frozen section biopsy showed invasive adenocarcinoma. The choledectomy was closed and cholecystectomy done. Staging Magnetic Resonance Imaging (MRI) showed no evidence of metastasis or vascular invasion. Pancreatoduodenectomy was performed 3 days later. She was discharged on postoperative day 10 in good condition.

**Results:** The distal CBD tumor measured $3 \times 1 \times 1.5$ cm. Consisted of IPNB with pT1 N0 grade-1 well-differentiated invasive adenocarcinoma. Surgical margins were negative. **Conclusion:** We are reporting a case of invasive carcinoma in IPNB in a non-verbal patient. Pancreatoduodenectomy after a preceding incidental intraoperative diagnosis was performed. A high index of suspicion on finding intraluminal papillary growths in the distal CBD was key to diagnosis.

**P180**

**THE THREE REASONS TO USE Y90 RADIOEMBOLIZATION: A NOVEL ADJUNCT TO SURGERY**

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**Objective:** Y90 radioembolization has been used for treatment of colorectal liver metastases (met CRC). We propose three novel reasons to use Y90 in a patient with met CRC.

**Methods:** This is a descriptive study of a retrospective review of our experience with Y90 radioembolization over a 11-year period. In reviewing the data from these patients, the authors aimed to identify major themes into which the treatment algorithm fit into.

**Results:** In reviewing our data, there were three major reason for use of Y90 radioembolization:

1. Downstaging of lesions that were unresectable.
2. Complete treatment of small lesions that would not result in pathologic complete remission with chemotherapy alone.
3. Treatment of ipsilateral liver to cause hypertrophy of the contralateral liver.

**Conclusion:** We present a novel algorithm for the use of Y90 radioembolization by placing the intent to treat into three distinct subcategories. Using these reasons for initiating Y90 radioembolization will aid in the treatment of met CRC patient with the intent to cure.

**P181**

**SYMPTOMATIC PANCREATIC SARCOIDOSIS**

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**Objective:** Report the case of a female patient with symptomatic pancreatic sarcoidosis.

**Methods:** Case Report.

**Results:** A 65-year-old female was referred for the evaluation of severe fatigueability, poor appetite, weight loss over the past two months and abdominal pain. She denied smoking cigarettes or alcohol intake. A review of systems was unremarkable. Her physical exam revealed the abdomen was soft, non-distended and non-tender with normal liver and spleen span. She presented with leukopenia, hypercalcemia, elevated liver enzyme and elevated alkaline phosphatase and an elevated erythrocyte sedimentation rate.

An abdominal CT scan demonstrated a pancreatic head mass with retroperitoneal lymph node enlargement Magnetic resonance cholangiopancreatography (MRCP) and endoscopic retrograde cholangiopancreatography (ERCP) were not performed. A CT scan guided pancreatic mass biopsy was performed with uncertain results. Laparoscopic pancreatic biopsy demonstrated noncaseating granulomas with Langerhan giant cells and fibrosis. Both an acid fast bacilli stain and gram stain for a fungal infection were negative. The patient presented elevated Angiotensin converting enzyme levels. Oral prednisone 40 mg daily for 7 days followed by a 7 week tapering schedule was initiated. The patient’s signs and symptoms improved abdominal CT scan 6 weeks after treatment revealed no change in the size of the pancreas and peripancreatic lymph nodes. After 8 week of prednisone she remains clinically stable without any abnormal laboratory parameters.

**Conclusion:** Sarcoidosis is a chronic multiorgan disease that uncommonly involves the pancreas. Pancreatic involvement is usually asymptomatic and discovered on autopsy. However, doctors should be cognizant that sarcoidosis can present with symptomatic pancreatic mass, albeit rarely.
P182
LIVER ABSCESS AND PERCUTANEOUS MANAGEMENT
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Objective: To describe the characteristics of liver abscesses, bacteriology and evaluate the results of percutaneous drainage.
Methods: Retrospective observational study, were included 23 patients with liver abcess, hospitalized and underwent percutaneous drainage, in the Hospital de Clinicas (University school hospital) FCM- UNA, from June 2014 to June 2016.
Results: They were located in the right lobe 82.6%, cryptogenic were 26%, 21.7% biliary caused by bacteremia 17.4%, 13% diverticulitis, liver cyst infected 13%, gastric fistula 4.3 % and colon cancer 4.3%, the culture was positive in 69.56%, Klebsiella was isolated in 17.3%, it was found in 95.6% leukocytosis and elevated alkaline phosphatase in 69.56%. The result was satisfactory drainage in 82.6%, with the placement of a single catheter. The average length of stay was 19.3 days and mortality was 4.3%.
Conclusion: Most abscesses were located in the right lobe and the most frequent cause was cryptogenic. The most frequently isolated germ was Klebsiella pneumoniae. Percutaneous drainage was successful in most patients and the mortality round was low. Percutaneous drainage is a simple and safe technique, which could now be considered the “gold standard” in the treatment of liver abcesses.

P183
LAPAROSCOPIC LEFT LATERAL SECTIONECTOMY FOR LOCALLY LIMITED CAROLI DISEASE
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Objective: present a case of locally limited caroli’s disease and it’s treatment.
Methods: Case Report.
Results: Caroli’s disease is an autosomal recessive disease characterized by nonobstructive dilatation of the intrahepatic bile ducts. It can affect the entire liver or a single lobe. Clinically it produces recurrent cholangitis and can be associated with hepatolithiasis. Monolobar disease can be resolved by hepatectomy and bilobar disease may require liver transplantation.
45-year-old male patient was hospitalizated in the Hepatology, Liver Transplant and HPB surgery department of Clinica de Nefrologia, Urologia y Enfermedades Cardiovasculares. It was the third episode in his life. All episodes were characterized for abdominal pain, jaundice and fever. His physical exam revealed The abdomen was distended and tender. He presented with leukocytosis, elevated liver enzyme an elevated alkaline phosphatase. Abdominal Ultrasound showed dilated left sided bile ducts. MR examination was carried out showing; numerous widening of intrahepatic biliary ducts of the left hepatic lobe with the presence of deposits in them. In angio-CT, no anatomical vascular anomalies were found. After surgical consultation, the patient was qualified for laparoscopic left lateral sectionectomy. We used the ligasure atlas for parenchymal resection, and linear vascular staplers for bile duct and vascular control. The patient was discharged from hospitalization on 3rd day after surgery in a good general condition, without pain, without clinical and laboratory symptoms of infection and cholestasis.
Conclusion: Laparoscopic Liver resection it’s a safe treatment for limited Caroli’s disease.

P184
HEPATIC HYDATID CYST RUPTURED INTO THE BILIARY TRACT: ABOUT 2 CASES
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Objective: We received two patients with a ruptured liver hydatid cyst in the bile ducts the first patient admitted through the urgency presenting an infectious table i.e. pain with fever and the second allowed a patient who presented with conjunctival jaundice pain right lypocondre.
Methods: The diagnosis was made by abdominal CT in the first patient objectifying a huge hydatid cyst type 3 taking the segment 4 and 5 of the liver with the expansion biliiare main route requiring an MRI bili showing the existence of a cyst communication between the and bile ducts monrant presence of a hydatid material in the bile duct ,the second patient presented to an abdominal scan a hydatid cyst of 12 cm taking the segment 4 fistulized in the gallbladder.
Results: Operative indication was asking for a two way first patient in costal right to first surgery the exploration patient finds a hepatic hydatid cyst taking segment 4 and 5 with dilatation of the bile duct, we decided to treat hepatic hydatid cyst after sterilisation by resection of the dome then projecting an opening bile duct with extraction of hydatid materiele and implementation drain kehr.
Conclusion: Hydatid cysts of the liver fistilus in the bile ducts should be supported precaucement view the risk of acute cholangitis occurred the table which can be extremely serious.
THE VANISHING LIVER LESIONS: RADIOGRAPHIC CR AFTER Y90 LEADS TO LONG TERM DISEASE FREE SURVIVAL!

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Objective: Y90 radioembolization is used currently in metastatic colorectal cancer (CRC) patients in a palliative manner. We present a case report to illustrate the observation that Y90 can cause a radiographic complete remission (CR) that translates into long term survival.

Methods: Patient is a 67-year-old male who presented with metastatic CRC to the liver (Image 1). Due to involvement of all liver segments, he was deemed not a surgical candidate and was initiated on systemic therapy with FOLFOX and Avastin. His response was excellent. Patient underwent primary colon resection with subsequent pathology demonstrating ypT3N1M1R0 disease.

Results: Approximately 1 month later, patient underwent Y90 radioembolization (SIR-Spheres) treatment to his liver. He then began chemotherapy with Capecitabine and Avastin. Repeat imaging 6 months after Y90 treatment showed no evidence of recurrent disease (Image 2). Repeat imaging 6 months after showed two new lesions in segment 4B and 8 (Image 3). Patient underwent laparoscopic microwave ablation soon after of these lesions. Repeat MRI 6 months later showed no new lesions (Image 4). He continued to do well with no recurrence after 4 years.

Conclusion: We present this case report as an illustration of the use of Y90 radioembolization as a modality to treat small metastatic CRC lesions to the liver. Residual lesions can be ablated or resected resulting in long term survival. This case report demonstrates that radiographic CR can translate to long term survival when chemotherapy and Y90 are used in conjunction with each other.
P186
MANAGEMENT OF SPLENIC ARTERY ANEURYSM RUPTURE FOLLOWING CENTRAL PANCREATECTOMY AND ROUX-EN-Y PANCREATICOJEJUNOSTOMY RECONSTRUCTION

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Objective: Hemorrhage from pseudoaneurysms following pancreatic surgery is a rare life-threatening and challenging complication. We present our experience management for this rare condition.

Methods: 62 years old female found to have 2.7 cm pancreatic neck mass on imaging for vague abdominal pain associated with unintentional weight loss. EUS and FNA revealed non-functional low grade neuroendocrine tumor. Patient opted for central pancreatectomy with roux-en-y pancreaticojejunostomy. Procedure was uneventful. Drain fluids were negative for pancreatic fistula, and patient discharged on POD#10. The patient returned to the emergency department on POD#24 with diffuse abdominal pain, nausea, vomiting, and hematochezia. CT imaging was read as negative, as well as colonoscopy. EGD noted duodenal ulcer with clean base. The Roux limb was not assessed. Patient discharged on HD#3. Patient returned to the ED on POD#33, with complaints of hematochezia and hematemesis, and syncope during blood draw. NGT lavage removed 2 liters of blood from stomach, and patient diagnosed with hemorrhagic shock. Patient intubated for airway protection, and EGD performed failed to elicitate source. Patient underwent CTA, noting active extravasation from splenic artery pseudoaneurysm, and the splenic artery was coiled by interventional radiology.

Results: Following massive transfusion protocol patient recovered, and discharged on HD#9.

Conclusion: Delayed bleeding after pancreatic surgery is suspicious for a pseudoaneurysm. Contrast-enhanced CT followed by early angiography provides accurate diagnosis and treatment. Interventional radiological treatment should be preferred over primary surgery because it is currently the most life-saving approach.

P187
LIVER SURFACE ANOMALY: REPORT OF A NEW ASSOCIATION WITH CHILAILDITI’S SYNDROME

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Objective: Chilaiditi’s syndrome describes a symptomatic patient with radiographic findings of interposed colon between the diaphragm and right lobe of liver. It is clinically important because it may mimic a pneumoperitoneum and lead to clinical errors in diagnosis and/or treatment.

Methods: We report a case of a patient diagnosed with Chilaiditis’ syndrome who had an anomaly in liver morphology. The implications on diagnosis and treatment are discussed.

Results: In this case, a clinical diagnosis of Chilaiditi’s syndrome was entertained and this delayed a decision for laparotomy. Radiographic features are reviewed and clinical correlations discussed.

Conclusion: This case reinforces the diagnostic difficulty associated with Chilaiditi’s syndrome and it increases awareness of an uncommon variation in the liver surface anatomy.

P188
HEPATIC ARTERIAL RECONSTRUCTION USING SAPHENOUS VEIN GRAFT INTERPOSITION FOR DISTAL PANCREATECTOMY WITH CELIAC AXIS RESECTION

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Objective: We report two cases required hepatic arterial reconstruction during distal pancreatectomy with celiac axis resection (DP-CAR).

Methods: Case 1, 54 years old male patient underwent DP-CAR for his pancreas cancer. As radical antegrade modular
pancreatopancreas (RAMPS) approach. Common hepatic artery was resected first then isolation of inferior pancreaticoduodenal artery (IPDA) from supra mesenteric artery (SMA) was attempted. However IPDA was injured then hepatic arterial flow was lost. Total pancreatectomy and subtotal gastrectomy was performed to avoid pancreatic fistula and ischemia of the stomach. Then hepatic arterial reconstruction using saphenous vein graft interposition between infra-renal abdominal aorta and proper hepatic artery was performed.

Case 2, 75 years old male patient underwent DP-CAR using RAMPS for his pancreas cancer. After lost hepatic arterial flow due to IPDA injury, saphenous vein graft was immediately harvested to minimize ischemia time. DP-CAR was performed and the stomach was preserved, then arterial reconstruction was performed as same as case 1.

Results: Case 1, Hemorrhage from stomach stump was remarkable in his postoperative course. The patient is having malnutrition but not suffered from recurrence for 7 months after the surgery.

Case 2, The patient developed delayed postoperative pancreatic fistula and bleeding from SMA. The patient died at postoperative day 82.

Conclusion: RAMPS for DP-CAR may have a pit fall to keep hepatic arterial flow safe. The hepatic artery reconstruction using saphenous vein graft was feasible in our series. However reconstruction of the gastric arterial flow and minimize ischemia time should be considered for longterm prognosis.

P189
WHIPPLE
PANCREATEODUODENECTOMY: SURGICAL TECHNIQUE AND PERIOPERATIVE MANAGEMENT, 10-YEAR EXPERIENCE
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Objective: To report experience in the treatment of pancreatic cancer and periampullary tumors, surgical technique and postoperative outcome is also evaluated.

Methods: A total of 178 cases were reported, several variables were reviewed and the same surgical technique was used by the same surgeon.

Results: A total of 151 PD were revised. Initial symptoms that presented the most common jaundice was 111 (73%), abdominal pain 20 (13%), oral intolerance 10 (6%). We report poor prognostic values for survival the presence of medical history, days as inpatient, margins and weight loss. Discussion: As advanced experience, a decrease in surgical time, intraoperative bleeding and transfusions performed was achieved. Our complication rate remained at 20%, lower than that reported in the literature.

Conclusion: PD is the only option of cure for patients with pancreatic and periampullary tumors. This procedure has been linked to high morbidity and mortality even in high volume centers. Pancreatic fistula is the most feared complication, so for the pancreatojejunostomy multiple techniques have been described in the literature. They should continue to report these cases to reach a common agreement on this technique.

P190
ADENOSQUAMOUS CARCINOMA OF THE GALLBLADDER. CASE REPORT AND LITERATURE REVIEW
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Objective: To present the case of a patient with initial diagnosis of cholelithiasis who underwent an elective procedure with final diagnosis of adenosquamous gallbladder carcinoma and review the literature.

Methods: 34 year old woman with no relevant medical history comes to the clinic referring one year with abdominal pain in LUQ of moderate intensity after eating CCK in several occasions. Normal labs, US reports gallbladder 7.8 × 3.1 cm with multiple stones and a 3 mm wall (Fig. 1).

An elective laparoscopic cholecystectomy is performed, during which an abdominal induration is noted intraoperatory biopsy is reported as adenosquamous carcinoma (Fig. 2). The surgery is converted to open procedure to complete liver resection and lymphadenectomy (Fig. 3). The patient courses a fair postoperative evolution, during her hospitalization a multi-phase thoracoabdominal CT is done (Fig. 4). Final pathology reports adenosquamous carcinoma of 5.5 × 4 cm with hepatic infiltration and negative margins, no lymph node metastasis T3N0M0 Stage IIIA.

Results: Gallbladder cancer is a rare neoplasm with poor prognosis, most cases are diagnosed incidentally during cholelithiasis evaluation. Risk factors are similar to those of chronic gallblader inflammation. Adenosquamous carcinoma is a rare subtype (5−10%) with few reported cases. Cholecystectomy alone is adequate for early stages (Tis-T1a), for T2-T3 liver resection until R0 and lymphadenectomy is indicated.

Conclusion: Adenosquamous gallbladder carcinoma share similar characteristics with adenocarcinoma, but it shows tendency of hepatic infiltration (68% vs 49%). Generally they all have poor prognosis, but survival can benefit if a curative resection with negative margins is made.
P191
GASTRIC MIXED ADENONEUROENDOCRINE CARCINOMA TUMOR WITH DUODENAL AND PANCREATIC INVASION TREATED WITH PANCREATICODUODENECTOMY: A CASE REPORT AND LITERATURE REVIEW
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Objective: To present a case and literature review of gastric MANEC tumor locally invading into the duodenum and pancreas treated with pancreaticoduodenectomy.
Methods: In this report we present a case of a 68 year old male who presents with a locally advanced gastric MANEC tumor with invasion into the duodenum and pancreas treated with pancreaticoduodenectomy.
Results: The patient successfully underwent pancreaticoduodenectomy without complications and was discharged post-operative day 11. Pathology was consistent with gastric cancer with mixed adeno and neuroendocrine components.
Conclusion: We describe a case of pathologically identified MANEC tumor of the stomach with local duodenal, pancreatic, and peripancreatic lymph node invasion treated with pancreaticoduodenectomy, which to our knowledge has not been described in the literature. Considerations can be made to evaluate MANEC pathology to further delineate the prognosis for patients undergoing R0 resection, due to the rare nature of this disease.

P192
UTILIZATION OF PROSPECTIVE DATA AND DEVELOPMENT OF RISK STRATIFICATION PATHWAYS FOR PANCREATECTOMY PATIENTS- AN APP’S PERSEPCTIVE
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Objective: Identify high risk pancreatectomy patients based on prospective data to create postoperative pathways. We hope these pathways will facilitate in a decreased length of stay, reduction in hospital costs, and improvement in patient satisfaction.
Methods: Active prospective data collection by inpatient APP. Review of data from 2012 to 2016 illustrates those patients at a low vs high risk for pancreas leak. Creation of three pathways based on the risk assessment. Each patient will be placed in “team” and patient will be educated on their postoperative course during their preop visit. Inpt APP will document when/if patient falls off pathway and document reason. Utilization of pathways begin 10/1/2016.
Results: In process of collecting data.
Conclusion: In process of collecting data.

P199
YTTRIUM-90 RADIOEMBOLISATION VERSUS TRANSARTERIAL CHEMOEMBOLISATION FOR UNRESECTABLE HEPATOCELLULAR CARCINOMA: A RETROSPECTIVE COMPARATIVE ANALYSIS ACCORDING TO BCLC CLASSIFICATION
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Objective: Transarterial chemoembolisation (TACE) and transarterial radioembolisation (TARE) are therapeutic options for unresectable hepatocellular carcinoma (HCC). The effectiveness of these procedures has been compared in several retrospective series, but few stratified the results according to the Barcelona Clinic Liver Cancer (BCLC) staging system. The aim of this single centre retrospective study was to compare the effectiveness of TARE and TACE and to evaluate the outcomes according to BCLC stage.
Methods: A retrospective analysis of data from a single centre in Italy from 121 consecutive patients with unresectable HCC who underwent TARE (n = 39) or TACE (n = 82). The primary endpoint was overall survival (OS) determined by the Kaplan–Meier method. Further survival analyses by BCLC stage, and a multivariate analysis for other factors affecting survival, were performed.
Results: There were no substantial differences in mean or median OS times between the TARE and TACE groups (24.05 vs 27.39 months, and 21.00 vs 23.50 months, respectively). Increased OS was observed with TARE versus TACE in patients with BCLC stage B HCC, but there were no differences between treatments in patients with BCLC stage C HCC. At 24 months after the procedure, in patients with BCLC stage B HCC, TARE resulted in significantly greater mean OS time than TACE (21.53 ± 1.61 vs 17.06 ± 1.50 months, respectively).
Conclusion: TARE and TACE were similarly effective, however, subgroup analysis showed an enhanced survival in TARE patients with BCLC stage B disease. Prospective studies with adequate follow-up could further clarify the observed differences, potentially producing objective data to guide treatment in this patient group.

P200
THE ASSOCIATION OF LENGTH OF HOSPITAL STAY WITH READMISSION AFTER ELECTIVE PANCREATIC RESECTION
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Objective: The aim of this study was to identify whether prolonged length of hospital stay limits the rate of certain post-discharge complications requiring readmission.
Methods: Patients undergoing elective pancreatectomy from 2012 to 2013 were identified in the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP). Multivariate regression analyses were conducted to elucidate the effect of length of stay, in-hospital complications and post-discharge complications on 30-day readmission.

Results: Mean length of stay for the readmitted versus not readmitted cohort was 9.01 and 10.36, respectively (p < 0.001). Age inversely correlated with readmission. The readmission rate (after hospital discharge) for patients with any in-hospital complication was 13.2%. On the other hand, the readmission rate for patients with any post-discharge complication was 70.8%. Readmission rates were above 85% for patients with the following post-discharge complications: organ/space SSI, pneumonia, ventilator dependence greater than 48 hours, progressive renal insufficiency, sepsis and septic shock. Multivariate logistic regression models show prolonged length of hospital stay reduced the odds of any post-discharge complication requiring readmission (OR = 0.68, p = 0.01). Specifically, prolonged LOS reduced the odds of a post-discharge organ/space SSI requiring readmission (OR = 0.72, p = 0.02).

Conclusion: Half of readmissions happen within 7 days of discharge from the hospital. Majority of surveillance efforts should be focused around this time period. In-hospital complications do not appear to be associated with a higher rate of readmissions. Our data supports that readmission primarily occurs due to a new post-discharge diagnosis.

P99 MINIMALLY INVASIVE VERSUS OPEN SURGERY IN TREATMENT OF LIVER LESIONS

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Objective: To study and report our results about management of minimally invasive versus open surgery in treatment of liver lesions.

Methods: From 621 liver surgeries that have been performed in our center between 1998 and 2016 we analyzed the data that were collected prospectively With IRB approval in patients who underwent minimally invasive liver surgery (n = 109) and compared them to matched patients with open liver surgery (n = 109). Demographic data, blood loss, operation time, hospital stay, professional fee, morbidity and mortality were studied.

Results: We performed 109 minimally invasive (26 robotic and 83 laparoscopic) surgeries (22 HCC, 34 liver metastasis, 3 cholangiocarcinoma, 3 neuroendocrine tumor, 1 hepatoblastoma, 1 GIST and 45 benign lesions). These were compared with 109 matched open surgeries (22 HCC, 34 liver metastasis, 5 cholangiocarcinoma, 3 neuroendocrine and 45 benign lesions). Estimated blood loss (257.5 ± 128.2 vs. 637.6 ± 458, P-value 0.0001) and hospital stay (5.5 ± 3 vs. 8.7 ± 5.7 days, p-value 0.0001) were significantly lower in favor of minimally invasive surgery. Professional fee (p-value = 0.54), Operation time (p-value 0.73), Peri-operative mortality (p-value = 0.73) and R0 resection margin (p-value = 0.79) were comparable in both groups. 17.4% of patients with minimally invasive vs. 14.7% of patients with open surgery had peri-operative morbidity (p-value = 0.58). Mean survival time in minimally invasive and open surgeries were 37.8 ± 33.1 vs. 48.4 ± 30.1 months (p-value 0.062) respectively.

Conclusion: Considering the limitation of the study which is not randomized, we can conclude that robotic and laparoscopic liver surgeries can be performed safely with significantly lower blood loss and shorter hospital stay in comparison with open surgeries.