P 29. REAPPRAISING THE CONCEPT OF CONDITIONAL SURVIVAL AFTER PANCREATECTOMY FOR DUCTAL ADENOCARCINOMA: A BI-INSTITUTIONAL ANALYSIS

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Background: Survival projections after pancreatectomy for pancreatic ductal adenocarcinoma (PDAC) can be described dynamically using conditional survival estimates (CS), defined as the probability of surviving an additional timeframe based on accrued lifespan. The aim of this study was to reappraise and extend the concept of CS following pancreatectomy for PDAC, by determining how CS estimates change according to patients disease status relative to tumor recurrence.

Methods: Patients undergoing pancreatectomy for PDAC at two academic institutions from 2000 through 2013 were retrospectively analyzed. To account for the patientâ€™s disease status, we conditioned on the set of patients who were disease-free or with disease recurrence at any given time point. First, we estimated the 12-month CS at 12 to 48 months following resection in each patient set. Next, the conditional probability of reaching 60-months of survival was analyzed at the same time points. Finally, CS was examined across strata of prognostic covariates, including AJCC stage (8th edition), tumor grade, margin status, and adjuvant treatment.

Results: The study population consisted of 1005 patients. In disease-free patients, the 12-month CS increased as a function of time already survived, showing an opposite trend in comparison with overall survival, as calculated at the time of surgery. In patients who recurred, the 12-month CS was much lower than the disease-free counterpart, especially within 24 months postoperatively. Figure 1 shows the probability of reaching 60 months of survival stratified by disease status: in patients who remained disease-free, the probability increased constantly with time elapsing. In the set of patients developing recurrence, the probability of being alive at 60 months dropped to only 1.8% when PDAC recurred within 12 months, then increased progressively with time elapsing. When stratifying by the levels of prognostic covariates, the CS estimates in disease-free patients tended to level off progressively, indicating that factors independently associated with survival at the time of surgery tend to lose power over time. This concept did not apply to the conditioning set of patients with recurrence, in whom CS estimates across variables strata diverged with accrued lifespan. In particular, the CS analysis stratified by adjuvant treatment status showed that patients not receiving any form of adjuvant therapy and with disease recurrence at any time point had no chance of reaching 60-months of survival postoperatively.

Conclusion: This analysis provides new information on how prognosis following pancreatectomy for PDAC evolves over time. In particular, the extended concept of

CS herein reported provides relevant hints for patients and physicians, since it allows to adjust for the time the patient already survived, and for the patient's present disease status relative to tumor recurrence.

P 30. NON-INFERIORITY OF OPEN PASSIVE DRAINS VS. CLOSED SUCTION IN PANCREATIC SURGERY OUTCOMES: A PROSPECTIVE OBSERVATIONAL STUDY
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Background: Drain policies in pancreatic surgery still represent a matter of debate. Open passive drains (OPD) and closed-suction drains (CSD) are both currently used in the clinical practice worldwide, without reliable data regarding potential differences in the postoperative outcomes. Aim of the present study is to compare OPD and CSD in determining post-operative drainage fluid contamination and overall morbidity and mortality.

Methods: Prospective observational analysis of 320 consecutive standard partial resections (pancreaticoduodenectomy PD and distal pancreatectomy DP) at a single Institution from April 2016 to April 2017. Either OPD (n=189, 51%) or CSD (n=131) were used according to the operators choice. Postoperative outcomes were registered including samples of drainage fluid collected on postoperative day (POD) V and sent for microbiological analysis.

Results: The OPD and CSD cohorts did not differ in terms of clinical features, neoadjuvant chemotherapy, preoperative biliary drainage, fistula risk zone, and type of surgical procedure (PD vs. DP). The overall rate of POD V drainage fluid contamination was similar between the groups (27.5% vs. 20.6% p=0.1), as well as the POPF rate (20.6% vs. 17.5% p=0.4). The same result was confirmed also for the specific procedure (PD and DP). The postoperative outcomes namely overall 30 days morbidity, intra-abdominal fluid collections, percutaneous drainage, wound infections, reintervention, mean length of hospital stay and mortality did not differ between the two groups. At qualitative microbiological analysis, the 61.5% of bacteria contaminating the drainage fluid of a PD were attributable to human gut flora, while in DP the 84.8% of bacteria belonged to human skin and mucous flora (p<0.01). However, the spectrum of bacterial contamination did not significantly differ between the OPD and CSD groups.

Conclusion: The use of OPD and CSD for major pancreatic resection does not significantly impact on postoperative outcome. The spectrum of drain contamination depends on the specific surgical procedures rather than on the type of drain used.

P 32. THE IMPACT OF PREOPERATIVE BILIARY STENTING ON POSTOPERATIVE MORBIDITY AFTER PANCREATODUODENECTOMY FOR PANCREATIC CANCER - A STUDY OF THE GERMAN NATIONAL DGAV-STUDOQ|PANCREAS REGISTRY

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Background: The impact of preoperative biliary stenting (PBS) on postoperative complication rates in patients undergoing pancreatoduodenectomy (PD) for pancreatic cancer is controversially discussed.

Methods: Patients undergoing PD with or without PBS for pancreatic ductal adenocarcinoma were identified from the DGAV-STUDOQ registry pancreas. Prospensity score-based matching was performed according to pancreatic texture and preoperative serum bilirubin level.

Results: A total of 922 patients were included, and 480 patients were undergoing PBS. In PBS patients, preoperative sepsis rates were higher as compared to patients not receiving PBS (5.9% vs. 1.2%, HR 5.150, 95%CI 3.38-7.86, p<0.001). Regarding postoperative complications, rates of clinically relevant postoperative pancreatic fistula (11.4% vs. 7.9%, HR 1.504, 95%CI 1.23-1.84, p<0.001), surgical site infections (17.7% vs. 8.9%, HR 2.205, 95%CI 1.84-2.64, p<0.001), rates of wound reopening (4.0% vs. 1.1%, HR 3.687, 95%CI 2.35-5.79, p<0.001) and Clavien Dindo grade IIIa to V complications (31.3% vs. 26.3%, HR 1.278, 95%CI 1.12-1.45, p<0.001) were higher in PBS patients as compared to patients not undergoing PBS. Leakage of the gastro-enteric anastomosis (1.5% vs. 0.8%, HR 1.770, 95%CI 1.00-3.14, p=0.050) and postoperative pneumonia (9.0% vs. 6.5%, HR 1.431, 95%CI 1.15-1.79, p=0.001) were more frequent in the PBS group. In multivariate risk factor analysis PBS qualified as independent risk factor of all before mentioned complications. In patients not undergoing PBS, rates of bile leakage (4.5% vs. 3.1%, HR 0.690, 95%CI 0.51-0.94, p=0.018) and pulmonary embolisms (1.7% vs. 0.8%, HR 0.485, 95%CI 0.28-0.84, p=0.009) was increased as compared to PBS patients.

Conclusion: PBS prior to PD for pancreatic cancer is associated with significantly increased perioperative morbidity and should not be performed routinely.

P 33. BILIARY MICROBIOME IN PANCREATIC CANCER: ALTERATIONS WITH NEOADJUVANT THERAPY

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Background: Neoadjuvant therapy for pancreatic cancer is being employed more commonly. Most of these patients undergo biliary stenting which results in bacterial colonization and more surgical site infections (SSIs). These patients may be exposed to longer duration of antibiotic therapy because of stent occlusions, episodes of cholangitis, and the need for stent exchanges. As a result, patients undergoing neoadjuvant therapy may have an altered biliary microbiome. In addition, current antibiotic prophylaxis guidelines may not offer optimal coverage for patients, as the majority recommend coverage of 1st and 2nd generation cephalosporins. The aims of this study were to analyze the influence of neoadjuvant therapy on the biliary microbiome by comparing patients with and without neoadjuvant therapy prior to PD for pancreatic cancer.

Methods: The analytic cohort consisted of 172 patients who underwent PD and had operative bile cultures at a National Cancer Institute (NCI)-Designated Cancer Center from 2007 to 2017. Patient demographics, stent placement, bile cultures, bacterial sensitivities, SSIs and clinically-relevant postoperative pancreatic fistulas (CR-POPF) were analyzed. Patients who underwent neoadjuvant therapy were compared to those who went directly to surgery. Standard statistical analyses were performed using Chi-square and Mann-Whitney U tests.

Results: Eighty-three patients received neoadjuvant therapy while 89 underwent surgery alone (Table). Neoadjuvant patients were more likely to undergo biliary stenting (76 vs 56% $p<0.01$). Patients who received neoadjuvant therapy were more likely to have enterococci (45 vs 22%, $p<0.01$), and Klebsiella (37 vs 19%, $p<0.01$) in their bile. Multidrug resistant bacteria such as Vancomycin-Resistant Enterococci (VRE) or Extended-spectrum beta-lactamases (ESBL) were not increased in patients receiving neoadjuvant treatments. Methicillin-resistant Staphylococcus aureus (MRSA) was increased in the surgery alone group, but was decreased in the neoadjuvant group (0% vs 6%, $p<0.03$). Of patients with bactobilia, resistance to cephalosporins was more common in those who received neoadjuvant therapy (76 vs 60%, $p<0.05$). Neoadjuvant therapy did not affect the incidence or type of SSIs or CR-POPFs.

Conclusion: The biliary microbiome is altered in patients undergoing PD after neoadjuvant therapy. Most patients undergoing PD have microorganisms resistant to cephalosporins. Antibiotic prophylaxis in neoadjuvant patients should have a broad spectrum of coverage for enterococci and gram-negative bacteria.

P 34. LAPAROSCOPIC PANCREATODUODENECTOMY FOR PATIENTS WITH BORDERLINE RESECTABLE PANCREATIC DUCTAL ADENOCARCINOMA: FEASIBILITY AND OUTCOMES

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Background: Several publications have now demonstrated the feasibility and safety of laparoscopic pancreatoduodenectomy (LPD) with advantages compared to open procedures including blood loss and length of hospital stay. Patients with borderline resectable (BR) pancreatic ductal adenocarcinoma (PDAC) present a more complex situation with need for major vascular resection and increased risk for positive resection margin. Outcomes of LPD for patients with BR PDAC have not been reported. The aim of this study is to evaluate the feasibility, safety, outcomes of LPD for patients with BR PDAC.

Methods: Retrospective review of all patients undergoing LPD for BR and resectable PDAC at our institution between January 2010 and November 2017. BR was defined according the NCCN definition.

Results: A total of 55 patients with BR and 112 with resectable PDAC were identified. Tumor size (3.0 vs. 2.5 cm, p<0.001), CA 19-9 (141 vs. 56 U/mL, p=0.056) and receipt of neoadjuvant therapy (62% vs. 14%, p<0.001) was increased in the BR group compared to the resectable group. Operative time (444 vs. 350 min, p<0.001), estimated blood loss (500 vs. 300 mL, p=0.002), occurrence of mesoportal vein resection (66% vs 13%, p<0.001) and conversion to laparotomy (18% vs 4%, p=0.002) was greater in the BR group. The number of lymph nodes retrieved (21 vs. 21, p=0.79) and R0 resection rates (89% vs. 86%, p=0.54) were similar. Major complications (9% vs. 13%, p=0.32), length of hospital stay (6 vs. 6 days, p=0.95), and 90-day mortality (3.6% vs. 0.9%, p=0.26) were not different between groups.

Of the patients with BR disease, 34 patients received neoadjuvant chemotherapy consisting of chemotherapy only in 8 and chemotherapy plus chemoradiation in 26. Resection without neoadjuvant treatment was performed in 21 patients. Of the patients with neoadjuvant treatment, tumor size and CA 19-9 were greater compared to those with upfront surgery (3.5 vs 2.6 cm, p=0.003, 288 vs 98 U/mL, p=0.012, respectively). Occurrence of mesoportal vein resection was not different (p=0.46) although segmental as opposed to tangential resection was performed more frequently in the neoadjuvant therapy group (44% vs 10%, p<0.001). Major complications (12% vs. 5%, p=0.61), median length of hospital stay (6 vs. 6 days, p=0.29), and 90-day mortality (6% vs. 0%, p=0.52) did not differ between the 2 groups. N0 (77% vs. 5%, p<0.001) and R0 rates (97% vs. 76%, p=0.026) were significantly higher in the neoadjuvant therapy group compared to the up-front surgery group.

Conclusion: LPD for patients with BR PDAC is feasible and safe demonstrating perioperative and oncologic outcomes similar to those reported for open approaches. As previously reported for open approaches, neoadjuvant therapy is associated with improved nodal and margin negative rates in patients undergoing LPD for BR PDAC.

P 35. HARVESTING HUMAN ISLETS IN CARBON MONOXIDE-SATURATED MEDIUM ENHANCESS INSULIN INDEPENDENCE AFTER PANCREATECTOMY WITH ISLET AUTOTRANSPLANTATION

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Background: Stresses encountered during human islet isolation and post-transplantation lead to dramatic islet cell death after transplantation, thereby reducing the chance of insulin independence in patients with chronic pancreatitis (CP) undergoing total pancreatectomy with islet autotransplantation (TPIAT). We tested whether harvesting islets in carbon monoxide (CO) saturated solutions can enhance islet survival and insulin independence after TPIAT.

Methods: With IRB approval, non-diabetic CP patients who consented to participate in this study were randomized into CO group (islets harvested in CO saturated medium) or control group (islets harvested in normal medium). Islet yield and oxygen consumption rate (OCR) were measured before transplantation. Diabetes onset and insulin requirement were measured at 6 months post-transplantation and used as primary efficacy outcome.

Results: At month six, 37.5% (3 in 8) of the CO group and none of the control group (n=5) were insulin independent. CO-islets showed significantly higher OCR value before transplantation. Patients receiving CO islets had reduced serum CXCL23 and increased CXCL12 levels at 1 and 3 days post transplantation compared to controls, suggesting CO exposure increased islet viability/quality and caused less inflammation after transplantation.

Conclusion: Our findings show for the first time that harvesting human islets in CO saturated solutions increases insulin independence in CP patients undergoing TPIAT, justifying a larger randomized clinical trial.

P 36. COMPLETION, AND NOT JUST INITIATION, OF INTENDED ONCOLOGIC THERAPY IS ASSOCIATED WITH IMPROVED SURVIVAL AFTER PANCREATIC RESECTION FOR CANCER

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Background: Adjuvant therapy is the standard of care for resected pancreatic adenocarcinoma. The ability to return to intended oncologic therapy (RIOT) has been proposed as a quality metric. We hypothesize that the ability to RIOT predicts improved long-term outcomes and explore the associated variables.

Methods: An IRB approved, single-institution retrospective chart review of patients treated with pancreatic resection for pancreatic adenocarcinoma from 1/2008-12/2015 was conducted. Demographics, clinical-pathological factors, adjuvant treatment and follow-up data were collected with a focus on the rate of RIOT, risk factors associated with an inability to RIOT, and associated survival outcomes.

Results: After a median follow-up of 60 months, 302 patients underwent pancreatic resection (Whipple n= 220, distal n= 65, total n= 14, completion, n=3). Following surgery, 246 (81.5%) initiated adjuvant therapy and 196 (64.9%) completed the intended course. 135 (44.7%) patients were treated with adjuvant chemotherapy alone and 111 (36.8%) underwent chemotherapy and chemoradiation. The median time to initiation of adjuvant therapy was 53 days (range 26-217). The most frequent reasons cited for inability to RIOT were surgical complications (n=26), poor performance status (n=18), patient refusal (n=11), and early recurrence with transition to comfort-based care (n=5). The ability to RIOT was associated with improved overall survival (OS, $p<0.0001$) and recurrence-free survival (RFS, $p<0.0001$). On Cox multiple regression models for OS and RFS, the failure to initiate and failure to complete intended adjuvant therapy were both associated with worse outcomes (see table).

Conclusion: Completion of intended oncologic therapy is associated with improved OS and RFS in patients that undergo resection for pancreatic cancer.

P 37. NEOADJUVANT CHEMOTHERAPY SWITCH FOR BORDERLINE/LOCALLY ADVANCED PANCREATIC CANCER: NO DETRIMENT TO SURVIVAL

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Background: Modern combinatorial neoadjuvant systemic chemotherapy is becoming the standard of care for patients with borderline resectable (BR) and locally advanced (LA) ductal adenocarcinoma of the pancreas (PDAC). The optimal induction systemic chemotherapy treatment strategy is yet to be defined. We sought to evaluate the incidence, indications, and outcomes of patients who underwent a change in their systemic induction chemotherapy regimens prior to surgical resection and if therapy change influences survival.

Methods: Single site, retrospective chart review of patients diagnosed with BR/LA pancreatic cancer, who underwent NAC between 2011-2017. Data extraction was undertaken to recruit a cohort who received first line (FL) therapy with either FOLFIRINOX (FFX) or gemcitabine/nab-paclitaxel (GA) alone and patients who underwent therapeutic switch (TS) to a second line regimen. After restaging and in the absence of metastatic disease, medically fit patients were offered surgery with curative intent. Clinicopathologic variables, Recurrence and survival outcomes were collected and analyzed.

Results: A total of 269 PDAC patients with BR/LA tumors were identified that underwent resection after NAC. 223 (83%) patients received FL NAC prior to resection, and 46 (17%) patients with TS. Indications for TS were: chemotherapy intolerance/toxicity (13 %), non-metastatic local progression (25 %), biochemical progression (45 %), and no objective response (17 %). There was no difference in the baseline demographics, operative procedures, or perioperative outcomes between both groups. The overall rate of CA19-9 normalization was also similar with FL therapy (65%) compared to TS (63%), p=0.84.Pathological assessment revealed similar rates of margin positivity was 9% in both FL and TS. Pathologic treatment responses were similar amongst both groups. There was no significant difference in significant morbidity or 90 day mortality between FL and TS. There was no significant difference in RFS between FL and TS groups (p=0.539). The median overall survival was similar both from the time of diagnosis (44.8 months vs. 48.3 months, p=0.707) as well as from time of surgery (34.7 months vs. 30.2 months).

Conclusion: A significant proportion of patients undergoing NAC for LA/BR PDAC require therapeutic switch for various reasons. The majority of those undergoing TS achieve objective responses allowing subsequent curative intent resection. There is no oncologic detriment for patients undergoing TS. Such a treatment sequencing

paradigm may lead to improved outcomes and potential salvage of a significant proportion of patients who would otherwise not be considered for resection.

P 38. PROGNOSTIC IMPLICATION OF THE NUMBER OF POSITIVE NODES AFTER PANCREATICODUODENECTOMY FOR NONFUNCTIONING NEUROENDOCRINE TUMORS

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Background: TNM classification recently suggested to divide N+ pancreatic neuroendocrine tumors (PanNET) between N1 (1 to 3 positive lymph nodes [PLN]) and N2 (more than 3 PLN) but only for PanNEC-G3. The role of the number of PLN in predicting recurrence is unclear. Aim of the study was to evaluate the effect of the number of PLN on prognosis after pancreaticoduodenectomy (PD) for PanNET.

Methods: Retrospective analysis of all consecutive PDs performed for sporadic nonfunctioning PanNET. Univariate and multivariate analysis of disease free survival (DFS) were performed.

Results: 157 patients were included. The median number of examined lymph nodes (ELN) was 18. 58 patients (63%) had N0 PanNET whereas 99 patients (37%) had lymph node involvement (N+). Patients with a N+ PanNET had a significantly higher frequency of T3-T4 tumors, perineural and microvascular infiltration. Median values of Ki67 and ELN were significantly higher in patients with N+ PanNET. 30 patients (19%) had a recurrence and 17 (11%) eventually died of disease. Patients with N0 PanNET had a 3-year DFS rate of 89% compared with 83% and 75% in patients with N1 PanNET and N2 PanNET, respectively. Independent predictors of DFS were the presence of necrosis (HR 4.407, P<0.0001) and nodal status (N1, HR 3.246, P<0.005; N2, HR 9.934, P<0.0001). Factors positively correlated with the number of PLN were the Ki67 value, T stage, and number of ELN. Similar percentage of N0 PanNET and N+ PanNET was demonstrated for a cut-off of 13 ELN.

Conclusion: The number of PLN is accurate in predicting recurrence for PanNET. TNM staging systems should include a N-stage that distinguishes also between N1 (1 to 3 PLN) and N2 (more than 3 PLN) tumors. Thirteen ELN seems to be the minimum number of LN to be resected/examined in patients who undergo PD for PanNET.

P 39. POTENTIAL NEW TREATMENTS FOR PANCREATIC DUCTAL ADENOCARCINOMA

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Background: Pancreatic Ductal Adenocarcinoma (PDA) is a devastating malignancy, and is the third leading cause of cancer-related deaths in the United States. Human Antigen R (HuR) is an RNA binding protein that plays a primary role in the response to cellular stress especially in malignant cells. Upon chemotherapy treatment, HuR translocates to the cytoplasm, and upregulates the translation of pro-survival mRNA targets, ontributing to chemo-resistance. HuR inhibition has been shown to increase the efficacy of therapeutics in PDA both in vitro and in vivo. Using DOX- inducible shRNA against HUR, olaparib (Lynparza) treatment was potentiated in vivo from a 5.3 reduction of tumor volume when treated with olaparib alone to a 9.3 fold reduction in combination with siHUR. This study sought to show how the FDA approved, pyrvinium pamoate (Povan) (PP), may be a candidate for repurposing to treat pancreatic cancer. PP was indicated to treat pinworms and has been previously shown to inhibit the translocation of HUR in bladder cells. We hypothesized that PP could potentially sensitize PDA to other treatments through inhibition of HuR, and may be useful as a single agent therapeutic.

Methods: PP was used to treat pancreatic cancer cell lines in vitro and mouse derived organoids. Pico Green was used to determine viability. To determine HuR translocation, cells were stressed with either olaparib or oxaliplatin (Eloxatin) and then treated with PP. Cells were either fractionated to determine cytoplasmic HuR (immunoblotting) or stained for HuR (immunofluorescence). The Combination Index of cells was determined using CompuSyn. Increased efficacy of drugs with siHuR was determined by transfecting cells with siHuR or siScram, and then treated with drugs.

Results: PDA tumors were found to be exceptionally sensitive to PP with IC50s as low as 38nM in 2D cultures and 16nM in a 3D mouse PDA organoid model. We also recapitulated the ability of PP to block the translocation of HuR upon stress. This led us to investigate the potential synergism of PP with other drugs that were potentiated with HuR inhibition. Interestingly, palbociclib (Ibrance), a CDK4/6 inhibitor used in breast cancer, was potentiated by siHUR treatment by 1.96-2.3 fold. Furthermore, CDKN2A (p16) loss is a common genetic signature in PDA with loss in 98% of tumor samples. P16 inhibits the activity of the cyclin D-CDK4/6 complex, inhibiting cell cycle progression. Loss of p16 has been shown to sensitize cells to CDK4/6 inhibitors. PP enhances the effects of palbociclib, with a Combination Index (CI) of 0.37, as well as more standard chemotherapeutics including gemcitabine (Gemzar) (CI of 0.55), and olaparib (CI of 0.40). We are currently validating these finding in vitro and in vivo.

Conclusion: We believe that PPs activity as an inhibitor of HuR translocation will help to improve sensitivity in pancreatic cancer and may be useful as both a single agent and in combination with other, more standard therapeutics.

P 40. POST-HOC VIDEO REVIEW OF ROBOTIC PANCREATICODUODENECTOMY TO PREDICT CIRCUMFERENTIAL MARGIN POSITIVITY IN PANCREATIC ADENOCARCINOMA

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Background: Achieving margin negative resection is a significant determinant of outcome in pancreatic adenocarcinoma (PDA). The development of more effective pre-operative chemotherapy regimens and the fibrotic nature of PDA can make it difficult to discriminate fibrotic response to treatment from active disease intra-operatively. We sought to determine if post-hoc video review of robotic pancreaticoduodenectomy (RPD) could predict circumferential margin positivity on final pathology.

Methods: A retrospective review of a prospectively maintained database was used to identify consecutive PDA patients from 9/2012 through 6/2017. An experienced pancreatic surgeon, blinded to all patient and surgeon variables, reviewed the SMV, SMA and uncinate dissection for available RPD videos. A negative circumferential margin was defined as no tumor on ink for the SMV margin and the uncinate/SMA margin.

Results: 107 RPD videos were reviewed. 69% of patients received neoadjuvant therapy. 20 patients (18.7%) had a pathologic positive circumferential margin and a positive margin was predicted on video review in 53 patients (50%). Patients predicted to have a positive margin had significantly longer dissection times, larger tumors, and had a decrease in tumor size with neoadjuvant therapy. The overall accuracy for predicting circumferential margin status of 67%. The accuracy was 95% for patients with pathologically positive margins and 61% for pathologically negative margins. The sensitivity was 95.0% with a specificity of 61% (Table 1).

Conclusion: Post-hoc assessment of pathologic circumferential resections margins by video review revealed high sensitivity however, it had a tendency to overcall margin positivity. This suggests that intraoperative clinical assessment may be suboptimal in determining the need for more extensive resections. Further research into biomarkers to predict treatment response resulting in negative margins is warranted.

P 41. ROBOTIC PANCREATODUODENECTOMY WITH VASCULAR RESECTION: HOW STEEP IS THE LEARNING CURVE?

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Background: The safety, efficacy, and learning curve for robotic pancreatoduodenectomy (PD) has been previously reported, however no studies have evaluated the learning curve and outcomes of robotic PD with vascular resections (PD-VR). Our aim was to evaluate the outcomes of robotic PD-VR compared to PD without vascular resection (PD) and to identify the learning curve and benchmarks for improved performance during for PD-VR.

Methods: A retrospective review was performed of patients who underwent robotic PD and robotic PD+VR (venous and/or arterial). Patients were analyzed consecutively and cumulative sum (Cusum) analysis was performed to detect improvements in performance over time.

Results: Of 380 patients, 50 (13%) had a vascular resection at the time of PD. Compared to PD, PD-VR were more likely to have pancreatic adenocarcinoma (84% vs 42%) and receive neoadjuvant therapy (35% vs 65%, p<0.01). Cusum analysis of PD+VR operative time revealed a steady significant decrease over time (Rho = -0.38 P=0.006) with marked initial improvement after the first 8 cases and maturation of the learning curve after 35 cases. A significant reduction in length of stay was observed over the entire experience (Rho = -0.528, P<0.0001), while margin status, pancreatic fistula, maximum Clavien grade-complication, and mortality remained constant and were comparable to robotic PD alone.

Conclusion: Robotic PD-VR is feasible and has comparable morbidity and mortality to robotic PD alone. For surgeons who have surpassed the learning curve of robotic PD, improvements in performance of PD-VR can be seen in as early as 35 cases.

P 44. WNT11 CONFERS CHEMORESISTANCE AND PROMOTES TUMOR CELL SURVIVAL IN PANCREATIC ADENOCARCINOMA

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Background: Pancreatic ductal adenocarcinoma (PDAC) is a disease characterized by avid resistance to most modern chemotherapeutic agents. WNT11 is a secreted ligand that has been shown to affect invasion and metastasis in multiple types of cancer, but its role in PDAC development and chemoresistance remains poorly understood. We hypothesized that WNT11 may promote pro-survival properties and chemoresistance in PDAC.

Methods: Expression of WNT11 in PDAC was confirmed using immunohistochemical staining of PDAC patient-derived xenografts (PDXs) and western blot analysis of 12 different human PDAC cell lines and 4 PDAC cell lines generated from two different genetically engineered mouse models of pancreatic cancer (KPC). WNT11 cDNA was cloned into a pcDNA3.1 vector and transfected into KPC cell lines along with empty pcDNA3.1 control plasmids. WNT11 overexpression was confirmed by western blot analysis and MTT assays were performed to measure cell proliferation in KPC cell lines relative to controls. The effect of gemcitabine (Gemzar) on KPC cell lines transfected with control and WNT11 overexpression plasmids was determined by MTT assays following 72 hours of treatment with increasing doses of gemcitabine (100-400 nM). Clonogenic assays were performed in triplicate by plating 1000 cells of untreated human PDAC cell lines (MDA-PATC53, MDA-PATC153) and an equal number of cells chronically treated with recombinant WNT11. PDAC cells were allowed to proliferate for 14 days without media changes and the number of colonies in treated and untreated groups were quantitated. Students t-tests were used to determine statistically significant differences between control and treatment groups.

Results: WNT11 is expressed in human and mouse PDAC and all derived PDAC cell lines. Relative to control cell lines, WNT11 overexpression did not affect cell proliferation in KPC cell lines. When treated with increasing doses of gemcitabine for 72 hours, increased WNT11 expression resulted in increased viability relative to controls (p<0.05) in four tested KPC cell lines. Chronic treatment of human PDAC cell lines with exogenous WNT11 ligand resulted in increased clonogenicity relative to cell lines not treated with WNT11 (p<.01).

Conclusion: WNT11 is expressed in human and mouse PDAC. Chronic treatment of human PDAC cell lines with WNT11 increased clonogenicity and cell survival. Overexpression of WNT11 in mouse PDAC cells promoted cell survival when treated with increasing concentrations of gemcitabine. WNT11 may confer gemcitabine resistance and may represent a PDAC cell survival mechanism under conditions of cellular stress.

Further elucidation of distinct mechanisms of chemoresistance conferred by WNT11 may identify therapeutic vulnerabilities in PDAC.

P 46. NATIONWIDE TREATMENT, OUTCOME AND PREDICTORS FOR SURVIVAL IN DISTAL CHOLANGIOCARCINOMA
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Background: Distal cholangiocarcinoma has a poor prognosis. Published cohorts focusing on distal cholangiocarcinoma, especially from Western countries, are lacking. This study investigated treatment, outcome and predictors for survival in a nationwide cohort of patients with distal cholangiocarcinoma.

Methods: A population-based cohort derived from the Netherlands Cancer Registry (NCR) was studied. Patients registered to have distal cholangiocarcinoma, both resected (2005-2015) and non-resected (2009-2015) were included. Registered diagnosis of cholangiocarcinoma was based on the diagnosis as described in the patients medical file. Only patients with cytological and histological confirmation of adenocarcinoma were included. Survival was analyzed using the Kaplan Meier method. Missing data (1.3-13.1%) occurred in 6 variables and were handled with multiple imputation. A multivariable Cox regression model using backward selection was created and included known/expected predictors of survival and predictors that were of borderline significance (p<0.2) in univariable Cox regression analysis.

Results: A total of 794 patients was identified; 513 resected patients and 321 non-resected patients. In resected patients, 30-day mortality was 5.6% and 37 patients (7.8%) received (neo-)adjuvant treatment. Of the non-resected patients, 147 (45.8%) presented with metastatic disease, of which 78 (53.1%) occurred in the liver. Sixty-three (19.6%) non-resected patients received palliative chemotherapy. Median follow-up time of censored patients was 47 months (3.9 years). Median overall survival for resected, non-resected M0, and non-resected M1 disease was 23 months (95% CI 21-26), 6 months (95% CI 5-8) and 4 months (95% CI 4-5) (p<0.001), respectively. In multivariable analysis, UICC T3/T4 stage (p=0.006), higher lymph node ratio (p<0.001), poor tumor differentiation (p=0.001) and R1 resection (p=0.002) were negative predictors for survival in resected patients. In patients without a resection, increasing age (p=0.007), lymph node metastases (p=0.013), distant metastases (p<0.001), no surgical exploration (p=0.011) and no palliative chemotherapy (p<0.001) were negative predictors for survival.

Conclusion: This nationwide, Western study includes the largest population with all stages of distal cholangiocarcinoma. The study identified predictors for survival in both the resected and non-resected population which can be useful to stratify future trials with (neo-)adjuvant or palliative treatment.

P 47. LOWER IS HIGH ENOUGH: NEW SUGGESTED THRESHOLD FOR POSTOPERATIVE DAY 1 DRAIN-FLUID-AMYLASE POST PANCREATODUODENECTOMY

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Background: The use of day one drain-fluid-amylase (DFA-1) to predict post-operative pancreatic fistula (POPF) following pancreatoduodenectomy (PD) remains controversial. This stems in part from the wide variation in published cut off levels for when a DFA-1 correlates with fistula development. We aim to assess the significance of a DFA-1 level of 5000 U/L, and further try to establish the optimal DFA-1 threshold best correlating with fistula formation.

Methods: The American College of Surgeons-National Surgical Quality Improvement Program (NSQIP) pancreatectomy targeted files were queried from 2014-2016 to identify patients who underwent PD. Only patients with a recorded DFA-1 level were included for analysis. Patients with fistula were divided into biochemical leak (A) and the clinically relevant (B/C) based on the documentation of intervention, and those with an apparent grade A incorporated with the no fistula group. For statistical analysis, DFA-1 was recorded as a dichotomous variable using the cut off of less or greater than 5000 U/L. A Receiver Operator Characteristic (ROC) curve was plotted to determine the optimal DFA-1 to predict fistula formation.

Results: We identified a total of 9432 cases of PD, of which only 2545 (27%) had a postoperative DFA-1 level recorded. A fistula was recorded in 410 (16.2%) consisting of 277 (67.5%) A and 133 (32.5%) B/C grade fistulae. A postoperative DFA-1 level of 5000 U/L significantly correlates with development of a grade B/C pancreatic fistula with a specificity of 84.4% and sensitivity of 32.3% (positive predictive value of 10.3% and negative predictive value of 95.7%). The area under the curve for B/C was 0.792 (p<0.001) setting a specificity of 80%, the ROC curve demonstrated that a cut off value of 800 U/L, provided a sensitivity of 68.6%.

Conclusion: The current suggested cut off DFA-1 value of 5000 U/L is statistically significant of fistula development post PD, however its sensitivity is poor. The ROC determined value of 800 U/L would appear to be a more appropriate level for detection of B/C fistulae.

P 48. THE EVALUATION OF PROGNOSIS OF DUCTAL PANCREATIC CARCINOMA IS IMPROVED BY UICC TNM 8TH EDITION (TNM8)?

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Background: On January 2017, Union for International Cancer Control's (UICC) TNM 8th edition (TNM8) came into effect. We reviewed histological examinations of patients resected for ductal pancreatic carcinoma according to the upgraded classification to evaluate possible differences in patients prognosis in respect to TNM 7th edition (TNM7).

Methods: Between January 2010 and December 2016, at the Humanitas Cancer Center Pancreatic Unit 304 resections for ductal pancreatic carcinoma without a neoadjuvant therapy were performed. Patients were classified according to TNM7 and TNM8 histological diagnoses. The following clinical and demographic patients' characteristics were included in the analysis: age, gender, symptoms at diagnosis, body mass index, American Society of Anesthesiologists physical status score (ASA), Charlson Index, pre-operative CA19-9, postoperative complications according to Clavien-Dindo classification, radical resection (R), tumor grade (G), angio invasion neuro invasion, postoperative chemotherapy (CT). TNM7 and TNM8 were compared by using the Kappa Cohen agreement index. The impact of differences between the two classification was evaluated in term of prognosis considering overall survival (OS). Survival curves were estimated by Kaplan Meier Method and differences between groups were evaluated by the log-rank test. Hazard ratio and their corresponding 95% confidence intervals (CI) were calculated by the Cox Regression Hazard model. All analyses were performed using SAS version 9.4.

Results: The 304 analyzed patients were grouped as follow: 3 were classified as IA (T1N0M0) 1 as IB (T2N0M0), 8 as IIA (T3N0M0), 1 as III (T4anyNM0) and 20 as IV (M1) stages in both TNM7 and TNM8. Thirtyseven patients IIA stage for TNM7 were reclassified in TNM8: 11 as IA and 26 as IB stages. Two hundred and thirty four patients were classified as IIB (T1/2/3N1M0) stage for TNM7, while TNM8 subclassified them as IIB stage (T1/2/3N1M0, n=121) by positive regional lymph nodes ≤3, and III stage (T1/2/3N2M0, n=113) by positive regional lymph nodes >3; this difference results in the low value of Kappa:0.44. We then analyzed the subgroups of TNM7 IIB patients, stratifying OS for TNM8 (IIB and III). IIB patients showed a better prognosis (median: 29.2 months) versus III (median: 17.5 months, p value <0.001). This improvement in OS corresponds to a HRIIIvsIIB: 1.59 (CI95%: 1.14;2.23) adjusted for all statistically significant factors in the univariable evaluations which confirmed their effect in the multivariable model: pain as symptom at diagnosis, ASA, type of surgery, G, R, and postoperative CT.

Conclusion: A number of positive lymph nodes higher than 3, taken into account by UICC TNM 8th edition, effectively corresponds to a significantly worse prognosis

P 49. CLINICAL CRITERIA FOR INTEGRATED MOLECULAR PATHOLOGY IN IPMN: LESS IS MORE

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Background: PancraGEN is a malignancy risk score for pancreatic cysts integrating cyst fluid DNA/molecular profile and clinical criteria (IMP.) Aside from main pancreatic duct diameter (MPD), integrated clinical criteria (CEA, growth rate, and cyst size) are not International Consensus Guidelines high-risk stigmata. We sought to determine if exclusion of all clinical criteria except MPD could simplify the IMP and better predict invasive IPMN or malignancy.

Methods: A retrospective review of a prospective database of over 1100 patients with IPMN from a single institution was performed. Of these, 227 had non-malignant cytology with PancraGEN testing at least once for a total of 285 IMP cases. One hundred cases were followed by surgery and 185 were followed with surveillance for â‰¥ 23 months. IMP sensitivity (Sn,) specificity (Sp,) and accuracy for malignancy was compared to DNA/molecular profile including only MPD â‰¥10mm (IMP-10.) Invasive outcomes were invasive IPMN/adenocarcinoma on surgical pathology, biopsy-proven adenocarcinoma during surveillance, or radiographic mesenteric vascular invasion or metastatic disease. Malignant outcomes included high grade IPMN (HGD-IPMN) plus invasive-defined pathology.

Results: IMP-10 had higher Sp and accuracy for predicting invasive disease compared to IMP in surgery + surveillance patients (Sp 90.2% vs 73.6%; Accuracy 89.8% vs 74.0%). However, IMP was more sensitive for predicting invasive disease compared to IMP-10 for the surgery + surveillance group (88.9% vs 77.8%). Trends were similar in surgery patients alone.

Conclusion: Inclusion of multiple clinical criteria in IMP captures more invasive cases than IMP-10 but with less specificity and accuracy. Thus, more patients without invasive disease are improperly identified and may be subject to unnecessary surgery. IMP-10 excludes clinical factors that are unreliable predictors of invasive risk resulting in greater accuracy in predicting invasive disease and more selectivity in who is recommended for surgery.

P 50. EN BLOC CELIAC AXIS RESECTION (CAR) FOR PANCREATIC ADENOCARCINOMA (PDAC): OUTCOMES AND CLASSIFICATION SYSTEM

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Background: CAR may offer oncologic benefit in selected PDAC pts. The terms â€œAppleby, modified Appleby, and DP-CARâ€ are inadequate in defining the extent of resection, need for formal revascularization, and associated multivisceral resection. We sought to assess perioperative/oncologic outcomes with en bloc CAR for PDAC and develop an accurate classification system for such advanced resections.

Methods: Single institutional review of patients undergoing CAR for PDAC (1994-2017). Perioperative/oncologic outcomes assessed. A standardized CAR classification system was created using anatomic/radiographic/operative data based on extent of arterial resection, need for revascularization, pancreatectomy type, and associated gastrectomy: Class 1 Celiac Axis only, Class 2 Celiac Axis/GDA/PHA, Class 3 Celiac Axis/SMA +/- GDA/PHA. See Figure

Results: Fifty-five CARs were performed for PDAC. Majority (84%) in modern era (post-2011) with 22 (40%) cases in 2017 alone. Neoadjuvant chemotherapy utilized in 45 (82%) pts. with sequential chemoradiation in 40 (73%). We identified 30 Class 1 resections (27 - Class 1A; 3 - Class 1B), 15 Class 2 resections (8 - Class 2A; 7 - Class 2B), and 10 Class 3 resections (7 - Class 3A; 3 - Class 3B). Arterial revascularization was required in 28 (51%) pts. Concurrent venous resection/reconstruction required in 37 (67%) pts. Median EBL, PRBCs, operative time, hospital stay were 1200cc, 2 units, 482 min, 11 days respectively. Major complications (grade IIIA) in 31 (56%) pts. and unchanged over time with gastric/hepatic ischemia in 8/13 pts. respectively with 9 (16%) requiring reoperation for ischemia. No patients with revascularization required emergent gastrectomy. 90-day mortality was 15% (8 pts.) with significant decrease in modern era (37.5% vs. 10.6%, p=0.04). R0 resection in 48 (87%) pts. with major pathologic response (grade 0/1) in 37%. Extent of resection (Celiac Class) or need for arterial revascularization did not negatively influence major morbidity, mortality, or survival outcomes. Median RFS/OS was significantly greater (28.3 vs. 2.8; 48.7 vs. 8.0; p=0.001) in neoadjuvant cohort. Extended duration (5 cycles) chemotherapy (p=0.001), and pathologic response (p=0.02) predicted improved survival.

Conclusion: Mortality after CAR for PDAC has significantly decreased in modern era however morbidity remains unchanged. Improved long-term survival in the neoadjuvant setting with extended chemotherapy may justify increased short-term perioperative risks. Our proposed classification accurately describes potential CAR procedural variations dependent on extent of arterial resection, pancreatectomy type required, arterial revascularization need, and associated gastric resection. Proposed

classification system allows for future standardized reporting given increase in such advanced locoregional en bloc resections with advent of effective modern neoadjuvant therapeutics.

P 51. PANCREATIC STELLATE CELL ACTIVATION IS REGULATED BY FATTY ACIDS AND ER STRESS

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Background: Introduction: Pancreatic pathologies are characterized by a progressive fibrosis process. Pancreatic stellate cells (PSC) play a crucial role in pancreatic fibrogenesis. Endoplasmic reticulum (ER) stress emerges as an important determinant of fibrotic remodeling. Overload of fatty acids (FA), typical to obesity, may lead to lipotoxic state and cellular stress. The aim of our research was to study the effect of different lipolytic challenges on pancreatic ER stress and PSC activation.

Methods: Primary PSCs were exposed to different FAs, palmitate (pal) and oleate (ole), at pathophysiological concentrations typical to obese state, and in acute caerulein-induced stress (cer). PSC activation and differentiation were analyzed by measuring fat accumulation (oil-red staining and quantitation), proliferation (cells count) and migration (wound- healing assay). PSC differentiation markers (α-sma, fibronectin, tgf-β² and collagen secretion), ER stress unfolded protein response and immune indicators (Xbp1, CHOP, TNF-α, IL-6) were analyzed at the transcript and protein expression levels (quantitative RT-PCR and western blotting).

Results: PSC exposure to pal and ole FAs (500 µM) increased significantly fat accumulation. Proliferation and migration analysis demonstrated that ole FA retained PSC activation, while exposure to pal FA significantly halted proliferation rate and delayed migration. Cer significantly augmented PSC differentiation markers α- sma, fibronectin and collagen, and ER stress and inflammation markers including Xbp1, CHOP, TNF-α and IL-6. The ole FA treatment significantly elevated PSC differentiation markers α-sma, fibronectin and collagen secretion. PSC ER stress was demonstrated following pal treatment with significant elevation of Xbp1 splicing and CHOP levels.

Conclusion: Exposure to pal FA halted PSC activation and differentiation and elevated ER stress markers, while cer and ole exposure significantly induced activation, differentiation and fibrosis. Thus, dietary FA composition should be considered and optimized to regulate PSC activation and differentiation in pancreatic pathologies.

P 52. THE IMPACT OF PET-CT IMAGING ON TREATMENT RESPONSE IN BORDERLINE RESECTABLE PANCREATIC CANCERS: CAN TUMOR REGRESSION BE IDENTIFIED BEFORE SURGERY?

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Background: Borderline resectable pancreatic cancer is often managed with neoadjuvant chemotherapy. The role of positron emission tomography (PET-CT) in surgical planning for this group of patients is currently unclear. The purpose of this study is to test the hypothesis that a decrease in Standard Uptake Unit (SUV) of >30% in patients with borderline resectable pancreatic cancer will correlate with higher pathologic grade of response to neoadjuvant treatment.

Methods: After IRB approval, patients were identified from a pancreatic cancer database who received a PET-CT at the beginning of neoadjuvant therapy and a repeat PET-CT prior to consideration for surgical resection during the study period (2007-2016). Data including pre-and post-treatment PET-CT results, pathologic response to treatment, and margin status were collected from electronic medical record.

Results: A total of 190 patients underwent PET-CT imaging as part of their initial staging workup of a pancreatic cancer. Of these, 65 patients underwent neoadjuvant therapy for borderline resectable disease. 7 had a treatment response but were not fit for surgery, 29 had progressive disease on repeat imaging and were spared surgery. 29 patients had stable or responsive disease on repeat imaging, and were taken to the operating room with the intention of curative resection. Pathologic specimens were graded for biologic response to chemotherapy according to the College of American Pathologists Cancer Protocols: 1 patient had complete pathologic response (grade 0), 7 patients had marked response with minimal residual tumor (grade 1), ten had a moderate response (grade 2) and seven had poor or no response (grade 3).

Of the 29 patients who underwent surgery, 20 patients demonstrated a significant metabolic response on PET-CT imaging (> 30% decrease in SUV). An additional 3 patients had marginal decrease in SUV but demonstrated a smaller area of FDG-avid tumor size. 3 patients had planned resection but were found to have evidence of peritoneal spread at surgery. When analyzing both imaging characteristics and tumor response to therapy, we found patients with a combination of at least a 30% decrease in SUV who also were noted to have a 50% decrease in tumor size were more likely to have a grade 0 or 1 pathologic response to neoadjuvant treatment (p=0.036).

Conclusion: These findings demonstrate an association between radiographic response to neoadjuvant treatment on PET-CT imaging and biologic response in the

tumor. Further work will be needed to determine potential prognostic information gained from the degree of tumor regression.

P 54. EVALUATION OF STAGE-SPECIFIC SURVIVAL FOLLOWING PANCREATECTOMY IN THE NATIONAL CANCER DATA BASE: WHEN DOES SURGICAL VOLUME MATTER MOST?

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Background: Surgical volume clearly affects survival after pancreatectomy. However, it is unknown whether a subset of patients may benefit most from surgery at high volume centers.

Methods: The National Cancer Data Base was used to identify patients undergoing resection for pancreatic adenocarcinoma between 2004-2011. Patients were grouped based on AJCC pathologic stage. Stage-specific Kaplan-Meier survival curves were compared across hospital volume quartiles using the log-rank test, and Cox proportional hazards modelling performed.

Results: Of 26,105 patients undergoing resection, 4,077 had stage I disease. The volume effect was most significant for Stage I patients, where median survival was 14.4 months longer comparing highest to lowest volume quartiles, whereas only a 4.2 month difference was observed for Stage II, and 1.7 month for Stage III (Figure 1). In Stage I patients, high volume hospitals had more R0 resections (91.9% vs 87.0%, $p<0.0001$), higher average lymph nodes examined (12.5 vs. 8.8, $p<0.0001$), and fewer patients receiving surgery alone (44.6% vs 50.8%, $p<0.0001$). On Cox modeling for Stage I patients, adjusted for socioeconomic and demographic factors, R0 resection (HR=0.482 [0.423–0.549]) and high (HR=0.752 [0.670–0.845]) or very high hospital volume (0.705 [0.626–0.794]) were strong predictors of survival, while neoadjuvant therapy was associated with worse survival (HR 1.446 [1.270–1.650], $p<0.0001$).

Conclusion: The survival benefit from high volume hospitals is most pronounced for Stage I disease, resulting in 14.4 months improved median survival. Patients with early stage tumors, while perhaps posing fewer operative challenges, potentially represents a subset with the highest incentives to seek high volume surgical centers.

P 57. FLUID ADMINISTRATION AND SURGICAL OUTCOMES AFTER PANCREATODUODENECTOMY: EXTERNAL VALIDATION OF VARIABLE FLUID REGIMENS AT A TERTIARY REFERRAL CENTER

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Background: Intraoperative fluid overload is associated with higher complication rates, prolonged hospitalization, and delayed recovery after major abdominal surgery. However, data following pancreatoduodenectomy (PD) are scarce and heterogeneous, with several proposed cutoffs for restrictive and liberal fluid infusion rates. In a single cohort of PD patients from a tertiary referral center, we validated prior definitions of restrictive and liberal fluid regimens and analyzed whether they affected surgical outcomes.

Methods: Studies comparing outcomes after pancreatic resections in patients who received standard vs. overload, restricted vs. overload, or restricted vs. standard intraoperative fluids were retrieved through web search. Anesthetic records of patients who underwent pancreatoduodenectomy at our institution were analyzed for intraoperative fluid administration, and surgical outcomes retrospectively analyzed from a prospective database. The relative risk (RR) and 95% confidence intervals for each outcome were calculated for the previously reported infusion regimens.

Results: Anesthetic data were available for 506 PDs. Mean age was 66 years, 45.8% were male, and mean BMI was 27.0. The median intraoperative fluid administration volume was 4250mL (3000-5500mL), with a median infusion rate of 10.2mL/kg/h (8.2-13.2mL/kg/h), and a 7:1 ratio of crystalloid to colloid administration. Nine cut-off values reported in previous studies were validated. Two regimens used total intraoperative volume cutoffs of <4000mL vs. >5000mL and <6000mL vs. >6000mL. The remaining 7 regimens evaluated various infusion rates, ranging from 5-15mL/kg/h.

Total volume administration of >6000mL and >5000mL were associated with an increased overall complication rate [RR 1.25 (1.09-1.44) and RR 1.17 (1.01-1.35), respectively], and >6000mL was associated with increased sepsis [RR 2.14 (1.04-4.42)]. Conversely, restrictive fluid regimens of <5mL/kg/h increased the risk of pancreatic fistula [RR 3.16 (1.06-9.41)] and sepsis [RR 3.20 (1.08-9.53)]; <6.8mL/kg/h was associated with an increased risk of major morbidity [RR 1.64 (1.01-2.68)] and sepsis [RR 2.27 (1.02-5.07)], while <8.2mL/kg/h was associated with an increased risk of pancreatic fistula [RR 2.16 (1.08-4.32)]. No fluid regimen-related effects were observed on pulmonary complications, surgical site infections, hospital length of stay, or mortality.

Conclusion: Variable restrictive and liberal intraoperative fluid infusion volumes and rates had limited effects on surgical outcomes following pancreatoduodenectomy, except at extreme restrictive and liberal values. Current recommendations for restrictive fluid administration and incorporation into enhanced recovery protocols require further validation following pancreatic resection, given the overall limited effect on morbidity and mortality.

P 59. PATTERNS OF DISEASE RECURRENCE FOLLOWING NEOADJUVANT THERAPY FOR LOCALIZED PANCREATIC CANCER

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Background: Among patients with pancreatic cancer (PC) who are treated with a surgery-first approach, median survival is approximately two years and over 20% have local disease as the first site of recurrence; likely related to the high rates of node positive (~60%) and margin positive (~40%) disease. In contrast, neoadjuvant therapy and surgery have been associated with median survival durations of greater than three years and decreased rates of lymph node and margin positivity. The improved survival implies a greater level of systemic disease control; the importance of local disease control is controversial largely due to a lack of available data.

Methods: Consecutive patients with localized PC who received neoadjuvant therapy and surgery underwent post-treatment radiographic surveillance at 3-4 month intervals for the first 2 years and at 6 month intervals thereafter. The first site(s) of failure was classified as local recurrence (LR) for peripancreatic or perivascular recurrences, regional recurrence (RR) for peritoneal or abdominal wall recurrences, and distant recurrence (DR) for all other recurrence sites.

Results: Neoadjuvant therapy and surgery was completed in 231 consecutive patients; 115 (50%) with resectable and 116 (50%) with borderline resectable PC. Neoadjuvant therapy consisted of chemoradiation (n=75, 32%), chemotherapy alone (37, 16%), or both (119, 52%). Of the 231 patients, 137 (60%) had node negative disease and 207 (90%) had margin negative resections. Postoperative adjuvant therapy was completed in 138 (60%) of the 231 patients, including 27 (12%) patients who received adjuvant chemoradiation. At a median follow-up of 24.3 months, disease recurrence was present in 128 (55%) of the 231 patients (the first site(s) of recurrence are summarized in Figure 1). Of the 231 patients, 221 (96%) received radiation and 10 (4%) did not. Isolated LR occurred in 3 (30%) of the 10 patients with no radiation and 16 (7%) of the 221 patients who received radiation (p=0.04). Median overall survival (OS) was 43 months; not reached, 31.5, 19.4, and 24.8 months for patients with no recurrence, isolated LR, any RR without DR, and any DR, respectively.

Conclusion: Patients who successfully complete all intended neoadjuvant therapy and surgery have a median OS greater than three years, and a greater than 50% reduction in isolated LR. Despite the increased length of survival observed with neoadjuvant therapy, LR rates have not increased. As survival duration increases, neoadjuvant chemoradiation may be an important treatment component in minimizing isolated LR, which may be a preventable cause of patient death.

P 60. READMISSION AFTER PANCREATECTOMY: CAN IT BE PREVENTED?
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Background: Pancreatectomy has a significant rate of procedure specific morbidity despite recent improvements in mortality. Morbidity is a predictor of readmission in this population. As proposals to base insurance reimbursement on quality of care are being considered, attempts to predict readmission have taken on a new focus. The goal of this study is to determine what factors are associated with readmission after pancreatectomy and whether any intervention can prevent intervention.

Methods: A retrospective review of a single institution's pancreatectomies between January 2011 and April 2015 was performed. Exclusion criteria included subjects missing data for initial hospitalizations, subjects who died during initial hospitalization and pancreatectomies done for trauma. Data concerning patient demographics, intraoperative details, pathology, in-hospital complications, and follow-up were collected. Grades of delayed gastric emptying (DGE) and pancreatic fistula (PF) were calculated using the International Study Group of Pancreatic Surgery (ISGPS) calculator found on the Pancreas Club website. Information regarding 90-day readmission was gathered as well. Univariate and multivariate analyses were performed to determine which factors increase risk for readmission.

Results: A total of 257 patients met inclusion criteria; the 90-day readmission rate was 32.7%. Unadjusted comparisons between patients readmitted and those not readmitted suggested significant ($p<0.05$) differences in the distribution of PF, surgical site infection and marginally significant ($p<0.1$) differences in the distribution of body mass index (BMI) and hospital-induced delirium. Readmitted patients were more likely to have a PF and the incidence of PF was higher in the readmitted patients across all PF grades (A-C). Surgical site infections, both superficial and deep, were more common in readmitted patients (18% vs 6.4%, $p=0.0138$). There was a trend towards higher prevalence of obesity (42% vs 33%, $p=0.0713$) and higher incidence of hospital-induced delirium (11% vs 5%, $p=0.0985$) among readmitted patients compared to those not readmitted. Upon multivariable adjustment, only pancreatic fistula ($p=0.0005$) and BMI ($p=0.0793$) remained as significant and marginally significant predictors of readmission, respectively. A positive dose-response relationship was noted between pancreatic fistula grade and the odds of readmission with odds ratios (ORs) ranging from 1.6 (95% CI: 0.6-4.1) for Grade A to 16.7 (95% CI: 1.8-156.8) for Grade C, albeit with limited precision.

Conclusion: Readmission after pancreatectomy is a common occurrence despite the advancements in perioperative care. Our data suggests that PF and obesity are risk factors for readmission after pancreatectomy. Presently, these factors are not

preventable. This suggests that readmission may not be the best measure of quality to utilize in the evaluation of pancreatic surgery.

P 61. EXPLORING THE UTILITY OF EARLY DRAIN REMOVAL FOLLOWING DISTAL PANCREATECTOMY: A PROPENSITY SCORE MATCHED ANALYSIS

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Background: The practice of early drain removal has demonstrated improved outcomes when applied to pancreatoduodenectomy, yet robust evidence for its benefit following distal pancreatectomy (DP) is lacking to date. Furthermore, recent studies have elucidated both specific risk factors and a postoperative day (POD) 1 drain fluid amylase (DFA) threshold of > 2000 that are predictive of clinically-relevant fistula (CR-POPF) after DP, providing means to identify optimal candidates for early drain removal. This study aims to explore the efficacy of early drain removal following DP in light of these contemporary concepts.

Methods: 456 DPs were performed at two institutions from 2013-2017. Outcomes were compared between de facto "early" (≤ POD5) and "late" (> POD5) drain removal groups. Multivariable logistic regression was adjusted for previously identified risk factors for CR-POPF after DP (age, BMI, albumin, pathology, vascular resection, splenectomy, and POD1 DFA), as was 1-to-1 propensity score matching across the early and late removal groups for the outcome of CR-POPF.

Results: Overall, there were 95 CR-POPF (20.8%) and the median POD1 DFA was 1634 (IQR 557-3122). Drains were removed early (POD5) in 57.2% (N = 256) of DPs. The median day of drain removal in the early and late groups was 4 (IQR 3-5) and 13 (IQR 7-22) (p< 0.001), with a CR-POPF rate of 6.9% vs. 39.2% (p< 0.001), respectively. Patient characteristics, POD1 DFA, and postoperative outcomes were also analyzed between the two cohorts (Table 1). Following multivariable regression, POD1 DFA > 2000 (OR = 1.96, p = 0.037) and late drain removal (OR = 7.37, p< 0.001) were the only significant predictors of CR-POPF. Propensity matching (N = 174) maintained a significantly lower CR-POPF rate in the early removal group (8% vs. 41.4%, p< 0.001). Among patients who did not develop a CR-POPF, those whose drains remained longer than 5 days demonstrated significantly worse outcomes compared to those with early removal, including higher rates of any (Accordion 1; 71.6% vs. 36.8%, p< 0.001) and severe (Accordion 3; 11% vs. 3.8%, p = 0.012) complications, and longer median length of stay (9 vs. 7, p< 0.001). A POD5 DFA 50 had the greatest negative predictive value (86.8%) for subsequent development of CR-POPF, while POD5 DFA > 5000 had the highest positive predictive value (56.5%). A POD5 DFA cutoff of 100 provided the best overall prediction of CR-POPF (AUC = 0.694).

Conclusion: This study represents the largest examination of drain management following DP to date and substantiates early drain removal as a "best practice to achieve better outcomes following distal pancreatectomy. Furthermore, drain amylase

values on POD5 can aid in determining which patients will develop CR-POPF thereafter, and therefore mandate longer drain duration.

P 63. INFLUENCE OF THE LOCATION (HEAD, BODY, TAIL) OF PANCREATIC DUCTAL ADENOCARCINOMA ON TUMOR STAGE, TREATMENT AND SURVIVAL: A POPULATION-BASED ANALYSIS
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Background: The influence of the location (head, body, tail) of pancreatic ductal adenocarcinoma (PDAC) on tumor stage, treatment and survival is unclear and investigated sporadically. Therefore, we studied differences in patient and treatment characteristics and outcomes between pancreatic head, body and tail cancers of all stages in the Netherlands during the past decade.

Methods: Adult patients with PDAC (all stages) diagnosed between 2005-2015 from the population-based Netherlands Cancer Registry were included. Patient, tumor and treatment characteristics were compared for the different tumor locations. Multivariable logistic and Cox regression analyses were used to determine independent influence of tumor location on the likelihood of receiving treatment and survival, respectively.

Results: Among 19,098 included patients, locations were 13,502 (71%) head, 2,435 (13%) body and 3,161 (16%) tail. Differences were found regarding tumor stage (M1: head 42%, body 69%, tail 84%, p<0.001), size (>4 cm: head 21%, body 40%, tail 51%, p<0.001) and resectability (resected: head 18%, body 5%, tail 7%, p<0.001), see Table 1. Median overall survival after resection was 16.8, 15.0 and 17.3 months for location head, body and tail, respectively (p=0.156). In multivariable analyses, after adjustment for tumor and treatment characteristics, overall survival was similar for (non-)resected M0 subgroups, but was lower for M1 patients with body or tail cancer compared to head cancer (adjusted HR 1.13, 95% CI 1.07-1.19 and 1.25, 95% CI 1.19-1.31, respectively).

Conclusion: Cancers detected in the pancreatic body or tail were less common, larger, more often metastasized and less often resectable than pancreatic head cancers. If resected, however, survival was similar. In patients with metastatic disease, survival of patients with body or tail cancer was significantly worse compared to patients with a head tumor.

P 65. VALUE OF C-REACTIVE PROTEIN AND WHITE BLOOD CELL COUNT IN THE EARLY DETECTION OF COMPLICATIONS AFTER PANCREATODUODENECTOMY

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Background: Inflammatory biomarkers such as C-reactive protein (CRP) and white blood cell count (WBC) have shown potential in the early identification of patients with complications after pancreatoduodenectomy (PD). Yet, studies pertaining to these biomarkers are usually limited to the first three days after surgery and solely focus on their absolute value. In the present study, we aimed to examine additional features of the longitudinal trajectory of CRP and WBC, besides the absolute value, during the first seven days after PD. In addition, we assessed the temporal relation between the inflammatory biomarkers and complications.

Methods: This study included patients who underwent a PD between January 2012 and December 2016. Serum level of CRP and WBC were collected up to postoperative day (POD) 7. The primary endpoint (PE) consisted of 30-day complications grade â‰¥ 3 conform Clavien-Dindo Classification. Associations between CRP and WBC, on POD 3,5 and 7, and the PE were investigated using a joint modelling approach, which is a combination of a Cox-model and mixed model. This approach enabled us to assess the slope value, correctly handle missing data in the longitudinal measurements and examine the temporal relation between the biomarkers and PE. To determine discriminatory capabilities, area under curve (AUC) values were determined relating to complications up to POD 30 (30-AUC) and complications within 7 days after the actual measurement (7-AUC). Moreover, our findings were externally validated.

Results: A total of 231 consecutive patients were included, of which 35.9% experienced the PE at a median of 8 days after surgery. CRP values on POD 3,5 and 7 were associated with PE (P<0.001), corresponding 30-AUC values were 0.72, 0.72 and 0.71, respectively, while the 7-AUC values were 0.80, 0.75 and 0.74. The 30-AUC values of the slope of the longitudinal CRP trajectory were 0.65, 0.62 and 0.54, respectively. WBC measurements proved to be associated with PE on POD 5 and 7 (P=0.017 and P<0.001, respectively), with corresponding 30-AUC values of 0.61 and 0.70, while 7-AUC values of 0.67 and 0.77 were observed for POD 5 and 7, respectively. The slope of the longitudinal trajectory of WBC demonstrated a 30-AUC of 0.48, 0.62 and 0.70 for POD 3, 5 and 7, respectively. Figure 1 shows the 30-AUC values for CRP and WBC values throughout the first seven days after surgery with regard to PE.

Conclusion: The absolute value of CRP demonstrated superiority compared to the absolute value of WBC up to POD 5 in detecting complications after PD. The slope of the longitudinal trajectory of CRP and WBC showed to be associated with the PE and

may be of clinical value. CRP and WBC values demonstrated to be associated stronger to complications within 7 days after measurements as compared to complication up to POD 30.

P 66. RINTATOLIMOD (AMPLIGEN®) MAINTENANCE THERAPY IN PANCREATIC CANCER PATIENTS: RESULTS FROM A SINGLE CENTER PILOT COHORT STUDY

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Background: In pancreatic cancer, studies have shown that elevated neutrophil-to-lymphocyte ratio (NLR) and elevated systemic inflammation index (SII) are related to poor survival. Rintatolimod (Ampligen®) is a Toll-like 3 receptor (TLR3) agonist that is known for its ability to drive maturation of human myeloid dendritic cells, and secretion of inflammatory cytokines. Therefore, it acts as an immune stimulator drug. The aim of this pilot study was to assess whether Amligen could stimulate changes in the NLR and SII in patients with pancreatic cancer and therefore be an interesting adjuvant in future clinical trials. In addition, we aimed to study the systemic immune profile changes in depth to better understand the mechanism of this drug in patients with pancreatic cancer.

Methods: Pancreatic cancer patients diagnosed with any stage of pancreatic cancer received Ampligen maintenance therapy in a named patient program after completing the standard of care. A dose of 400 milligrams intravenous Ampligen was administered twice a week until progression of disease or for a maximum of 18 weeks. Patients were monitored for any sign of toxicity during the treatment period. The status of the disease was monitored with a CT-scan every 6 weeks following Ampligen induction until progression of disease. To study immunologic changes, blood samples were drawn before the start of Ampligen therapy and every 6 weeks thereafter until discontinuation of the drug. NLR ratios, SIIs and disease progression were assessed for every patient. The blood samples were also analyzed by flow cytometry and a broad panel of immune cells related to the TLR3 were measured.

Results: Since February 2016 a total of 26 patients have been included for maintenance therapy with Ampligen. The majority was male (65.4%) and the mean age was 62.3 years (SD 7.4 years). There were 5 patients included after Whipple surgery, 4 patients with locally advanced disease and 17 patients with metastatic disease. At baseline, the mean NLR and the mean SII were elevated more as disease stage was more advanced (NS). At week 6, the NLR was significantly elevated (p=0.029) in patients with progressive disease compared to patients without progressive disease. This was not the case for SII. Over the time frame of 18 weeks treatment, there was a slight drop in NLR and SII in patients without progression and an increase in NLR and SII in patients with progressive disease (NS). According to the response evaluation criteria in solid tumors, 5 patients showed stable disease and 2 patients showed regression of metastases during Ampligen treatment.

Conclusion: Our data confirms that higher NLR values are associated with poor outcome. During treatment, the NLR could be valuable as a predictive marker for therapy response. According to the preliminary data of this pilot study, Ampligen could induce an immune response and in addition a beneficial shift in the NLR and SII.

P 68. POSTPANCREATECTOMY BILIARY STRICTURES: AN UNDERAPPRECIATED COMPLICATION OF PANCREATICODUODENECTOMY

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Background: Given, improvements in imaging and systemic therapies, more patients are undergoing pancreaticoduodenectomies (PD) for pancreatic tumors, with a resultant increase in survival. However, 30 to 50% of patients develop postoperative complications. One complications is biliary anastomotic strictures (BASs), which is poorly understood. The aim of the study was to report current incidence and identify risk factors for developing BASs.

Methods: A retrospective study was performed on patients undergoing PD from 2007-2016. Clinicopathological data were analyzed to identify risk factors for development of BASs. Furthermore, risk factors for early development of BAS, defined as within three months of resection were identified.

Results: A majority of 2,125 patients who underwent PD was male (53.2%), white (88.6%), aged over 60 years (66.3%), and had malignant tumors (74.2%). Postoperatively 316 (16.1%), 374 (19.1%), 68 (3.4%) developed delayed gastric emptying, postoperative pancreatic fistula (POPF) and bile leak (BL), respectively.   One hundred and three (4.9%) patients developed BAS. The median time to diagnosis of BASs, was 11.3 months (IQR:4.3-23.5 months). On multivariate analysis, increased risk of BASs was associated with absence of jaundice (OR:0.53,p=0.027), benign pathology (OR:0.59,p=0.03), POPF (OR:1.61, p=2.06) and BL (OR:4.64, p=4.69), and receipt of adjuvant radiation (OR:21.85, p<0.001). Nineteen (18.5%) patients developed early-BAS. Postoperative BL was a significant predictor of early-BAS (OR 5.37: p<0.001), while all patients who received adjuvant radiation (N=12,11.7%) developed late-BSs.   All patients were treated with percutaneous biliary drainage, resulting in resolution of BASs; 13 (12.6%) requiring prolonged (> 1 year) therapy.

Conclusion: While, BASs is a less frequent complication of PD, the incidence is increasing. Independent predictors include absence of jaundice, benign pathology, POPF, BL, and adjuvant radiation. BL can predict early-BAS.

P 69. GENERATION OF PATIENT-DERIVED XENOGRAFTS IN THE ERA OF MODERN CHEMOTHERAPY
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Background: Patient-derived xenografts (PDXs) are clinically relevant, high fidelity models that allow for tissue amplification. Downstream applications include in-vivo evaluation of therapeutic sensitivities to guide individualized therapies. A majority of PDXs are created from resected treatment nave (TN) tumors. We aimed to generate PDXs from TN and neoadjuvant (NA) pancreatic cancers in order to compare engraftment and oncologic outcomes between groups, and to create modern chemotherapeutic agent resistance PDX models.

Methods: With informed consent and IRB approval, surgically resected patient pancreatic tumor tissue is implanted into immunodeficient mice. Tumor growth is monitored and histopathology is confirmed by comparing to original patient tumor. Generated PDXs were characterized using MatePair next-generation sequencing. Outcomes reported include 1) ischemic time 2) time to tumor formation (TTF days until first palpable xenograft tumor), and 3) time to tumor harvest (TTH days from implantation to harvest), and 4) engraftment ratio (ER - % of successful engraftment within a PDX model). Patient clinical, pathologic, and follow-up data were abstracted. PDXs generated from resected tumors without pathologic treatment response (CAP Grade III) were considered chemoresistant.

Results: During 1/2013-8/2017, 139 patients with histologically confirmed PDAC were implanted (48 nave and 91 neoadjuvant) with successful PDX engraftment in 70 (51%) tumors that was higher for TN tumors, p=0.02. Mate-pair analysis of PDX derived tumor demonstrated highly correlative genomic signatures to primary patient tumor. Median IT did not differ between groups (52 min vs. 65 min, p=0.1). In NA tumors successful PDX engraftment varied by therapy type: FOLFIRINOX (FFX) 51%, gemcitabine/nab-paclitaxel (GA) 62%, and combined FFX/GA 22%. Comparison of clinicopathologic features and patient outcomes between TN and NA patients and successful PDX engraftment are demonstrated in Table. Factors associated with PDX engraftment are presented in Table. In patients who had successful PDX engraftment this was associated with significantly worse clinical RFS and OS regardless of treatment status. In total, we were able to generate 19 FFX resistant models, 6 GA resistant models, and 1 FFX/GA resistant PDX model for future preclinical work.

Conclusion: We demonstrated that PDX generation after NA therapy is feasible and allows for creation of clinically relevant modern chemoresistant models. Implanted tumors with minimal treatment response (High CA19-9, +LN status, CAP Grade III) are more likely to successfully engraft. Successful PDX growth correlates with worse patient

outcomes and is a valuable translational model for any individual patient. Such modern chemoresistant PDX models are critical to detemine differential responses to current therapies as well as elucidate predictive markers of response or resistance.

P 70. RITUXIMAB DECREASES LYMPHOPROLIFERATIVE TUMORS AND INCREASES SUCCESS OF PANCREATIC PATIENT-DERIVED XENOGRAFTS

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Background: Patient-derived xenografts (PDX) provide highly clinically relevant translational cancer models that accurately recapitulate individual patient tumor histopathologic and molecular phenotypes. Benefits of PDX models are maximized by amplification and passage of primary patient tumor tissue for a variety of preclinical ex-vivo and in-vivo therapeutic sensitivity assays. Maintaining high engraftment rates is critical and loss of PDX models are generally due to engraftment failure or the development of lymphoproliferative tumors (LTs). Previous PDX work has suggested the etiology of LTs are due to tumor associated lymphocytes and/or Epstein Barr Virus activation in an immunodeficient environment. Here, we report our efforts to decrease rates of LTs from a prospectively maintained high volume pancreatic PDX program in order to improve PDX engraftment efficiency. To address the issue of LTs, we hypothesized that routine injection of rituximab (Rituxan, an anti-CD20 antibody) at time of tumor implantation would maximize engraftment by reducing the rate of confounding LTs.

Methods: With IRB and IACUC approval, surgically resected primary patient tumors were implanted into the flanks of NOD SCID mice according to our protocol. We assessed the effect of routine rituximab injection in pre- and posttreatment groups. Implanted mice were monitored weekly for time to tumor formation (TTF) and all derived PDX models were verified by a GI cancer pathologist. Chi squared and Fishers Exact test were used for statistical comparison.

Results: A total of 389 generations of pancreas PDX tumors have been implanted constituting 161 individual patient tumors. These include 59 treatment nave pancreatic adenocarcinoma (PDAC), 84 neoadjuvant PDAC, and 18 miscellaneous pancreatic tumors. Of these, 175 generations received rituximab compared to 213 that did not. Overall rates of LTs were 10.0% (6.8% in primary PDX engraftments and 12.3% in subsequent generations). Rituximab treatment decreased LT rates from 10.8% to 9% (p<0.001) across the entire cohort and was consistent in both primary PDX engraftment (7.8% to 4.4%, p<0.001) as well as subsequent generations (14.3% to 10%, p=0.001). Rituximab had the most significant decrease in LTs in miscellaneous pancreatic tumors (15.8% to 0%, p<0.001).

Conclusion: Maintaining a high engraftment rate with histologically validated tumor types is critical for the success of any high volume PDX program. Engraftment failure due to LT formation is detrimental and leads to excessive costs and inefficiencies. Rates of LTs appear to decrease and overall engraftment rates increase with routine rituximab

treatment at the time of implantation for both primary and secondary passages. Further study evaluating the etiology of LTs in PDX is warranted.

P 71. PD1 BLOCKAGE SUPPRESSES PANCREATIC CANCER GROWTH BY INHIBITING THE CROSSTALK BETWEEN TUMOR-ASSOCIATED MACROPHAGES AND CYTOTOXIC T CELLS
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Background: Antibody-mediated blockade of immune checkpoint is a new class of cancer therapy that has improved clinical outcomes in a variety of cancers. However, current results from clinical trials suggest that pancreatic cancer has very poor response to immunotherapy against checkpoint. In this study, we aim to investigate the underlying mechanism of pancreatic cancer resistance to the anti-PD1 checkpoint immunotherapy and to identify immunological markers that can be used for the prediction of response to anti-PD1 therapy.

Methods: Preparation of orthotopic murine model of pancreatic cancer was conducted by implanting pancreatic cancer cells into pancreas. Four cell lines including Panc02, Panc02-H7, KrasG12D, and KrasG12D/Trp53R172H, were used to make these models. Tumor growth were monitored using MRI. Flow cytometry was used to characterize the function and phenotype of tumor infiltrating lymphocytes. Specimen samples from consented pancreatic cancer patients were collected for the analysis of immunological profiles and clinical outcomes.

Results: Monotherapy with anti-PD1 antibody significantly suppressed tumor growth and extended the survival (24.5 to 13.6 days, p=0.001) in Panc02-H7 cell-derived orthotopic pancreatic cancer mouse model. The survival benefits were not observed in the other three models. Further studies demonstrated that anti-PD1 treatment remarkably increased the tumor infiltration of CD8+ T cells and also significantly improved their anti-tumor toxicity. Upon anti-PD1 treatment, tumor-associated macrophages underwent a phenotype transition from M2 to M1. Compared to the tumor-associated macrophages from anti-PD1 resistant tumors, the macrophages from the anti-PD1 responsive tumors significantly enhanced the cytotoxicity of CD8+ T cells against cancer cells. In addition, early CD8+ T cells infiltration was significantly higher in anti-PD1 responsive tumors than anti-PD1 resistant tumors.

Conclusion: Our preclinical study demonstrated that anti-PD1 antibody significantly suppressed pancreatic tumor growth by activating cytotoxic CD8+ T cells and promoting macrophage polarization from M2 to M1. The early infiltration of CD8+ T cells could be an immunological marker to predict the response of anti-PD1 treatment.

P 72. ROBOTIC-ASSISTED, CONVENTIONAL LAPAROSCOPIC VERSUS OPEN PANCREATECTOMY: A MATCHED POPULATION-LEVEL ANALYSIS

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Background: Robotic-assisted pancreatic surgery was introduced as a means of overcoming the 2-dimensional nature, counterintuitive movements, and decreased range of motion associated with traditional laparoscopy. However, it remains unclear whether robotic-assistance offers considerable benefit over conventional laparoscopic pancreatic surgery, as data comparing these approaches is scarce. Therefore, the present study compares the surgical and oncologic outcomes of patients who underwent robotic-assisted, conventional laparoscopic or open pancreatectomy using a nationwide cohort.

Methods: Patients who underwent robotic-assisted, conventional laparoscopic, or open pancreatectomy for pancreatic cancer between 2010 and 2014 were identified from the National Cancer Database. Propensity score models predicting the odds of undergoing robotic-assisted surgery were created separately for patients that underwent conventional laparoscopic and open surgery. Subgroup analyses were performed for distal pancreatectomy (DP) and pancreaticoduodenectomy (PD). Patients were matched on propensity score within each group.

Results: 21,692 pancreatectomies were identified, comprising of 733 (3.3%) robotic-assisted, 4,104 (18.9%) conventional laparoscopic, and 16,854 (77.7%) open pancreatectomies. During the study period, minimally-invasive surgery (MIS) became more common (2010, n=586; 2014, n=1,310) and robotic-assisted pancreatectomies increased from 10.2% to 19.9% (p<0.0001) of all MIS's. After matching, robotic-assisted pancreatectomy exhibited a lower conversion rates compared to laparoscopy (DP: 13.5% vs. 19.6%, p=0.0212; PD: 13.5% vs. 29.4%, p<0.0001). However, R0-resection rate (DP: 89.8 vs. 89.3, p=0.816; PD: 80.9% vs. 80.6%, p=0.9225), readmission (DP: 9.7% vs. 9.2%, p=0.807; PD: 7.7% vs. 9.7%, p=0.3403), or hospital stay >14 days (DP: 4.6% vs. 3.8%, p=0.5937: PD: 17.7% vs. 16.2%, p=0.6090) did not differ between groups. Similarly, R0-resection rate (DP: 89.8% vs. 85.5%, p=0.0.0652; PD: 80.9% vs. 79.1%, p=0.5651), readmission (DP: 9.7% vs. 8.7%, p=0.6209; PD: 7.7% vs. 7.1%, p=0.7689) or hospital stay>14 days (DP: 4.6% vs. 8.2%, p=0.0739; PD: 17.7% vs. 22.9%, p=0.0861) were comparable between the robotic-assisted and open groups. 90-day mortality could not be assessed separately for DP and PD. Overall, 90-day mortality for robotic-assisted surgery was similar to laparoscopy (3.9% vs. 3.9%; p=0.9973), as well as to open surgery (3.8% vs. 4.4%; p=0.664).

Conclusion: Robotic-assisted pancreatic surgery can be performed with similar perioperative outcomes achieved with conventional laparoscopic surgery. Costs, and whether robotic assistance allows promulgation of minimally invasive technologies to centers and surgeons who would not otherwise attempt MIS pancreatectomy, are critical questions outside the scope of this study.

P 73. TRENDS AND SEASONALITY IN ACUTE PANCREATITIS INCIDENCE IN THE U.S.
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Background: Acute pancreatitis (AP) incidence is increasing over the last decades in western world. There is a well-known circannual variation in incidence of certain cardiovascular and acute surgical pathologies, including AP. Seasonal patterns of AP vary in different countries. We aim to describe seasonality and trends in AP incidence, morbidity and mortality in the U.S.

Methods: Study population included 658,000 in-hospital admissions for primary diagnosis of AP (AHRQ NIS, 2000-2012). Biliary and alcohol-induced etiologies were identified by certain sets of diagnostic and procedural ICD codes. Seasonal trend decomposition based on LOESS and X-13 procedure was performed.

Results: There is a steady linear trend of alcohol-induced AP in the current 13-years span with 1.5-fold increase in incidence. Increment of biliary AP slowed around 2003. We observe July-August peak of AP admissions, more distinct for alcohol etiology, which does not depend on state average temperature. Incidence of biliary pancreatitis across the country and AP in states with low alcohol consumption also exhibit warm season surge with a secondary peak in January. At the same time, warm season is characterized by lowest mortality and length of in-hospital stay, with highest M&M in December-January. Mortality decreased 3-fold and average length of stay - 1.3-fold. With respect to etiology, seasonal and annual AP trends reflect association of biliary etiology with higher M&M and more advanced age.

Conclusion: In the U.S., we observe upgoing trend in AP incidence, more prominent for alcohol etiology. Warm season is characterized by incidence spike and minimal morbidity and mortality.

P 74. 2 YEARS, 250 ORGANOIDS: AN INSTITUTIONAL EXPERIENCE WITH AN EX-VIVO PANCREATIC TISSUE MODEL

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Background: For more than 70 years scientists and researchers have been dependent on 2-D cell lines from a limited number of patient tumors for ex-vivo modeling. With the advent of 3-D culturing techniques and organoid models, our ability to study individualized tumor biology and refined personalized medicine has increasingly become a reality. A number of labs have been successful in working with organoids in many different normal as well as tumor tissue types. Given the limitations of 2-D culture, we at the Jefferson Pancreas, Biliary and Related Cancer Center, started a new ex-vivo modeling laboratory in an attempt to find a better model of disease. Our first attempt was to launch off of our large clinical volume and establish a protocol for organoid culture in pancreatic cancer.

Methods: In brief, the specimens were received as either a core biopsy sample, from the endoscopy or radiology departments, or as an incisional biopsy of the tumor from the pathology department immediately after resection. Upon arrival in the laboratory, a representative sample of the surgical specimen was taken and fixed in formalin for histological analysis to obtain the percent tumor cellularity, Ki-67 and necrosis. The remaining sample was minced, enzymatically digested, washed, plated as domes with matrigel and finally warm feeding media was added. The specimen was observed, documented and passaged every one to two weeks to remove any debris or normal cell contamination over time. Ideally, once the specimen was confluent in over 16 wells of a 24-well plate, it was used for experimentation.

Results: 250 total human specimens were processed and plated into matrigel. The histology for the primary tissue was as follows: a) pancreatic ductal adenocarcinoma (PDA) n=75, b) neoadjuvant PDA n=11, c) neuroendocrine tumors n=8, d) ampullary adenocarcinoma n=8, e)adenosquamous n=2, f) Hamoudi tumor n=1, g) duodenal adenocarcinoma n=2, h) intraductal papillary mucinous neoplasm (IPMN) n=1, i) cholangiocarcinoma n=1, and j) chronic pancreatitis n=1. Additionally, 111 normal pancreas specimens and 29 biopsy specimens were cultured. 96(87%) of the 110 tumor organoid samples showed growth by light microscopy. 5(6.7%) of PDA organoids had a mutation for KRAS on sanger sequencing. One specimen was grown past passage 20 and able to undergo drug sensitivity testing as well as expression analysis by western blot and immunohistochemical staining for HuR.

Conclusion: We are hopeful that organoid technology can add to a personalized approach for treating pancreatic cancer, as several labs have shown some success with establishing KRAS mutant PDA organoid lines. We believe the main issues in the areas of obtaining specialized reagents and slow proliferation rates seen in PDA organoid cultures as compared to traditional 2-D culture, can be addressed and optimized.

P 75. PREOPERATIVE BIOMARKER PANEL DISTINGUISHES PDAC FROM IPMN

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Background: Pancreatic ductal adenocarcinoma (PDAC) is one of the leading causes of cancer-associated deaths worldwide. It is associated with increased coagulation and venous thrombotic events (VTE). PDAC is often diagnosed late. CA 19-9 is the most used tumor marker for PDAC, but it is more useful in follow-up than diagnosis. Intraductal papillary mucinous neoplasm (IPMN) is a benign tumor of the pancreas, which can become malignant, however pancreatic tumor surgery is extensive and should not be done needlessly. The aim of this study was to determine whether PDAC could be distinguished from IPMN preoperatively using coagulation biomarkers and whether combing them in a panel score aids diagnostics.

Methods: Patients (n=580) were operated during 2010-2015 in the Helsinki University Hospital. Of these patients 318 had preoperative coagulation variables available. Patients who had another tumor than PDAC or IPMN, had received neoadjuvant treatments or another active cancer in the previous five years were excluded. There were 80 patients with a confirmed PDAC and 18 with IPMN. Of the PDAC patients 67 had stage I-III and 13 stage IV disease. Blood cell counts, coagulation, inflammation, liver and tumor markers were analyzed 1-3 days preoperatively.

Results: FVIII, fibrinogen, CA 19-9, albumin, alkaline phosphatase and bilirubin conjugates were higher in both stage I-III and IV PDAC vs IPMN ($p<0.05$). FVIII was also higher in stage IV vs stage I-III ($p<0.05$). Combining CA 19-9 with FVIII, fibrinogen, albumin and bilirubin conjugates in a panel score increased the sensitivity and specificity for PDAC compared to CA 19-9 alone, as in a ROC curve, the AUC for the panel was 0.952 (95% CI 0.900-1.000) for the panel and 0.804 (95% CI 0.713-0.896) for CA 19-9 alone.

Conclusion: PDAC is associated with increased coagulation activity, especially FVIII, even without VTE. A combined panel score of FVIII, fibrinogen, CA 19-9, albumin, and bilirubin conjugates may provide a useful tool for PDAC diagnostics in the future.

P 76. A NOVEL IMAGING BIOMARKER FOR ASSESSMENT AND PREDICTION OF RESPONSE TO NEOADJUVANT CHEMOTHERAPY IN PATIENTS WITH RESECTABLE PANCREATIC DUCTAL ADENOCARCINOMA: QUANTITATIVE CT-DERIVED TEXTURE ANALYSIS

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Background: Currently, there are no reliable imaging methods to assess treatment response to neoadjuvant therapy for pancreatic ductal adenocarcinoma (PDAC). Tumor spatial heterogeneity on CT scan is believed to be an important prognostic factor, and can be quantified with image texture analysis. In this study, we sought to determine if CT-derived textural features correlated with histologic and biochemical treatment response in patients with PDAC.

Methods: The study included 39 patients with PDAC, who had a distinct mass >1cm. CT scans were performed before and after 2 cycles of neoadjuvant chemotherapy with gemcitabine/nab-paclitaxel hydroxychloroquine. Patients underwent surgical resection <5 days after the second CT. Late arterial phase images were used for analysis, and the region of interest was placed on the largest tumor cross section. CT textural features were extracted using commercially available software (TexRAD), which applies a 2-step filtration-histogram approach. Statistical and histogram-shape parameters, such as standard deviation (SD) of the gray-level histogram distribution, skewness (asymmetry of the histogram), kurtosis (flatness of the histogram) and mean positive pixel (MPP) were extracted. Treatment response in surgical specimen was evaluated by Evans grade on histologic examination. Biochemical response was defined as an over 50% drop in CA-19-9 level. Correlation between textural parameters, Evans grade, and biochemical response was assessed using Pearson and Mann-Whitney U tests.

Results: A statistically significant correlation was shown between kurtosis, skewness, SD and MPP on initial CT scan and Evans grade on histology. (r=-0.386, 0.428, -0.335 & 0.312; p<0.05). Tumor heterogeneity parameters on initial CT exam (SD, MPP and kurtosis) were significantly different between responders (Evans grade IIb-IV) and non-responders (Evans grade I/IIa). Tumor skewness and SD on post-treatment CT also correlated with Evans grade (r=0.342 & 0.360; p<0.05). Changes in tumor kurtosis and skewness had correlation with biochemical response (p=0.014 & 0.011, respectively). Texture parameters had better performance compared to CA-19-9 for predicting histological response based on receiver operating characteristic curve (0.830, 0.625, respectively see Figure)

Conclusion: Quantitative parameters of tumor heterogeneity on baseline CT can predict response to neoadjuvant chemotherapy on histology, and outperform CA 19-9

in patients with resectable pancreatic adenocarcinoma. Tumor heterogeneity can hence potentially be used as a surrogate imaging biomarker to predict the response to neoadjuvant chemotherapy

P 77. MORTALITY AFTER PANCREATICODUODENECTOMY: DETERMINING EARLY AND LATE CAUSES OF PATIENT SPECIFIC DEATH.

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Background: Safety of pancreaticoduodenectomy has improved significantly in the past two decades. Current inpatient and 30-day mortality rates are low. However, incidence and causes of 90-day and 1-year mortality are poorly defined and largely unexplored.

Methods: All patients who had pancreaticoduodenectomy between 2007 and 2016 were included in this single institution retrospective cohort study. Distributions of postoperative pancreatectomy-specific morbidity and cause-specific mortality were compared between early (within 90-days) and late (91-365 days) post-operative recovery period.

Results: A total of 552 pancreaticoduodenectomies were performed during the study period. Clinically significant pancreatic leak (11.8% versus 0%) and intra-abdominal abscess not related to pancreatic leak (4.0% versus 0.4%) were more common during early rather than late post-operative period (both p<0.001). Proportion of re-operations were higher in early compared to late post-operative period (6.5% versus 3.8%, respectively, p=0.041). Mortality at 30, 90, 180, and 365 days following pancreaticoduodenectomy was 6 (1.1%), 20 (3.6%), 45 (8.2%), and 90 (16.3%) patients, respectively. Causes of early and late mortality varied significantly (p<0.001). The most common cause of death within 90 days was due to intra-abdominal infection, sepsis and multiple system organ failure in 10 (50%) patients, followed by post-pancreatectomy hemorrhage in 4 patients (20%), and cardiopulmonary arrest from myocardial infarction or pulmonary embolus in 3 (15%) patients. In contrast, recurrent cancer was the most common cause of death in 45 (64%) patients during the late post-operative period between 91 and 365 days. Mortality from failure to thrive and debility, which was most frequently associated with delayed gastric emptying and failure of nutritional recovery, was similar between early (within 90-days) and late (91-365 days) post-operative periods (15% versus 16%, p=0.856).

Conclusion: A majority of quality improvement initiatives in patients selected for pancreaticoduodenectomy have focused on reduction of technical complications and improvement of early post-operative mortality. Further reduction in post-operative mortality after pancreaticoduodenectomy can be achieved by improving patient selection, mitigating post-operative malnutrition, and optimizing preoperative cancer staging and management strategies.

P 78. RELEVANCE OF THE BACTERIAL COLONIZATION OF THE BILIARY TRACT IN 285 PATIENTS UNDERGOING PANCREATIC HEAD RESECTION

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Background: In patients undergoing pancreatic head resections (PHR), preoperative cholestasis (PC) frequently requires preoperative biliary drainage (PBD). PBD, however, leads typically to bacteriobilia (BB). Since BB is known as a risk factor for surgical site infection, the application of more potent perioperative antibiotic prophylaxis (PAP) or even therapy may be necessary.

Methods: 285 PHR were performed from 1/2009 to 12/2015. Ampicillin/Sulbactam was used routinely as PAP. During surgery, a sample of the bile was taken for microbiological examination. The sensibility and resistance of 24 antibiotics were examined. Patients and microbiological findings were grouped according to the presence of PBD (PBD+/PBD-) and PC (PC+/PC-).

Results: BB was found in 150 (51%) of all patients. BB was rare in PBD-/PC- (18%) and more frequent in PBD-/PC+ (30%). Patients with PBD had significantly more often BB than without biliary drain (PBD+: 93% vs. PBD-: 7%; p<0.01). In total, 357 germs were found (342 bacteria of 24 groups and 15 fungi). Four bacteria were multiresistant. Enterococcus (n=97; 19.7%), Streptococcus (n=58; 11.8%) and Klebsiella (n=43; 8.7%) Escherichia (n=36; 7.3%) and Enterobacter (n=22; 4.5%) accounted for 52% of bacteria. Polymicrobial colonization was significantly more frequent in PBD+ (77% vs 40%; p<0,01). Imipenem (85%) and Piperacillin/Tazobactam (75%) had a higher rate of clinical efficiency than Ampicillin/Sulbactam (60%). In PBD+, a significant higher rate of sensibility was found for some bacteria: Piperacillin/Tazobactam for Enterobacter (PBD+: 91% vs. PBD-: 0%; p=0.01) and Imipenem for Klebsiella (PBD+: 100% vs. PBD-: 83%; p=0.01).

Conclusion: According to our data, the presence of PBD and PC is of clinical importance. PBD-/PC- can be considered as a low risk group and, therefore, PAP with Ampicillin/Sulbactam is appropriate. In PBD-/PC+, BB rate increases to 30% and is considered as intermediary risk with a recommended PAP of Piperacillin/Tazobactam. However, polymicrobial BB is significantly more frequent in PBD+ and a significant advantage of broadspectrum antibiotics has been found. Therefore, PBD+ is considered as a high risk group and requires a perioperative therapy with Piperacillin/Tazobactam for approximately 3 days.

P 81. PROGNOSTIC AND DIAGNOSTIC VALUE OF REG4 SERUM AND TISSUE EXPRESSION IN PANCREATIC DUCTAL ADENOCARCINOMA

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Background: Expression of regenerating islet-derived protein 4 (REG4), a secretory protein involved in cell differentiation and proliferation, is upregulated in inflammatory bowel diseases and in many gastrointestinal malignancies. The prognostic significance of its expression in pancreatic ductal adenocarcinoma (PDAC) is unknown. Our aim was to investigate tumor tissue and serum REG4 expression in PDAC patients. We also evaluated as a control the diagnostic value of serum REG4 level in patients with chronic pancreatitis (CP).

Methods: Immunohistochemical expression of REG4 was evaluated in 154 surgical specimens and serum REG4 level in 130 samples from PDAC patients treated at Helsinki University Hospital, Finland, in 2000-2011. REG4 tissue and serum expression was assessed in relation to clinicopathological parameters and patient survival. A CP control group comprised 34 patients who underwent pancreatic resection because of suspicion of malignancy.

Results: Significant survival differences were detectable in subgroups: in tumor stages IA-IIA, high serum REG4 level predicted worse survival (p=0.046). In patients with grade I tumor, positive tissue REG4 expression predicted better survival (p=0.006). In multivariate analysis, neither tissue nor serum REG4 expression were independent prognostic factors. Serum REG4 levels were higher in PDAC than in CP (p=0.002), with diagnostic sensitivity of 45% and specificity of 91%. In logistic regression analysis, a multivariate model with REG4, CA 19-9, and age provided sensitivity of 82% and specificity of 79%.

Conclusion: REG4 tissue expression is a prognostic marker in subgroups of PDAC patients. Serum REG4 level might be useful in differential diagnosis between PDAC and CP.

P 84. PREDICTORS OF EARLY DISCHARGE AFTER PANCREATICODUODENECTOMY

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Background: Pancreaticoduodenectomy (PD) is considered the standard of treatment for right-sided pancreatic tumors. For pancreatic cancer patients who have resectable tumors, PD presents the only long-term survival treatment. Despite PD being the primary treatment option for resectable pancreatic tumors, it remains one of the most complex surgical procedures and requires a prolonged hospital length of stay (LOS). In this study, we to identify predictors of early hospital discharge after PD and to determine if these vary by the operative approach.

Methods: The ACS-NSQIP pancreas-targeted database was queried to identify patients who underwent pancreaticoduodenectomy (PD) in 2014-15. Patients with postoperative length of stay (LOS) â‰¤ 5 days were classified as early discharge. Multivariate logistic regression was used to identify predictors of early vs. late discharge. Subgroup analysis was performed to determine if predictors differ between open and minimally invasive (MIS) approach.

Results: Of the 6,699 reviewed PD patients, 602 (8.9%) were discharged early. Mean age was 64 and 53.8% were male. 423 patients underwent an MIS approach (6.3%). Readmission rates were not significantly different between those who were discharged early and those who werenâ€™t (15.8% vs. 17.5%, respectively, p=0.373). Malignant pathology was also similar in both groups (79.1% vs. 80.9%, respectively, p=0.284). Younger age (p=0.004), absence of major comorbidities (COPD [p=0.032], hypertension [HTN, p<0.001]), prior chemotherapy (p=0.002), lack of vascular resection (p=0.001), absence of drains (p<0.001), MIS approach (p<0.001) and shorter operative duration (p<0.001) were independently associated with an early discharge. After subgroup analysis; younger age (p=0.001), absence of HTN (p=0.001), prior chemotherapy (p=0.002), lack of vascular resection (p<0.001), absence of drains (p<0.001) and shorter operative time (p<0.001) were significant predictors within the open PD group. However, within the MIS PD group, only shorter operative time was a significant predictor of early discharge (Table 1).

Conclusion: Perioperative factors that predict early discharge after PD include younger age, absence of major comorbidities, neoadjuvant chemotherapy, MIS approach, lack of vascular resection, absence of drains and shorter operative time. Factors varied when patients were divided by operative approach. Total operative time was the only predictor that remained significant regardless of the operative approach. This information may be able to better inform patient of the postoperative expectations.

Also, identifying patients who are eligible for early discharge, may help guide postoperative efforts needed for patient recovery and improve disposition planning.

P 85. EFFECT OF ANTIBIOTIC CHOICE ON THE DEVELOPMENT OF POSTOPERATIVE PANCREATIC FISTULA: A NSQIP STUDY

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Background: Choice of antibiotic surgical site infection for pancreatic surgery is variable, with no consensus on ther optimal choice of prohylactic antibitoics. Current practices range from prescribing a first generation cephalosporin to broader coverage using second or third generation cephalosporins or penicillins with or without anaerobic coverage. We aim to assess the influence of antibiotic choice on the developemnt of postoperative pancreatic fistula (POPF).

Methods: The American College of Surgeons - National Surgical Quality Improvement Program Pancreatectomy Targeted Participant Use Data File 2016 was queried to identify patients who underwent distal pancreatectomy (DP) or pancreatoduodenectomy (PD). The incidence of POPF was compared by genre of antibiotic given: 1st generation cephalosporin (Abx1) vs 2nd or 3rd generation cephalosporin or broad spectrum antibiotics (Abx2). Pancreatic fistula grade was extrapolated from the management documented; where no active management was considered to correspond to a grade A fistula. Active invasive management such as percutaneous drainage or reoperation was considered to correspond to a clinically significant fistula (grades B/C). The Chi-square test was used to assess the significance of the results.

Results: A total of 5421 patients were included in the study. Among them, 1762 (32.5%) and 3659 (67.5%) patients underwent DP and PD, respectively. The median age was 66 (Interquartile range: 57-73) years with a male predominance of 50.6%. Abx1 was given intraoperatively as prophylaxis to 2060 (38%) patients. The rate of fistula formation was 18.4% (n=995), of which: 681 (77.4%) were grade A and 314 (32.6%) were grades B/C. The rate of fistula formation was significantly different by the extent of antibiotic coverage; 19.9% (n=409) and 17.4% (n=586) for the Abx1 and Abx2 groups (P=0.026), respectively. The fistula formation rate by procedure was 18.6% (n=328) and 18.2% (n=667) for the DP and PD groups, respectively. The choice of antibiotic did not significantly change the rate of fistula formation in patients who underwent DP (P>0.05). However, a significant change was noted in PD patients; 20.2% (n=253) and 17.2% (n=414), P=0.023, for Abx1 and Abx2, respectively. The choice of antibiotic coverage did not change the severity of fistulae (P=0.77) for either DP or PD.

Conclusion: Prophylactic antibiotic choice affects the rate of fistula formation following PD but not DP. The results of this study are in line with the hypothesis that POPF formation might be driven by the enteric microbiome. This might explain the significance of the choice of antibiotics in decreasing the rate of fistula formation in PD rather than DP.

Further prospective studies assessing the specific bacteria and its role in fistula formation is warranted, and indeed underway in the ACS-AHPBA trial.

P 86. WHAT QUESTIONS ARE MOST IMPORTANT TO PANCREATIC CANCER PATIENTS SOON AFTER DIAGNOSIS? A MULTICENTER SURVEY

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Background: Pancreatic cancer has a poor prognosis. Patients might be better able to cope with their disease when the information is discussed that they consider most important. We investigated what questions pancreatic patients consider most important to address in the first weeks after diagnosis.

Methods: We built a survey listing 84 questions and for each asked how important (range, 1-7) individuals who had received a certain or likely diagnosis of pancreatic cancer considered it that the question was addressed soon after diagnosis; patients who completed the survey 1 year or more after diagnosis were excluded. Mean perceived importance scores were used to rank order the questions in terms of importance.

Results: Forty-seven pancreatic cancer patients participated. The participants considered receiving an answer to a median of 53 (range, 21-83) questions as important or very important. The number was not significantly related to gender, age, education, or time since diagnosis. For 42/84 questions, average score was 6.0. Topics considered most important included diagnosis, likelihood of cure, treatment options, harms and procedures, prognosis if the disease were left untreated, and quality of life. For 67/84 questions, 1 participants indicated that answering the question should be avoided (Md = 1 participant, range, 1-5) and for 77/84 questions that it was not applicable (Md = 3.5 participants, range, 1-30).

Conclusion: Pancreatic cancer patients consider a wide range of questions important to address after diagnosis, including those on sensitive topics. Doctors need to carefully dose information provision to avoid overloading patients. The findings can help to guide doctors and other information resources to provide relevant information to pancreatic cancer patients.

P 87. METABOLOMICS ANALYSIS OF PANCREATIC JUICE INDICATES AN ALTERATION IN GLUCOSE METABOLISM IN PANCREATIC DUCTAL ADENOCARCINOMA PATIENTS
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Background: Metabolic reprogramming is a hallmark of cancer progression and can severely impact on the efficacy of the anti-tumour immune response. Cancer cell metabolic alterations could result in modification of biological fluids. In order to get a comprehensive overview of the metabolic profile of pancreatic adenocarcinoma (PDAC), we analyzed the metabolite content of pancreatic juice obtained from patients who underwent pancreatectomy.

Methods: We collected pancreatic juices from 40 patients that underwent a pancreaticoduodenectomy in our institute. A metabolomics study by using 1H nuclear magnetic resonance (NMR) spectroscopy was performed on each case. We collected both one-dimensional (1d) Nuclear Overhauser Effect Spectroscopy and 1d Carr-Purcell-Meiboom-Gill (CPMG) spectra. Multivariate statistical analyses of CPMG spectra followed by supervised OPLS-DA analysis were carried out. All the patients were enrolled in the study after signed informed consent including collection of biological specimens and clinical data. P value < 0,05 was considered significative.

Results: Of the 40 collected samples, 31 derived from patients affected by a PDAC and 9 from non-PDAC pathologies (2 chronic pancreatitis, 4 papillary-ampulla tumors, 2 neuroendocrine tumors, 1 Intraductal Papillary Mucinous Neoplasia). 20 were male, 24 had positive lymph nodes and 13 were G3/G4. Multivariate statistics allowed us to appreciate that the metabolic profile of PDAC specimens differentially segregated compared to non-PDAC, with an accuracy of 82.8% obtained by cross-validation. 18 metabolites (L-phenylalanine, citrate, L-glutamine, L-tyrosine, acetate, L-tryptophane, L-valine, succinate, L-leucine, lactate, L-isoleucine, 3-hydroxy-butyrate, glycine, glucose, formate, L-alanine, acetone acetoacetate) were responsible for this classification. NMR signals showed that lactate, glucose and acetone had an higher concentration in PDAC pancreatic juices but only concentration of lactate, the end product of glycolysis, resulted significatively increased (1.57 fold) respect non-PDAC patients (p= 0.011). No correlation was found between levels of lactate and serous preoperative glucose levels of the patients or previous diagnosis of diabetes.

Conclusion: This analysis indicated that a metabolic signature could discriminate among ductal pancreatic carcinoma and other pancreatic diseases. Notably, concentration of lactate, the end product of glycolysis, resulted increased in PDAC patients, suggesting a selective alteration of glucose metabolism in ductal carcinoma

cells. Further studies are needed to confirm these findings and test their usefulness in diagnostic and therapeutic perspectives.

P 89. OUTCOME OF PROXIMAL PARENCHYMAL PANCREATECTOMY AS AN ALTERNATIVE TO PANCREATODUODENECTOMY FOR LOW-MALIGNANT LESION IN THE PANCREATIC HEAD

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Background: Proximal Parenchymal Pancreatectomy (PPP) has been established for resecting low-malignant lesion arisen in the pancreatic head. In this procedure, the duodenum and the entire biliary tract can be preserved where the total parenchyma of the pancreatic head including groove area is completely extirpated. The aim of this study was to evaluate postoperative advantages of PPP regarding operative outcomes and postoperative clinical course in comparison with those of pylorus preserving pancreaticoduodenectomy (PD).

Methods: PD and PPP were performed from January 2009 to March 2017 in 15 and 14 patients respectively, who had been diagnosed as IPMN, NET or SPN. Postoperative cholangitis, operative blood loss, time of operation, postoperative complications, and length of hospital stay were evaluated in each procedure. Additionally, rate of body weight loss, serum-Alb, AST, and ALT values at postoperative 3, 6, and 12 months were evaluated, respectively. Postoperative changes of glucose tolerance were also evaluated in each surgery.

Results: Regarding the perioperative factors, operative blood loss was significantly lower (p=0.0346) and in- hospital stay was shorter (p=0.0383) in PPP patients than those in PD. There was no postoperative mortality in all 29 patients during median follow-up period of 35 (2 -97) months. Morbidity rate including postoperative pancreatic fistula of the both groups were compatible. In terms of long-term outcome, rate of body weight loss was significantly lower in PPP patients at 3 months after the operation (p=0.0253). Serum-Alb levels were significantly higher in PPP patients at 3 and 6 months after the operation. Furthermore, AST and ALT levels were significantly lower in PPP at every time of observation. Three patients in PD group, whereas 1 patient in PPP group who underwent choledocho-duodenostomy due to biliary tract ischemia, suffered from postoperative cholangitis. Remaining 13 patients in PPP group whose biliary tract was preserved have never encountered postoperative cholangitis. No patient was newly received a diagnosis or given additional treatment of diabetes mellitus following PPP, whereas 3 patients in PD. No tumor recurrence, nor lymph node recurrence was occurred in any patients in the study cohort during the observation periods.

Conclusion: PPP for the pancreatic head low-malignant lesion was superior to PD in terms of postoperative nutrition status. Complete preservation of duodenum and biliary tract in PPP might be able to prevent postoperative cholangitis and aggravation of glucose tolerance.

P 90. IMPACT OF PANCREATICOJEJUNOSTOMY VERSUS PANCREATICOGASTROSTOMY ON PANCREATIC EXOCRINE INSUFFICIENCY AFTER PANCREATICODUODENECTOMY: A META-ANALYSIS OF RETROSPECTIVE COHORTS

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Background: Pancreatic exocrine insufficiency (PEI), frequently caused by pancreatectomies including pancreaticoduodenectomy (PD), can lead to various nutritional problems. The risk factors of PEI after PD is not well studied. Recently, impact of pancreaticojejunostomy (PJ) or pancreaticogastrostomy (PG) on PEI after PD has attracted renewed interest. The aim of this study was to investigate the influence of these two types of reconstruction on PEI after PD.

Methods: A systematic search in literature databases (Cochrane Library, PubMed, EMBASE, and Web of Science) was performed to identify eligible studies. Cochrane collaboration's tool for assessing risk of bias was used to evaluate the quality of included studies. The primary outcome was PEI incidence. Further outcomes included mortality, morbidity, and other operation related events. Random-effect or fixed-effect models were used as appropriate.

Results: Four cohorts including a total of 479 patients were included in the analysis. Based on these studies, it was shown that PEI after PD is less prevalent with PJ than with PG (Relative risk [RR], 0.37; 95% [CI], 0.26-0.55; $P < 0.001$). Mortality, morbidity, and operation related events were not significantly different between groups.

Conclusion: PEI is more common with PG reconstruction than with PJ reconstruction after PD. PJ seems to be associated with a functional advantage in terms of incidence of PEI.

P 92. ADAPTATION AND VALIDATION OF THE FISTULA RISK SCORE AND THE ACS NSQIP-MODIFIED FISTULA RISK SCORE USING THE PANCREATIC SURGERY REGISTRY DGAV STUDOQ|PANCREAS OF THE GERMAN SOCIETY FOR GENERAL AND VISCERAL SURGERY

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Background: DGAV StuDoQ|Pancreas is a nationwide clinical registry in Germany built as a tool for risk-adjusted quality assurance in surgery. The aim of this study was to explore, whether the data structure of StuDoQ|Pancreas allows for risk stratification for postoperative pancreatic fistula using established risk scores.

Methods: The Fistula Risk Score published by the group of C. Vollmer and the NSQIP-modified fistula risk score for postoperative pancreatic fistula after pancreatoduodenectomy published by the group of M. Baker were adapted to StuDoQ|Pancreas and their performance was evaluated and compared.

Results: The adapted Baker risk score showed comparable discrimination (area under the ROC-curve 0.60) and calibration to the original score with postoperative pancreatic fistula rates and corresponding 95% confidence intervals in the negligible, low, intermediate and high-risk groups of 4 (1.3-7.8) %, 10.4 (7.9-12.7) %, 15.6 (13.7-18.1) % and 21.8 (19-25.7) %, respectively. The adapted Vollmer score had lower discriminative power (area under the ROC-curve 0.62) than in the original score and allowed for stratification in three distinct groups with estimated risks 6.9 (4.4-9.9) %, 12.3 (10.8-14.5) % and 24.2 (20.9-27.8) %.

Conclusion: The adapted pancreatic fistula scores are valid measurement tools for postoperative pancreatic fistula rate and can be used for risk stratification with DGAV StuDoQ|Pancreas.

P 93. SELECTIVE HISTONE ACETYLTRANSFERASE INHIBITORS AS A THERAPY AGAINST PANCREATIC CANCER

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Background: Recent focus on epigenetic changes in cancer has demonstrated that post-translational modification of histones including acetylation and methylation regulates cancer growth. Histone acetyltransferases (HATs) are enzymes that acetylate histones, leading to activation of gene transcription. The aim of our study is to evaluate the role of HAT inhibitors as a potential therapy against pancreatic ductal adenocarcinoma (PDAC).

Methods: HATs were inhibited in vitro in pancreatic cancer cell lines S2VP10 and Mia PaCa-2 by C646, a selective HAT inhibitor. Cell viability and apoptosis were measured by CCK-8 assay and Caspase Glo 3/7 assay, respectively. Cell cycle analysis was performed using flow cytometry. Histone acetylation was analyzed by western blotting. In vivo experiment involved implantation of subcutaneous tumors (Mia-PaCa-2 cells) into athymic nude mice. Mice were randomized to control or treatment group (C646 daily).

Results: C646 at a dose range of 20-100 ÂµM resulted in a dose and time dependent cytotoxicity in Mia PaCa-2 and S2VP10 cells with corresponding increase in caspase-3 cleavage. C646 selectively decreased acetylated levels of Histone 3 and Histone 4. A G2/M Phase arrest was observed in cells being treated with C646 at a dose of 25 ÂµM. In vivo experiments on athymic nude mice revealed a significant decrease in subcutaneous tumor volume progression and tumor weight in C646-treated mice when compared to the control group.

Conclusion: Histone acetyltransferase inhibition leads to pancreatic cancer cell death. HAT inhibitors have the potential to become part of novel treatment strategies for pancreatic cancer.

P 94. OMENTAL POUCH TECHNIQUE FOR COMBINED SITE ISLET AUTOTRANSPLANTATION FOLLOWING TOTAL PANCREATECTOMY

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Background: Total pancreatectomy and islet autotransplantation is an effective treatment for chronic pancreatitis without the consequence of brittle diabetes. In current practice, the portal venous system is the primary transplant site, but intraoperative events such as elevated portal pressures can prevent complete intraportal transplantation. Transplanted islet cell mass is a critical determinant of post-operative insulin independence, therefore it is optimal to transplant any remaining islets to an alternative site. The omentum represents an attractive alternative site because it is easily accessible, lacks transplant volume restrictions, and has portal venous drainage. We present our omental pouch technique applied to three patients in the setting of elevated portal pressures and technical complications preventing complete intraportal transplantation.

Methods: Total pancreatectomy and islet purification were successfully performed. In each case, contraindications to complete intraportal transplantation developed during the infusion process, and the omental pouch technique was employed. The omental edges were lifted, creating a bowl, and the remaining islets were dripped in the bottom of the bowl. The islets were affixed using a hemostatic agent, and the bowl was closed using a running suture completing the omental pouch technique. Graft function was assessed using mixed meal tolerance testing (MMTT). Omental pouch recipient graft function was compared to matched controls who received a complete intraportal islet autotransplantation. Controls were selected based on sex, age, BMI, islet yield, and insulin status from an institutional database.

Results: Patient 1 was discharged on post-operative day (POD) 13, but required readmission for Clostridium difficile infection and delayed gastric emptying. Patient 2 was discharged on POD 10 without complications. Patient 3 required an emergent exploratory laparotomy negative for any processes needing correction. His recovery was prolonged due to acute alcohol withdrawal despite reported abstinence, and he was discharged on POD 40. All patients involved had progressively decreasing basal insulin requirements. Three month follow up MMTT showed near universal elevations in serum glucose and reductions in serum C-peptide similar to matched controls. There were no significant differences in graft function between groups at their three month follow up (Table 1).

Conclusion: The omental pouch technique is a safe and viable alternative when complete intraportal islet autotransplantation is precluded, producing similar early graft function compared to complete intraportal islet autotransplant recipients. Further

studies are necessary to assess the long-term efficacy of the omental pouch technique, but based on these limited experiences it represents a reasonable alternative when complete intraportal islet autotransplantation is prohibited.

P 95. ALKALOIDS MIXTURE AFFECTS ENT1 AND DCK GENE EXPRESSION IN PANCREATIC DUCTAL ADENOCARCINOMA (PDAC): A POSSIBLE NEW WEAPON IN COMBINATION WITH OTHER NEW STATEGIES?
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Background: Although cytotoxic regimens such as folfirinox, gemcitabine (Gem), and nab-paclitaxel (Nab-Pax) have improved clinical outcomes of PDAC patients. NSC-631570 a mixture of Alkaloids (UK) showed greater median survival in combination with gemcitabine compared to gemcitabine alone in the palliative treatment of PDAC.The aim of present study was to evaluate the modulation of the expression of two pivotal genes (hENT1 and dCK) involved in gemcitabine activity.

Methods: In vitro studies were performed in 2 ATCC cell lines and 2 Primary Cell Cultures obtained from PDAC patients underwent surgical resections. Cells were treated with UK at IC50 concentration levels for 48h. Total RNA extraction was performed with Trizol protocol. All amplifications were carried out with normalization of gene expression against the glyceraldehyde 3-phosphate dehydrogenase (GAPDH) housekeeping control gene and the quantitation of gene expression was performed using $\Delta\Delta$CT method. In addition we compare different preparations of alkaloids (Alk-017) by High Performance Liquid Chromatography (HPLC) and subsequent Mass/Spectroscopy (MS) Analyses.

Results: This analysis shows that UK increases the mRNA levels of hENT1 gene in all PDAC cell cultures. In particular, the $2^{(-\Delta\Delta Ct)}$ analysis shows that treated cells express higher level of hENT1 with respect to untreated cells ($p<0.001$). Indeed, UK compound increases mRNA levels of dCK gene in ATCC cell cultures after IC50 Statistically significant differences of dCK gene expression were observed in: 3/4 cell cultures (PL45, MiaPaCa-2 and LPc-006) for Ct parameter ($p<0.001$); in only one LPc (-006) for $2^{(-\Delta Ct)}$ parameter ($p<0.001$); in both ATCC cell cultures for $2^{(-\Delta\Delta Ct)}$ parameter ($p<0.001$). Mean over-expressed dCK value mRNA is valuable around 52.05%.   On the other hand, the HPLC-MS analyses are coherent among the different samples of Alk-017, indicating a similar composition of the natural extracts, which probably contain the same molecules. In all preparations were identified three most important compounds. In particular the masses 333.1, 337.4 and 354.4 gave a clearly defined peak, thus indicating a probable matching with the target alkaloid molecule (sanguinarine, berberine and chelidonine respectively).

Conclusion: To date few options based on gemcitabine are available for treatment of PDAC. Most gemcitabine-based chemotherapy (i.e. Gem+NabPax) regimens resulted in a limited disease control, and studies attempting to widen the therapeutic armamentarium against this disease are warranted. However the connection between

the alkaloids transporters (ABC genes family) and nucleosides transporter (i.e. hENT1), was reported in literature. the results of the present study provide the experimental basis for the further clinical testing of the Alkoloids-gemcitabine and other formulations schedule in PDAC patients.

P 96. A PROPENSITY SCORE MATCHED ANALYSIS OF ROBOTIC VERSUS OPEN PANCREATODUODENECTOMY FOR PANCREATIC CANCER BASED ON MARGIN STATUS

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Background: No study has shown the oncologic non-inferiority of robotic pancreatoduodenectomy (RPD) versus open pancreatoduodenectomy (OPD) for pancreatic ductal adenocarcinoma (PDAC). We herein present the results of single institution propensity score matched study comparing RPD and ODP for PDAC having margin status (R1) as the main study endpoint.

Methods: A retrospective case-controlled analysis of a prospectively maintained database on all pancreatic resections was performed for patients undergoing pancreatoduodenectomy for immediately resectable PDAC in whom the LEEPP (Br J Surg 2006; 93:1232-1237) was used for specimen analysis between February 1, 2014 and January 31, 2017. To be included in this study all patients had to be considered eligible for RPD after preoperative workup. Actually, OPD had to performed approximately half of the patients because of the limited availability of the robotic system, to avoid undue delay in surgery. The primary study endpoint was R1 rate (tumor cells detected 1 mm of any margin). After identification of factors predicting of margin positivity in the entire cohort, the two study groups were matched by propensity scores. Secondary study endpoints were: number of examined lymph nodes, rate of perioperative transfusions, percentage of patients receiving adjuvant therapies, time from operation until adjuvant therapy, cancer-specific survival, disease free survival, occurrence of local recurrence, and sample size calculation for randomized controlled trials (RCTs).

Results: A total of 50 pancreatoduodenectomies met the inclusion criteria (RPDs = 24; OPDs= 26). No RPD was converted to OPD, laparoscopy, or hand assistance. The following factors were associated with R1 status after resection: tumor diameter, measured at either preoperative computed tomography (p=0.0003) or at specimen pathology (p=0.0003), lymph node ratio (p=0.0003), LOODS (p=0.01), and duodenal infiltration (p=0.005) were associated with a higher probability of R1 resection. The matching process identified 20 RPDs and 24 OPDs. All RPDs were completed robotically. R1 resection (1mm) was identified in 11 RPDs (55.0%) and 10 OPDs (41.7%) (p=0.38). There was no difference in the rate of R1 at each margin as well as in the proportion of patients with multiple R1 margins (table 1). RPD and OPD were also equivalent with respect to all secondary study endpoints, but the number of blood units transfused per patients that was lower in RPD. A non-inferiority RCT comparing RPD and OPD having the rate of R1 resection as the primary study endpoint requires 3355 pairs

Conclusion: RPD achieves the same rate of R1 resections as OPD for PC. RPD was also non-inferior to OPD with respect to all secondary study endpoints. Because of the number of patients required to run a RCT, the next step in the assessment of RPD for PC could be the implementation of an international registry

P 97. HIGH PERFORMING PATIENTS AFTER ARTERIAL RESECTION FOR PANCREATIC DUCTAL ADENOCARINOMA: DEFINITION OF A PROGNOSTIC MODEL

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Background: Pancreatic ductal adenocarcinoma (PDAC) involving the superior mesenteric artery (SMA) and/or the celiac axis (CT) is traditionally considered unresectable. However, after resection several patients achieve the same survival of patients with resectable PDAC and the occasional patient can even reach the 5-year mark without evidence of disease recurrence. Unfortunately, we are not able to identify these high performers (HP) in advance. This study aimed to determine factors that could predict longer survival after pancreatectomy with arterial resection (P-Ar) by comparing HP with the remaining patients.

Methods: Using a prospectively maintained database we performed a retrospective cross-sectional study of patients who underwent P-Ar between January 1993 and July 2017. HPs were defined as patients in the top quartile for overall survival (OS) and disease specific survival (DSS). The remaining patients were used as controls. OS and DSS were calculated using Kaplan-Meier curves and Log-rank test and prognostic variables were compared between the two groups using univariate and multivariate analyses. The probability of being a HP was calculated using linear logistic regressions based on presence of all factors predictive of favourable outcome.

Results: Eighty-six patients underwent P-Ar for PDAC (SMA resection: 35; CT/hepatic artery: 61). The third quartile value was 26.3 months for OS and 31 months for DSS. HP groups consisted of 14 (20.9%) and 11 (19%) patients, respectively. Control groups consisted of 53 (79.1%) and 47 (81%) patients. Tables 1 reports the factors predictive of high performance in univariate analysis. In multivariate analysis completion of adjuvant therapy (p=0.0009), lower mean LODDS value (p=0.01), and non-smoker status (p=0.03) anticipated high performance with respect to OS. Completion of adjuvant therapy (p<0.0001), absence of post-operative complications (p=0.003), lower median level of Ca 125 (p=0.006), and lower neutrophils-to-lymphocytes ratio (p=0.03) were associated with high performance with respect to DSS. A prognostic model was hence developed to predict the probability of being HP after P-Ar. When the 3 best prognosticators were simultaneously present, the positive predictive value was 100% for both OS and DSS; the negative predictive value was 90.9% and 90.0% for OS and DSS, respectively (OS: p<0.001; DSS: p=0.03). Mean OS was 35.2Â±3.1 months for HP versus 15.9Â±2.1 months for controls (p=0.001). Equivalent figures for mean DSS were 39.8Â±NA versus 18.1Â±1.8 months (p=0.008).

Conclusion: Among patients undergoing P-Ar because of PDAC, there is a sub-group of HP achieving satisfactory survival. Our model includes also several post-operative factors. Pooling data from other Institutions could permit the definition of a model based only on pre-operative factors to be used to select patients for these formidable procedures.

P 98. MESENTERIC APPROACH DURING PANCREATICODUODENECTOMY FOR PANCREATIC DUCTAL ADENOCARCINOMA

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Background: Mesenteric approach is an artery-first approach during pancreaticoduodenectomy (PD). In this study, we evaluated clinical and oncological benefits of this procedure for pancreatic ductal adenocarcinoma (PDAC) of the pancreas head.

Methods: Between 2000 and 2015, 237 consecutive PDAC patients underwent PD. Among them, 72 experienced mesenteric approach (mesenteric group) and 165 conventional approach (conventional group). A matched-pairs group consisted of 116 patients (58 patients in each group) matched for age, sex, resectability status, and neoadjuvant therapy. Surgical and oncological outcomes were compared between the two groups in unmatched- and matched-pair analyses.

Results: Intraoperative blood loss was lower in mesenteric group than in conventional group in both resectable PDAC (R-PDAC) and borderline resectable PDAC (BR-PDAC) on unmatched- and matched-pairs analyses (R-PDAC, unmatched; 312.5 vs. 510 ml, $P=0.008$, matched; 312.5 vs. 501.5 ml, $P=0.023$, BR-PDAC, unmatched; 507.5 vs. 935 ml, $P<0.001$, matched; 507.5 vs. 920 ml, $P=0.003$). The negative surgical margins (R0) and the overall survival (OS) rates in mesenteric group were better in R-PPDAC patients (R0 rates, unmatched; 100 vs. 87.7%, $P=0.044$, matched: 100 vs. 86.7%, $P=0.045$, OS, unmatched; $P=0.008$, matched; $P=0.021$), although there were no significant differences in BR-PDAC patients.

Conclusion: Mesenteric approach might reduce blood loss by early ligation of the vessels to the pancreatic head. Furthermore, it might increase R0 rate, leading to improvement of survival for R-PDAC patients. However, R0 and survival rates could not be improved only by mesenteric approach for BR-PDAC patients. Therefore, effective multidisciplinary treatment is essential to improve survival in BR-PDAC patients (Hirono, Yamaue et al. Ann Gastroenterol Surg 2017). To confirm our data of this retrospective study and oncological benefits of mesenteric approach for PDAC, we're going to perform multicenter randomized clinical trial comparing conventional approach vs. mesenteric approach during PD for PDAC, in which registration will start from December 1, 2017 (MAPLE-PD trial, ClinicalTrial.gov 03317886, UMIN000029615).

P 99. PREOPERATIVE SKELETAL MUSCLE LOSS IS HIGHLY ASSOCIATED TO OBSTRUCTIVE JAUNDICE, BUT NOT TO INFLAMMATORY BIOMARKERS IN RESECTABLE PANCREATIC CANCER

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Background: Computed tomography (CT)-determined skeletal muscle loss (i.e. sarcopenia) has been shown to be a prognostic indicator in cancer patients. The aim of this study was to identify factors associated with preoperative sarcopenia, and to investigate the association between sarcopenia and postoperative outcome in patients with resected pancreatic ductal adenocarcinoma (PDAC).

Methods: All pancreatic resections performed between 2004-2016 were assessed to identify patients with PDAC. Sarcopenia was defined by CT imaging using previously established cut-off values for the total cross-sectional muscle area measured transversely at the third lumbar vertebra level (Figure 1). Baseline clinicopathologic characteristics, pre-operative laboratory values such as absolute neutrophil, lymphocyte and platelet counts, C-reactive protein, albumin, bilirubin and CA19-9 levels, as well as follow up information, were collected. Obstructive jaundice was defined as serum bilirubin levels at presentation >35μmol/L. We used logistic regression analysis to model sarcopenia as a function of gender, age, obstructive jaundice, CA19.9, systemic immune inflammation index (SIII), Glasgow Prognostic Score and histopathologic characteristics (including tumor stage, lymph node ratio, tumor grade and margin status). Cox proportional hazards modeling were performed to identify independent prognostic factors for sarcopenia and survival outcome.

Results: A total of 189 patients were eligible for analysis. Fifty-eight percent of the patients had preoperative sarcopenia. Obstructive jaundice (serum bilirubin levels at presentation >35μmol/L) (OR 3.96, 95% CI: 1.50-10.5, p=0.006), and high tumor stage (OR 4.64, 95% CI: 1.32-16.03, p=0.017) were identified as independent predictors of preoperative sarcopenia, SIII and GPS were not associated to preoperative sarcopenia. Sarcopenia (HR 1.98, 95% CI: 1.08-3.63, p= 0.028) was independently associated with cancer-specific survival as well as disease-free survival (HR = 2.44, 95% CI 1.40-4.26, p=0.002), in multivariable analysis.

Conclusion: Patients with resectable PDAC and obstructive jaundice at presentation, have a three-fold higher odds of preoperative sarcopenia compared to non-jaundiced PDAC patients. Furthermore, sarcopenia is associated with cancer-specific and disease-free survival in resectable PDAC patients. Preoperative management of both obstructive jaundice and sarcopenia may prolong short and long-term survival for these patients.

P 100. THE EFFECT OF PANCREATIC CANCER PATIENT DERIVED SERUM ON MACROPHAGE M1/M2 POLARIZATION

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Background: Monocytes differentiate into inflammatory M1 or anti-inflammatory (pro-tumorigenic) M2 macrophages in tissue. We set out to explore whether serum from pancreas cancer patients and healthy controls could alter the differentiation of monocytes into M1 or M2 macrophages.

Methods: Monocytes were left to mature into macrophages in media supplemented with pancreatic cancer patient or control serum (15%). Two different cancer cell line cells (MiaPaCa-1 and HPAF) were added to the cultures. After two days of co-culture, the macrophages were harvested and their expression of CD markers was measured by flow cytometry. Cytokine levels in serum were assessed by Q-Plex (Biosciences). Cancer cell migration rate was measured by microscopy. The nonparametric Mann-Whitney U test was used and a p value less than 0.05 was considered significant.

Results: The pancreatic cancer patients (n=14) and control serums from healthy individuals (n=6) differed in levels of cytokines. Patient derived serum was significantly richer in IL-1b (p=0.041), IL-6 (p=0.041), IL-10 (p=0.02), TNFÎ± (p=0.02) and had higher levels of Rantes (p=0,008). The expression of CD markers connected with macrophage differentiation changed depending on the culture conditions. Co-culture with MiaPaCa-1 and HPAF significantly increased the expression of CD209 (p=0.004) and CD86 (p<0.001). Interestingly, CD86 (M1 marker) expression increased more in the presence of control than patient serum when co-cultured with cancer cells (p=0,017). The presence of macrophages increased the migration of cancer cells in serum supplemented media (p<0,001). No difference was found between patient and control derived serum with respect to increased migration rate. No difference was found in the initial expression of CD markers in patient derived monocytes and monocytes drawn from healthy controls (p=0,537).

Conclusion: M1 polarization may be reduced in pancreatic cancer patient macrophages compared to healthy controls when cultured in autologous serum. Further studies need to be conducted to examine whether this effect is due to the altered cytokines in patient sera or due to intrinsic differences in patient-derived monocytes compared to monocytes from healthy individuals.

P 103. EFFECT OF WOUND-PROTECTOR USE ON SURGICAL SITE INFECTIONS POST-PANCREATIC SURGERY: NSQIP STUDY

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Background: The benefits of wound protectors to decrease surgical site infections (SSIs) in colorectal surgery is well established. Whilst a randomised trial in pancreatoduodenectomy (PD) is ongoing, there is currently no published data on their role in pancreatic surgery. We aim to assess the effect of using wound protectors on the rate of surgical site infections (SSI) post-pancreatic surgery.

Methods: The American College of Surgeons - National Surgical Quality Improvement Program Pancreatectomy Targeted Participant Use Data File 2016 was queried for patients who underwent distal pancreatectomy (DP) or PD. The incidence of surgical site infections (SSI): superficial, deep and organ space; were compared by use or not of wound protectors. The Chi-square test was used to assess the significance of the results.

Results: A total of 4797 patients were included in the study. Among them, 22.6% (n=1085) and 77.4% (n=3712) patients underwent DP and PD, respectively. The median age was 66 (Interquartile Range 57-73) years with male predominance of 52.1%. A wound protector was used in 22.3% (n=1070) of cases. The SSIs rates were 6.7% (n=323), 0.8% (n=39) and 15.3% (n=734) respectively superficial, deep and organ space SSIs. The SSIs rates for cases in which a wound protector was used and not used were: 5.1% (n=55) and 7.2% (n=268) for superficial SSIs (P=0.018), 0.7% (n=8) and 0.8% (n=31) for deep SSIs (P=0.79); and 13.6% (n=145) and 15.8% (n=589) organ space SSIs (P=0.07), respectively. The use of wound protector did not significantly change the rate of SSIs in patients who underwent DP. However, a significant favourable change in the rate of superficial SSI by noted when a wound protector was used in PD patients; 5.6% (n=50) and 8.1% (n=229), P=0.015.

Conclusion: The use of a wound protector was associated with a decrease in the rate of superficial SSIs following pancreatoduodenectomy patients but not distal pancreatectomy. As such, the use of a wound protector should be considered a part of a package to reduce SSIs in patients undergoing pancreatic surgery, and in particular PD. The results of the ongoing RCT are eagerly awaited as is a financial analysis of wound protector use.

P 104. HIGH READMISSION RATE IN NECROTIZING PANCREATITIS: QUALITY INDEX OR NATURAL HISTORY OF DISEASE?
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Background: Necrotizing pancreatitis (NP) is a complex disease that is associated with long hospitalization, multiple interventions, and often requires numerous months to resolve. Hospital readmission in NP is common; however, to date few data exist regarding specific reason for readmission. We therefore sought to determine the incidence and reason for hospital readmission in a large cohort of NP patients.

Methods: With IRB approval, retrospective analysis of NP patients treated between January 2005 and December 2016 was undertaken. Clinical and demographic data were abstracted. Chart review identified incidence and specific reason for readmission within the first year of the disease. Reasons for readmission were categorized as abdominal pain, infection (abdominal/necrosis, pulmonary, urinary, blood stream, other), dehydration, recurrent acute pancreatitis, hemorrhage, malnutrition, cardiac, renal, and elective procedure. Descriptive statistical analysis was applied as appropriate.

Results: A total of 624 NP patients were treated during this time period. The median age was 53 years, and 60% were male. Biliary etiology was most common (n = 271 - 43%), followed by alcohol in (n = 127 -20%), and idiopathic (n = 113 - 18%). A total of 442 (71%) patients required readmission to the hospital. Readmission occurred a mean of 2.6 (range; 0-7) readmissions (range 0-9). The median length of hospital stay (LOS) for the index admission was 21 days (range 12-38), and the median LOS for the first readmission was 9 days (range 5-17). The most common reason for readmission was abdominal pain (n = 189 - 42%); however, 44 (23%) of these 189 patients had concomitant infection. Reasons for readmissions are described in table 1.

Conclusion: Readmission in necrotizing pancreatitis patients is extremely common. While specific reasons for readmission in this population reflect disease course, opportunity to decrease readmission rate clearly exists.

P 108. DEFINING THE PRACTICE OF DISTAL PANCREATECTOMY AROUND THE WORLD
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Background: Despite considerable efforts, best management practices for distal pancreatectomy (DP) have not been conclusively defined. Surgeons' choices are therefore often based on their backgrounds or surgical dogma, possibly leading to substantial variation in the practice of DP.

Methods: An electronic survey assessing experience and management approaches for DP was distributed worldwide, in 8 native language translations, through 56 surgical societies (including the Pancreas Club). The participants' answers were related to their self-reported region of practice. To evaluate global variance, regions were clustered: North America, South/Central America, Asia/Australia, and Europe/Africa.

Results: A total of 797 surgeons from 68 nations responded to the survey (median age=47; years of experience=14). Among them, fellowship training is common (62%), especially for North American surgeons (78.6%, $p < 0.001$). Most respondents are HPB surgeons (61%) - greatest in Asia/Australia (76%, $p < 0.001$) - with only 7% practicing pancreas surgery exclusively. Median annual and career volumes are 6 and 46 DPs, respectively, with major regional variations ($p < 0.001$). Experience with minimally invasive (MI) techniques is also diverse - highest in North America ($p < 0.001$). Laparoscopy is the most common MI approach (85%), while robotic DP is rarely performed outside the US/Canada. Surgeons carry out the dissection in a medial-lateral direction in 68% of the cases, more rarely in South America (61.5%, p=0.002). The preferred means of pancreatic remnant closure is via stapler (65%) – more commonly applied in North America than in Europe/Africa (81% vs 53%, $p < 0.001$). Management techniques for the remnant (hand-sewing, duct ligation, use of meshes/biological sealants/autologous patches, performance of an anastomosis) and other fistula mitigation strategies (prophylactic trans-papillary stents, octreotide, antibiotics) display significant regional variability (Table). Also the use of drains is diverse, with the biggest disparity between North American and Asian surgeons (selective and routine drainers, respectively - Table).

Conclusion: Globally, there is wide regional variability in the practice of DP. This diversity of practice indicates that DP is a complex procedure with many decision points, which currently lacks standardization. Multiple contributing technical variables must be accounted when analyzing outcomes for this procedure. Notably, many of these choices are not evidence-based, precluding equipoise in management and, possibly, optimized outcomes.

P 109. OUTCOMES AFTER TOTAL OR PARTIAL PANCREATECTOMY FOR MAIN DUCT AND MIXED TYPE IPMN: MULTICENTER RETROSPECTIVE STUDY

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Background: The risk of malignancy increases up to 60% if the main pancreatic duct is involved in intraductal papillary mucinous neoplasm (IPMN). Therefore most international guidelines advice resection in surgically fit patients with main duct or mixed type(MD/MT)-IPMN. The goal of resection is to prevent malignancy or to increase life expectancy in invasive carcinoma. During the update of the European evidence-based guideline for pancreatic cystic neoplasms it became clear that data are lacking on surgical outcomes. We aimed to evaluate short- and longterm outcomes after pancreatectomy for MD/MT-IPMN.

Methods: Patients who underwent partial or total pancreatectomy for MD/MT-IPMN in 4 Dutch pancreatic centers between January 2001 and December 2016 were analyzed retrospectively. Primary outcomes were disease related death and surgical morbidity and mortality. Secondary outcomes were recurrence, and functional outcomes.

Results: In total, 123 patients were included, 72 male (58.5%), mean age 67.5 (SD 9.5), 109 (88.7%) underwent partial and 14 (11.4%) total pancreatectomy. MD-IPMN was present in 28 (22.8%) of the patients, 24 (86%) underwent partial and 4 total pancreatectomy. MT-IPMN was present in 95 (77.2%) of the patients, 85 (90%) underwent partial and 10 total pancreatectomy. Histopathological examination showed high-grade dysplasia (19.5%) or invasive carcinoma (20.3%) in only 39.8% of patients. The incidence of major complications (Clavien Dindo) was 30.1%. The incidence of clinically relevant ISGPS grade B/C pancreatic fistula was 14.6%. Thirty day mortality was 2.1%. During a median follow-up of 24 months (IQR 11.8 - 39.3), 4 (21.1%) patients with high-grade dysplasia developed recurrence, whereas 13 patients with invasive IPMN developed recurrence. Median overall survival was 47 months (IQR 25.5-69.5); disease related mortality (i.e. malignant IPMN) was 14.2%. Follow-up was performed by CT or MRI.

Conclusion: This large multicenter cohort of patients undergoing surgery for MD/MT-IPMN shows acceptable surgical major morbidity and mortality. More patients, 48% died during follow-up after surgery related to invasive IPMN itself, than from surgery 21%.

P 110. INTRA-OPERATIVE ULTRASOUND TO DETERMINE RESECTABILITY DURING SURGICAL EXPLORATION OF LOCALLY ADVANCED PANCREATIC CANCER FOLLOWING INDUCTION CHEMOTHERAPY

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Background: Determining the resectability of primary non-resectable pancreatic cancer after induction chemotherapy is complicated by under-estimation of tumor regression upon pre-operative imaging. Diagnostic modalities to accurately predict resectability are therefore highly needed. This study describes the use of intra-operative ultrasound (IOUS) as diagnostic tool during explorative laparotomy of primary non-resectable pancreatic cancer following induction chemotherapy.

Methods: Prospective multicenter study of patients who underwent surgical exploration following two months of induction chemotherapy because of primary non-resectable pancreatic cancer. Patients with RECIST non-progressive disease proceeded to explorative laparotomy with IOUS in the case of <180° arterial or reconstructable venous involvement (i.e. NCCN (borderline) resectable disease) or if they had been randomized for local ablative treatment within a clinical trial. IOUS outcomes were compared with pre-operative, post-chemotherapy CT-imaging and pathological examination of the resection specimen.

Results: Twenty LAPC patients underwent explorative laparotomy of which 5 had RECIST partial response and 15 RECIST stable disease. The majority had received FOLFIRINOX (n=18). CT-imaging classified 1 patient as NCCN resectable, 9 as borderline resectable and 10 as unresectable. Upon IOUS, 5 patients were deemed resectable, 6 as borderline resectable and 9 as unresectable. Consequently, IOUS deemed 4 NCCN borderline resectable patients to be primary NCCN resectable and 1 unresectable patient to be borderline resectable respectively. This changed the resectability status in 5/20 (25%) patients. Ultimately, 12 patients underwent resection.

Conclusion: IOUS is a promising tool for the surgeon to determine resectability during surgical exploration of primary non-resectable pancreatic cancer following induction chemotherapy. Future series including pathology confirmation of IOUS findings are needed.

P 111. ANTIMICROBIAL STEWARDSHIP REDUCES THE SSI RATE, AND BOTH NUMBER AND SEVERITY OF PANCREATIC FISTULAE FOLLOWING PANCREATODUODENECTOMY
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Background: Following an audit and detailed analysis of the microflora of surgical site infections (SSIs) after pancreatoduodenectomy (PD), the local antibiotic policy was changed based on sensitivities. The aim of the current study was to analyse the results of a change in prescribing policy on SSI rates and on the occurrence and severity of postoperative pancreatic fistulae (POPF).

Methods: A prospectively maintained departmental database was used to identify 200 consecutive patients undergoing PD, 100 pre- and 100 post institution of policy change. Incidence data relating to SSIs and POPF were obtained from the NSQIP data set and the details of culture results and organism sensitivity extracted from the electronic medical record, as were details on the severity of fistulae.

Results: Following change of antibiotics from Cefalexin to Cefrtiaxone and Metronidzole the SSI rate fell from 29% to 16% (p=0.04). After excluding patients with a penicillin allergy (n=11), and comparing those adherent (53/89) and non-adherent (36/89), the SSI rates were 7.5% vs. 27.8% (p=0.02), the alter being comparable to the 29% in the pre-policy cohort. The overall incidence of POPF fell from 37% to 24% (P=0.04), and the rate of clinically significant fistula from 24% to 9% (p=0.03).

Conclusion: A change in antibiotic policy based on the local microflora resulted in a significant reduction in the SSI rates, and also resulted in a reduction in the overall incidence as well as the incidence of clinically-significant POPF. Following further education on adherence to the policy a re-audit is in process.

P 112. NONFUNCTIONAL PANCREATIC NEUROENDOCRINE TUMOR (NF PNET) IMAGING AND EVALUATION USING 18F-FDG AND 68GA- DOTANOC-PET/CT: INITIAL DATA OF A PROSPECTIVE STUDY

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Background: Predicting aggressive behavior of NF PNET still remains controversial. It is known that lymph node metastases are rare but possible also on small (1-2 cm) NF-PNET. Positive 18F-FDG-PET/CT avidity is associated with poor prognosis in NETs. Aims: To evaluate the possibility to enhance diagnostic accuracy by using dual trace functional imaging 18F-FDG and 68Ga-DOTANOC PET/CT in patients with NF PNET.

Methods: In this prospective study 29 patients underwent PET-imaging with two tracers, 18F-FDG and 68Ga-DOTANOC, followed by surgery or endoscopic ultrasonography biopsies (EUS-FNA) with follow-up. The imaging results were compared to a histology report.

Results: Average tumor size was 36 mm (9-103 mm). 27 patients had a 68Ga-DOTANOC positive (sensitivity 96%) and 10 had a 18F-FDG positive tumor. 1 had a 18F-FDG positive, 68Ga-DOTANOC negative tumor with multiple lymph node metastases (LN+). Histology reports were available for 24 patients: 4 EUS-FNA (of which 2 are waiting for surgery) and 20 operated. 5 patients are only followed-up (on average 5 months). 5/18 patients had LN+ tumor of which 2 were 18F-FDG positive. There were WHO Gr1 tumors in 11 patients, WHO Gr2 in 7 patients, Gr3 in 1 patient and 1 MANEC. Tumors were 18F-FDG positive 5/11 Gr1 tumors (3 over 9cm, 1 LN+), 4/7 Gr2 tumors (2 LN, 1 only EUS-FNA) and 1/1 Gr3 tumor. MANEC was 18F-FDG negative. 2 of 5 LN+ patients had 18F-FDG positive tumor.

Conclusion: The high sensitivity of 68Ga-DOTANOC-PET/CT in differential diagnosis of a hypervascular pancreatic lesion is known. Our initial findings suggest that 18F-FDG-PET/CT can be used to discriminate tumor gradus but not lymph node status of NF PNET.

P 113. NEOADJUVANT THERAPY AND PANCREATICODUODENECTOMY FOR EXTRA HEPATIC CHOLANGIOCARCINOMA AND AMPULLARY ADENOCARCINOMA
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Background: Neoadjuvant therapy is on the rise as a treatment strategy for pancreatic cancer; however, its value for extrahepatic cholangiocarcinoma and ampullary adenocarcinoma extending into the pancreas remain a matter of debate, as data on these rare tumors remains scant. The present study compares neoadjuvant therapy to upfront surgery for patients with extrahepatic cholangiocarcinoma or ampullary adenocarcinoma.

Methods: Patients that underwent pancreaticoduodenectomy for adenocarcinoma arising from the distal bile duct or ampulla of Vater were identified from the National Cancer Database (2006-2014). Propensity score models predicting the odds of receiving neoadjuvant therapy were constructed, and patients were matched based on propensity score. Survival analyses were performed using the Kaplan-Meier method.

Results: In total, 7,888 patients were identified, of whom 2.9% (n=231) received neoadjuvant therapy. Receipt of neoadjuvant therapy was associated with age < 65 years at diagnosis (51.1% vs. 41.8% >65; p=0.0046), white race (84.4% vs. 77.9%; p=0.0180), private insurance (47.6% vs. 40.2%; p=0.0233), stage III disease (29.4% vs. 18.2%; p<0.0001) and ampullary origin (57.1% vs. 44.6%; p=0.0002). After adjustment, covariates were evenly distributed, with 231 patients in each group. Median survival was similar for the entire cohort of patients that received neoadjuvant therapy vs. upfront surgery (36.4 vs. 33.6 months; p=0.5470). After matching, neoadjuvant therapy was associated with a non-significant survival improvement compared to upfront surgery group (36.4 vs. 25.9 months; p=0.1684).

Conclusion: Extrahepatic and ampullary tumors extending in the pancreas have a slightly better prognosis than their pancreatic counterpart. Our data, show a trend that well selected patients with extrahepatic cholangiocarcinoma or ampullary adenocarcinoma may benefit from neoadjuvant therapy. These patients could potentially be considered candidates for inclusion in neoadjuvant therapy trials.

P 114. PANCREATIC CANCER-ASSOCIATED DIABETES IS CLINICALLY DISTINGUISHABLE FROM CONVENTIONAL TYPE II DIABETES

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Background: Type 3c diabetes mellitus (T3cDM) refers to endocrine dysfunction secondary to intrinsic pancreatic diseases, like chronic pancreatitis, cystic fibrosis, hemochromatosis, pancreatic resection, and pancreatic ductal adenocarcinoma (PDA). Clinically, the disease may easily be confused with conventional type 2 diabetes mellitus (T2DM). As a result, an opportunity for earlier cancer detection and treatment is missed. A better understanding of how PDA-associated T3cDM differs from T2DM may lead to the proper evaluation of elderly patients with new onset or worsening diabetes, and hopefully improve outcomes in patients with localized PDA.

Methods: We performed a retrospective review of 688 consecutive patients who underwent a pancreatic resection for PDA at Thomas Jefferson University Hospital (TJUH), between 01/01/2006 and 08/30/2016. Patients with T3cDM (N = 131) were identified as patients diagnosed with new onset or worsening diabetes during the 12 months prior to surgery. Laboratory and clinical profiles of these patients were compared to a control group of 131 patients with T2DM, evaluated by the Department of Endocrinology at TJUH between 11/28/2016 and 06/27/2017. Patients with T2DM were subgrouped as having new onset diabetes or worsening disease. Differences between diabetes-groups were assessed using Chi-square and T-tests, with significance set at $p<0.05$.

Results: Among 688 patients with resected PDA, 131 (19%) were identified with PDA-associated T3cDM. Diabetes was considered new onset in 108 (82%) patients with T3cDM, and in 20 (15%) patients with T2DM ($p<0.01$). Compared to patients with T2DM, patients presenting with PDA-associated T3cDM were older (66 vs 59 years, $p<0.01$), had lower body mass indices (BMI, 27 vs 33, $p<0.01$), had lower creatinine levels (0.8 vs 1.1 mg/dL, $p<0.01$), had more favorable hemoglobin A1c levels (7.4 vs 8.9 mmol/mol, $p<0.01$), and had higher alanine aminotransferase levels (84 vs 28 U/L, $p<0.01$). Patients with T3cDM more commonly experienced nausea, vomiting, diarrhea, jaundice, anorexia, weight loss and abdominal pain (Table 1). Fewer patients with PDA-associated T3cDM were managed pharmacologically without insulin (e.g., patients with T3cDM were rarely managed with just oral hypoglycemic agents). Similar laboratory and clinical profiles were evident in a subgroup analysis of new onset diabetics in each group. In addition, patients with new onset T3cDM were rarely managed by diet alone (6 vs 20 %, $p=0.03$). In the subgroup analysis of patients with worsening diabetes, those with T3cDM had lower BMIs than patients with T2DM (BMI: 27 vs 33, $p<0.01$).

Conclusion: New onset or worsening diabetes could signal an underlying malignancy, particularly in patients who are older in age, have associated symptoms (especially weight loss), and are managed with insulin. This group would seem to benefit from early detection strategies such as testing for serum CEA, CA19-9 or abdominal imaging.

P 116. THE IMMUNOHISTOCHEMICAL SCORE OF CDX2, CK7 AND CK 20 IDENTIFY PATHOLOGICAL SUBTYPES AND THEIR PROGNOSIS IN AMPULLARY ADENOCARCINOMAS PATIENTS

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Background: Ampullary Adenocarcinomas (AACs) are heterogeneous and numerous methods of categorization histological subtypes exist. Histology phenotype based on immunohistochemistry (IHC) of caudal-type homeodomain transcription factor 2 (CDX2) and Cytokeratins (CK7 and CK20) staining has been tested in order to identify three most important sub-classes: Intestinal (INT), Pancreato-Biliary (PB) and Mixed-Type (MT). The identification of MT tumors is often difficult with conventional histology and its clinical outcome is unclear. We attempt to identify only two subtype in AACs samples, using an IHC score based-on CDX2, CK7 and CK20 evaluation on AAC samples.

Methods: Tissue samples from 20 patients with resected AACwere arranged on TMA platform and their classificationwas obtained by histology andIHC expression of CDX2, CK7 and CK 20. IHC score was obtained for each marker summing the number of positive cells (0=no stained cells; 1< 25%; 2<50% and 3>50% and their intensity (1=weak; 2=middle and 3=strong).A global score (GS) for each tumor was obtained by the contribution of each marker. The MT tumor were located into INT or PB group on the basis of predominant immune-molecular phenotype. The overall survival values of INT and PB patients were obtained by Kaplan-Meyer methods. (614Chtrs).

Results: Histological parameters defined AAC subtype samples as follows: 15% INT, 45%PB and 40% MT. Using the IHC expression and the GS,75% and 25% of MT samples were assigned to INT and PB, respectively. The mean value of GS was 9.5 (range 4-16). All INT samples had a GS over the mean, while all PB sample had a global score under the mean (p=0.0011). In particular, the INT samples are identified by high expression of CDX2 and CK20, while PB samples showed high expression of CK7 and negative expression of CK20 (p=0.0008). The Overall Survival (OS) of molecular intestinal histomolecular phenotype (INT) vs PB phenotype showed significant differences (85.7 vs 20.3 months, HR, 8.39; 95% CI, 1.38 to 18.90; p=0.0152).

Conclusion: Histopathologic and molecular criteria combination define clinically relevant histomolecular phenotypes of AACs and potentially represent distinct diseases with significant implications for current therapeutic strategies.

P 117. ASSESSMENT OF PREOPERATIVE INDICATOR FOR POSTOPERATIVE PANCREATIC FISTULA IN NORMAL PANCREAS UNDERGOING PANCREATICODUODENECTOMY: IMPACT OF PANCREAS-VISCERAL FAT CT VALUE RATIO

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Background: Most of the previous studies on risk factors of postoperative pancreatic fistula (POPF) after pancreaticoduodenectomy (PD) included both patients with soft and hard pancreas textures, and there has been few reports focusing on the risk factor of POPF in normal pancreas. The aim in the present study was to identify the true preoperative risk factor of POPF in normal pancreas undergoing pancreaticoduodenectomy (PD), making it possible to categorize patients into POPF-high risk group and low risk group.

Methods: Among the 298 patients who underwent PD using pair-watch suturing technique for pancreaticojejunostomy from March 2007 to March 2016, the subjects were the 124 patients with normal pancreas determined by preoperative CT. For evaluating the risk factor of POPF, uni-and multivariate analyses were conducted using variables including CT values of pancreas, visceral and subcutaneous fat, pancreas-visceral fat CT value ratio (PVFR) and pancreas-subcutaneous fat CT ratio (PSFR). Histological evaluation of the pancreatic stump to estimate the percentage of fatty tissue area was performed by using ImageJ software which discriminated the pancreatic parenchymal and interlobular (PI) area and non-PI area.

Results: POPF was found in 32 (25.8%): Grade A in 11 (8.9%), Grade B in 18 (14.5%) and Grade C in 3 (2.4%). By univariate analysis between POPF group (n=32) and non-POPF group (n=92), high BMI, high preoperative albumin, no combined portal vein resection, high PSFR, high PVFR, low visceral fat and low pancreas CT values were selected as the significant risk factors. By multivariate analysis, high PVFR (p=0.004) and preoperative albumin level (p=0.017) were selected as the independent risk factors for POPF. Optimal cut-off point of PVFR was -0.39 (AUC:0.72, sensitivity:81%, specificity:70%). The incidence of POPF was 45.4% (25/55) in the patients with PVFR of -0.39 or more, which was significantly higher than 10.1% (7/69) in the patients with PVFR of less than -0.39 (P<0.001), as shown in Figure. PVFR showed a weak linear positive correlation with percentage of non-PI area (P =0.01, R = 0.306).

Conclusion: PVFR, which may reflect the intrapancreatic adipose tissue content, is a useful marker to preoperatively identify the true POPF high-risk group in patients with normal pancreas undergoing PD.

P 121. EFFECT OF ANTIBIOTIC CHOICE ON THE DEVELOPMENT OF SURGICAL SITE INFECTIONS FOLLOWING PANCREATIC RESECTION: NSQIP STUDY
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Background: Surgical site infections (SSIs) are the most common cause of morbidity following pancreatic surgery. There are currently no consensus societal guidelines as to their prevention, with as a consequence a wide variation in prescribing practices from administering first generation cephalosporin to broader coverage with second or third generation cephalosporins/ penicillins with or without anaerobic coverage. We aim to assess the adequacy of first generation cephalosporin prophylaxis in the prevention of SSIs following pancreatic resection.

Methods: The American College of Surgeons - National Surgical Quality Improvement Program Pancreatectomy Targeted Participant Use Data File 2016 was queried to identify patients who underwent distal pancreatectomy (DP) or pancreatoduodenectomy (PD). The incidence of SSI was identified including the level of infection (superficial, deep and organ space) and rates of SSI compared by the genre of antibiotic given: 1st generation cephalosporin (Abx1) vs 2nd or 3rd generation cephalosporin or broad spectrum antibiotics (Abx2). The Chi-square test was used to assess the significance of the results.

Results: A total of 5421 patients were included in the study. Among them, 1762 (32.5%) and 3659 (67.5%) patients underwent DP and PD, respectively. The median age was 66 (Interquartile Range 57-73) years with a male predominance of 50.6%. Abx1 was given intraoperatively to 2060 (38%) patients. There were 318 (5.9%), 38 (0.7%) and 773 (14.3%); superficial, deep and organ space SSIs, respectively. The rate of SSIs for the whole cohort in groups Abx1 and Abx2 were: 126 (6.1%) and 192 (5.7%) for superficial SSIs (P=0.55), 8 (0.4%) and 30 (0.9%) for deep SSIs (P=0.03) and 305 (14.8%) and 468 (13.9%) organ space SSIs (P=0.39), respectively. The choice of antibiotic did not significantly change the rate of SSIs in patients who underwent DP (P>0.05). However, a significant change in the rate of organ space SSI by choice of antibiotic was noted in PD patients; 225 (18%) and 359 (14.9%), P=0.017, for Abx1 and Abx2, respectively.

Conclusion: The choice of antibiotic prophylaxis influences the rate of SSIs post-pancreatic surgery with lower rates of deep SSIs in both DP and PD, and a lower rate of organ space infections after PD. Limiting coverage to first generation cephalosporins would appear inadequate and yields to a higher rate of SSIs. Given to the coding in the PUF, these results are likely underestimating the difference between the group as there will be significant heterogeneity in the Abx2 cohort. Broader coverage of gram negative infections and anaerobes should be considered and is currently been evaluated in the ACS-AHPBA trial.

P 122. PANCREATIC DEBRIDEMENT FOR NECROTIZING PANCREATITIS: CONTEMPORARY NATIONAL OUTCOMES
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Background: Management of necrotizing pancreatitis (NP) has evolved over the past decades. Historically, surgical necrosectomy has been the gold standard. Recently, minimally invasive approaches such as percutaneous and endoscopic drainage/debridement have become more popular. No national series has analyzed the outcomes of this procedure on a large scale. We hypothesized that the postoperative outcomes of pancreatic debridement for NP were better than previously reported.

Methods: The American College of Surgeons - National Surgical Quality Improvement Program (ACS-NSQIP) database was queried for all patients who had debridement of pancreatic and peripancreatic necrosis (CPT code 48105) between January 2007 and December 2016. Patient characteristics were recorded, procedural morbidity and mortality were tabulated, and observed/expected ratios were calculated.

Results: Over the study period, 1,713 patients were eligible and had complete data available for analysis. Mean age was 54 years, with a gender ratio of 2.3 (1199/514) in favor of males. 45.4% of those patients were transferred from an outside institution before surgery. This population had major comorbidities: 90.5% of patients were considered >/= ASA 3, mean BMI was 30, 23.2% were smokers, and mean preoperative serum albumin was 2.5. At 30 days, morbidity was 65.4% and mortality was 7.4%. Mortality rate remained stable over time from 7.3% to 8.5% (p=0.83). Morbidity, however, significantly decreased from 72.1% in 2007 to 53.8% in 2016 (p=0.0012).

Conclusion: Despite being performed in patients with significant comorbidities, morbidity and mortality after pancreatic debridement are significantly lower than historical reports. In appropriately selected patients, pancreatic debridement is an important modality in treating patients with necrotizing pancreatitis.

P 123. MANAGEMENT OF BILIARY STENT-INDUCED CHOLECYSTITIS IN PATIENTS WITH PANCREATIC ADENOCARCINOMA

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Background: Patients with localized pancreatic cancer (PC) often have a biliary stent placed to relieve obstructive jaundice. During neoadjuvant therapy, they are at risk of developing acute cholecystitis. The potential for treatment of cholecystitis to cause a delay in pancreatic cancer therapy is not well understood.

Methods: Treatment details were abstracted on consecutive patients with localized PC who had a biliary stent placed at the time of diagnosis. Stent-related complications were noted and the time from stent placement to the development of a stent-related complication during the neoadjuvant treatment period was calculated. Patients were categorized as having surgical versus non-surgical management of the cholecystitis. Time to surgery was defined as the time from the start of treatment to surgery.

Results: Data was available for 283 patients, 121 (43%) with resectable and 162 (57%) with borderline resectable PC. Of the 283 patients, acute cholecystitis occurred in 17 (6%) patients. There was no association between the development of cholecystitis with clinical disease stage (p=0.80) or type of neoadjuvant therapy (p=0.50). The median time to cholecystitis from date of stent placement was 2.3 months; 2 patients developed cholecystitis within the first week while the remaining 15 patients developed cholecystitis at a median of 2.6 months from stent placement. Acute cholecystitis was managed with cholecystostomy tube placement in 15 (88%) patients and cholecystectomy in 2 (12%). In total, 189 (67%) of the 283 patients completed all intended neoadjuvant therapy and surgery; 10 (59%) of the 17 patients with cholecystitis and 179 (67%) of the 266 patients without cholecystitis (p=0.47). Of the 15 patients with a cholecystostomy tube 5 (33%) did not complete neoadjuvant therapy and surgery. Both patients who had a cholecystectomy did not complete all neoadjuvant therapy and surgery. Of the 189 patients who completed all neoadjuvant therapy and surgery, the median time to surgery was 3.2 months for the 179 patients without cholecystitis and 3.6 months for the 10 patients with cholecystitis (p=1.00).

Conclusion: The development of acute cholecystitis during neoadjuvant therapy occurred in 6% of patients who had an endobiliary stent. The placement of a cholecystostomy tube for the management of acute cholecystitis does not significantly delay the completion of neoadjuvant therapy and surgery and should be considered the optimal management of this complication.

P 125. SHORT- AND LONG-TERM OUTCOMES IN 1401 CONSECUTIVE PANCREATODUODENECTOMIES: A SINGLE-CENTER 25-YEARS EXPERIENCE

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Background: Pancreatoduodenectomy (PD) remains associated with considerable morbidity and mortality. This study evaluates the changes over time in patient selection and surgical and oncological outcomes for PD during 25 years in a high-volume pancreatic center.

Methods: All consecutive PDs performed between January 1992 and July 2017 at the Academic Medical Center, Amsterdam, the Netherlands were identified from a prospectively maintained database. Baseline characteristics, complications, in-hospital mortality and survival were analyzed according to three periods (P1, 1992-2000; P2, 2001-2009; P3, 2010-2017). Overall survival of patients with pancreatic ductal adenocarcinoma (PDAC) was assessed on univariate analysis by Kaplan-Meier estimates and Cox proportional hazards on multivariate analysis.

Results: In total, 1401 patients underwent PD, of which 366 (26.1%) in P1, 485 (34.6%) in P2 and 550 (39.3%) in P3. The average number of annual PDs increased from 41 in P1 to 73 in P3 (p<0.001). Over time, patients were older (patients >75 years increased from 6.6% to 15.3%; p<0.001), had less often preoperative biliary drainage (p<0.001), underwent more often minimally-invasive PD (p<0.001). In patients with a malignancy (n=1049, 74.8%), the proportion pT3/T4 tumors increased from 54.3% to 70.6% over time (p<0.001). The postoperative pancreatic fistula ISGPS grade B/C rate was 16.1%, postpancreatectomy hemorrhage ISGPS grade B/C rate 8.0% and delayed gastric emptying ISGPS grade B/C rate 31.5%, without improvement over time, whereas median length of stay decreased from 16 to 12 days (p=0.007). The overall failure-to-rescue rate (mortality among patients with a complication of Clavien-Dindo III or higher) was 6.9% and in-hospital mortality rate 2.2%, without differences over time (p=0.86 and p=0.39, respectively). In 518 patients (37.0%) undergoing PD for PDAC, the proportion of pT3/T4 cancers increased over time (60.3% to 80.6%, p<0.001), the use of both adjuvant and neoadjuvant chemotherapy increased (both p<0.001), and the five-year survival rate improved from 9.9% to 18.9% (p<0.001). Multivariable analysis demonstrated that use of adjuvant chemotherapy but not period of surgery was an independent predictor of survival.

Conclusion: During a 25-year period in a high-volume center, the complication, failure-to-rescue, and in-hospital mortality rates after PD remained low and stable, whereas length of hospital stay decreased despite operating on older patients. Five-year overall survival for PDAC doubled, despite operating on more advanced cancers, mainly due to the increased use of adjuvant chemotherapy.

P 126. UNDERSTAGING OF CLINICAL STAGE I PANCREATIC CANCER AND THE IMPACT ON MULTIMODALITY THERAPY

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Background: Prior work has demonstrated false negative rates of 50% for clinical nodal staging for T1-2 pancreatic ductal adenocarcinoma (PDAC). Although current guidelines recommend multimodal therapy (MMT) for all patients with PDAC, it is unclear the extent to which clinical stage I patients are understaged and how this may impact management.

Methods: Retrospective cohort study of 3,983 surgically resected patients aged 18-79 years with clinical stage 1 (i.e.: T1N0 or T2N0) PDAC in the National Cancer Database (2004-2012). Primary (T) and nodal (N) understaging was ascertained by comparing pretreatment clinical stage to pathologic stage among those treated with upfront resection. The association between the use of adjuvant treatment and overall risk of death among true stage I and understaged patients was evaluated using multivariable Cox regression.

Results: In the cohort, 37.0% were treated only with surgery, 28.1% adjuvant chemotherapy, and 34.9% adjuvant treatment that included radiation. Upstaging was identified in 69.4% of patients (58.5% T3/4; 51.0% N1) of whom 69.6% received adjuvant therapy as compared to 47.2% of those with true stage I disease. For true stage I patients, adjuvant therapy was not associated with risk of death (Hazard Ratio [HR] 1.06; 95% Confidence Interval [0.87-1.29]). For understaged patients, adjuvant therapy significantly decreased risk of death (Hazard Ratio [HR] 0.68 [0.57-0.81]).

Conclusion: The majority of patients with clinical stage I PDAC actually have higher stage disease and benefit from MMT; however, one third of understaged patients do not receive any adjuvant treatment. Alternatives to upfront resection should be considered and discussed with patients presenting with clinical stage I disease.

P 127. EPIGENETIC INTERFERENCE IN THE INTERFERON AND GEMCITABINE RESPONSE IN PANCREATIC CANCER
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Background: Patients with resectable pancreatic cancer are indicated for surgery followed by adjuvant gemcitabine (GEM) therapy. However, treatment resistance is common and the overall 5-year survival of approximately 20% still remains poor. It is suggested that the aggressive immunosuppressive tumor microenvironment contributes to GEM resistance. Prior studies have indicated a role of interferon-beta (IFN-β) in counteracting dysregulated immune invasion in pancreatic cancer and to sensitize tumor cells for GEM treatment. Unfortunately, a variable response to IFN-β treatment is demonstrated. Epigenetic modifications seem to modify the downstream pathway of both IFN-β and GEM, by silencing gene expression, resulting in lower responsiveness, or even resistance towards these therapies. Importantly, epigenetic modifications are reversible and can be targeted by so-called epi-drugs, resulting in increased gene expression. This study aimed to investigate the potential sensitizing effect of different epi-drugs on GEM and IFN-β therapy.

Methods: The KPC-3 cell line, derived from an orthotopic immune competent mouse model, was used for in vitro experiments. Cells were treated with increasing concentrations GEM (0-5 ng/ml) or IFN-β (0-1000 IU/ml) to evaluate the anti-tumor effect of monotherapy. To assess the sensitizing effect of the histone deacetylase inhibitor valproic acid (VPA), cells were treated with GEM or IFN-β combined with IC25 or IC50 growth inhibitory concentrations of VPA for seven days. The effect of drug treatment on cell growth was determined by measuring the total amount of DNA per well.

Results: The anti-proliferative effect of GEM and IFN-β monotherapy is dose- and time-dependent. A shift in IC50 concentration of GEM was found, and declined when combined with VPA. An additional inhibition of approximately 50% was found when IC50 GEM was combined with IC50 VPA. Furthermore, 100 IU/ml IFN-β combined with IC50 VPA resulted in an additional inhibition of cell growth as well.

Conclusion: By combining GEM or IFN-β with VPA, we can achieve a significantly stronger anti-tumor effect of GEM and IFN-β. Other epi-drugs, such as the DNA methylation inhibitor 5AZAcytidine, will be tested. Based on the in vitro experiments, the optimal combination will be studied in an in vivo study with immune competent mice.

P 128. PROGNOSTIC IMPACT OF METASTASIS AND MICROMETASTASIS IN PARA-AORTIC LYMPH NODES AND LYMPH NODES ALONG THE LEFT SIDE OF THE SUPERIOR MESENTERIC ARTERY IN PANCREATIC CANCER

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Background: In the lymph nodes (LNs) in pancreatic cancer, para-aortic LNs (LN16) and LNs along the left side of the superior mesenteric artery (LN14p-lt) are not regarded as regional LNs. Although metastasis in LN16 and LN14p-lt are sometimes found, the survival benefit of LN16 and LN14p-lt dissection during pancreatectomy is still disputed. The aim of this study is to evaluate the frequency and the prognostic value of LN16 and LN14p-lt metastasis and micrometastasis in patients with pancreatic cancer.

Methods: Medical records of consecutive patients with pancreatic cancer between May 2002 and July 2017 were reviewed retrospectively. All patients in the current study underwent potentially curative pancreatectomy with dissection of LN16 and LN14p-lt. Patient characteristics and clinicopathological factors were compared among the LN status groups, and the relationship between LN status and overall survival (OS) was analyzed. Micrometastasis was defined as metastasis missed by hematoxylin and eosin (HE) staining but detected by immunohistochemical staining of CAM 5.2 monoclonal antibody.

Results: LN16: Of the enrolled 324 patients whose LN16 status could be assessed, 31 patients (10%) was HE-positive, and 25 patients (8%) had micrometastasis. The median survival time (MST) for patients in LN16 no metastasis, HE-positive, and micrometastasis groups were 46.1, 22.1, and 18.6 months, respectively ($p<.001$). In multivariate OS analysis, LN16 metastasis (HE-positive or micrometastasis) (HR 1.52; $p=.045$) was the independent risk factor. Within a subset of 56 patients with LN16 metastasis, the MST for patients with adjuvant chemotherapy was 24.8 months. Multivariate analysis demonstrated adjuvant chemotherapy (HR 2.61; $p=.026$) was the independent prognostic factor for better OS. LN14p-lt: Of the eligible 166 patients treated with pancreatoduodenectomy for pancreatic head cancer whose LN14p-lt status could be assessed, 20 patients (12%) was HE-positive, and 8 patients (5%) had micrometastasis. The MST in LN14p-lt no metastasis, HE-positive, and micrometastasis were 31.3, 13.1, and 19.1 months, respectively ($p=.046$). In multivariate OS analysis, LN14p-lt metastasis (HR 1.82; $p=.034$) was the independent risk factor. Within a subset of 28 patients with LN14p-lt metastasis, the MST for patients with adjuvant chemotherapy was 27.6 months. Multivariate analysis demonstrated adjuvant chemotherapy (HR 4.37; $p=.003$) was the independent prognostic factor for better OS.

Conclusion: In pancreatic cancer, the frequency of LN16 and LN14p-lt micrometastasis were 8% and 5%, respectively. LN16 and LN14p-lt metastasis were the independent poor prognostic factors in patients who received pancreatectomy for pancreatic cancer. Pancreatectomy and subsequent adjuvant chemotherapy may contribute to prolonged OS of patients with LN16 and LN14p-lt metastasis.

P 129. CONSEQUENCES OF POST-OPERATIVE HYPERGLYCEMIA AFTER AN OPEN WHIPPLE PROCEDURE

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Background: Hyperglycemia is often encountered in critically ill patients and is associated with increased morbidity. Glycemic control can be challenging after open Whipple procedure and the optimal method of glycemic control and goal glucose target is unknown. The objective of this study is to determine the optimal method of insulin administration and target glucose in patients undergoing an open Whipple procedure.

Methods: This was a single center, retrospective cohort study. All patients admitted to an intensive care unit after a Whipple procedure between April 2015 to April 2016 were included. Post-operative insulin regimens, blood glucose, rates of hyperglycemia and hypoglycemia, rates of post-operative pancreatic fistulae and surgical site infections were collected and evaluated.

Results: A total of 244 patients were included. 55 patients (22.5%) carried a diagnosis of diabetes prior to surgery and 28 (11.5%) were already on insulin therapy. During the first 24 hours, 170 (69.7%) were prescribed sliding scale insulin and 73 (29.9%) were maintained on an insulin infusion. Sixteen (6.6%) patients experienced at least one hypoglycemic episode (<70 mg/dL) and 114 (46.7%) experienced at least one hyperglycemic (>180 mg/dL) episode during the first 24 hours. Early post-operative hyperglycemia (>180mg/dL) was associated with a significantly higher rate of SSI (7% vs. 15.7%; p = 0.031). Late post-operative hyperglycemia (>180mg/dL) was associated with a significantly higher rate of POPF (4.3% vs. 14.6%; p=0.021). Glucose variability within the first 24 hours and more intensive glucose control (<150mg/dL) did not have a significant impact on post-operative pancreatic fistulae as previously predicted (p = 0.026, OR = 0.98 and p = 0.003, OR = 6.15 respectively).

Conclusion: Hyperglycemic episodes were associated with higher rates of SSI and POPF in our population. A stricter glucose target of <150mg/dL was not associated with improved outcomes. The majority of our population was treated with insulin sliding scale with low rates of hypoglycemia.

P 130. ADEQUATE RESECTION AND PATHOLOGICAL EVALUATION OF LYMPH NODES IN PATIENTS WITH NON-FUNCTIONAL PANCREATIC NEUROENDOCRINE TUMORS: HOW MUCH IS ENOUGH?

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Background: Lymph node involvement has been identified as a prognostic factor in patients with Non-Functional Pancreatic Neuroendocrine Tumors (NF-PanNETs). Sufficient lymphadenectomy and subsequent pathological evaluation is vital to stage disease accurately. Optimal number of resected and evaluated lymph nodes has not been well described.

Methods: The Surveillance, Epidemiology and End Results (SEERs) database was used to identify patients with resected NF-PanNETs between 2004 and 2014. Patients with no resected lymph nodes were excluded. The distribution of positive lymph nodes (PLN) and the mean LNR (positive/total resected lymph nodes [TLN]) were used to develop a simulation model. The model was used to simulate 5000 patients, considering that each patient had 50 TLN (the highest number of TLN in the study cohort). The sensitivity of detecting nodal disease at each cut off of TLN was estimated. This process was repeated 1000 times and mean and 95%CI (confidence interval) for sensitivity were calculated. Trends of change in sensitivity were used to identify an appropriate cut off for TLN.

Results: A total of 1391 patients were included with a mean age of 56.4 13.3 years. A majority was male (N=747, 53.7%) and white (N=1116, 80.2%). The median PLN was 0 (Range: 0-47) and the median TLN was 10 (Range: 1-50). A majority had well-differentiated tumors (71.9%), tumor 4cm in size (62.5%) and no distant metastatic disease (81.0%). The sensitivity of detecting nodal involvement increased from 12.0% (TLN: 1) to 92.2% (TLN: 20) (Figure 1). The serial increase in sensitivity plateaued at 20 TLN (<1% increase in sensitivity upon resection of an additional lymph node), suggesting that it should be used as a cut off for the number of resected and evaluated lymph nodes. On multivariable cox analysis, patients with TLN >20 had a significantly improved disease specific survival (HR: 1.56, 95%CI: 1.01-2.39, p=0.042).

Conclusion: Detection of nodal disease is dependent on TLN. Evaluation of at least 20 lymph nodes is required to detect nodal disease with an optimal sensitivity and stage patients with NF-PanNETs.

P 132. VARIATION IN LONG-TERM ONCOLOGIC OUTCOMES BY TYPES OF CANCER CENTER ACCREDITATION: AN ANALYSIS OF A SEER-MEDICARE POPULATION WITH PANCREATIC CANCER

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Background: Cancer center-accreditation is designed to identify centers that provide high-quality cancer care. We sought to examine if accreditation is associated with long-term oncologic outcomes.

Methods: Using the SEER-Medicare database, we identified patients who underwent pancreatectomy for pancreatic adenocarcinoma from 1996-2013. Hospitals were categorized into three groups: Commission on Cancer-accredited (CoC) centers, National Cancer Institute-designated (NCI) centers, and non-accredited (NA) centers. Adjusted examined lymph nodes, disease-specific survival (DSS), and overall survival (OS) were calculated.

Results: We identified 5,118 patients who underwent pancreatectomy at 632 hospitals (41.0% NA, 49.6% CoC, 9.4% NCI). NCI had a higher median number of lymph nodes examined when compared to CoC or NA centers (14 vs. 10 vs. 11.0 nodes, respectively; p<0.001). Patients treated at NCI centers had a higher 5-year DSS compared to those treated at CoC or NA centers (31.2% vs. 23.6% vs. 23.0%, respectively; p<0.001). Finally, patients treated at NCI centers had a higher 5-year OS compared to those treated at CoC or NA centers (23.5% vs. 18.9% vs. 17.9%, respectively; p<0.001). The associations held true when adjusted analysis was performed (Figure).

Conclusion: Patients with resected pancreatic cancer at NCI-designated centers are associated with higher number of lymph nodes examined, as well as improved OS and DSS. This effect was not observed with CoC-accredited centers. Further research is needed to elucidate the relationship between cancer center-accreditation and oncologic outcomes.

P 133. DISTAL PANCREATECTOMY FOR PANCREATITIS: DIVERSE DISEASE WITH CHALLENGING OUTCOMES
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Background: Distal pancreatectomy is undertaken in pancreatitis with relative infrequency and with variable reported outcomes. This heterogeneous patient group has not been well-examined in the modern era to guide clinical decision-making, including patient selection

Methods: A prospective database of patients undergoing distal pancreatectomy at a single institution from August 2012 to August 2017 are evaluated. Preoperative, perioperative, and postoperative data are assessed.

Results: A total of 99 patients underwent distal pancreatectomy during the study period (60 men, 61%, mean age 49 years). Thirty(30%) had post acute pancreatitis disconnected left pancreatic remnant(DLPR), 30% chronic pancreatitis with mid-body stricture or inflammatory pseudotumor, and 20% had chronic distal pseudocyst. Seven patients underwent laparoscopic pancreatectomy. Significant postoperative complications(grade 3,4) were seen in 37% of patients with the incidence in patients with DLPR(27%) similar to chronic pancreatitis (37%). Postoperative pancreatic fistula was seen in 47% of patients (A=12%, B=33%, C=2%) with fistula in 57% of patients with DLPR [CP 33% (p=0.05), Pseudocyst 60%]. Mean length of stay was 8.3 days and did not vary between groups. Thirty-day readmission rate was lowest in patients with DLPR compared to the remainder of the study population (35% vs. 46%, p<0.05). Among patients with 6 months of follow-up, 35% developed new onset diabetes 55% had persistent opioid use.

Conclusion: Distal pancreatectomy is undertaken in pancreatitis with high perioperative morbidity. Surgical approach is not often accomplished laparoscopically. Preoperative indications are heterogeneous and have similar postoperative morbidity including fistula. Patients with DLPR have lower readmission rates. Longer term follow-up is needed.

P 134. EVALUATING RISK FACTORS FOR AND FINANCIAL IMPLICATIONS OF COMPLICATIONS AFTER PANCREATIC RESECTION
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Background: Peri-operative complications following pancreatic resection significantly impact clinical and financial outcomes. This study aimed identify in-hospital incidence of various complications among patients undergoing pancreatic resection, risk factors for said complications, and the financial impact of such complications.

Methods: The Premier Healthcare Database was queried for patients undergoing pancreaticoduodenectomy (PD) and distal pancreatectomy (DP) between January 2010 and September 2015 (first procedure = index). Complications were identified based on diagnosis codes recorded during their hospital stay of the index procedure. Complications were then grouped according to organ system. Multivariable regression models were used to identify risk factors for developing complications as well as the incremental total hospital costs and length of stay associated with each group of complications arising in the setting of PD and DP.

Results: A total of 6,980 patients underwent PD and 3,491 underwent DP. 81.6% of PD patients and 41.3% of DP patients underwent operative intervention for malignancy. Mean Charlson comorbidity index for PD patients was 3.6 (standard deviation = 2.4), while that for DP patients was 2.1 (SD = 2.3). Overall, 63.6% of PD patients and 45.1% of DP patients developed one or more peri-operative complications during the hospital stay of the index procedure. Risk factors for complications included older age, male gender, comorbidity burden emergency admission, and annual hospital surgical volume (all $p<0.05$). Overall, complications resulted in an increase in mean length of stay (LOS) of 8.1 days (78% increase) in PD patients and 5.8 days (94% increase) in DP patients and an increase in total hospital cost of $25,610 (75% increase) in PD patients and $17,156 (81%) in DP patients. Among PD and DP patients, respectively, adjusted incremental total hospital cost increase for pulmonary complications was $10,309 (PD) and $8,036 (DP). Incremental total hospital costs and LOS associated with the most common complications pulmonary, bleeding, gastrointestinal, and infectious in both groups were all statistically significant ($p<0.001$). The majority of increased total hospital costs in both groups stemmed from increased room and board, pharmacy, and laboratory costs.

Conclusion: Complications following pancreatic resection have clearly-associated patient and operative risk factors and financial implications. Many complications may be preventable, and having a well-defined understanding of these risk factors can help guide patient risk stratification, development of post-operative care pathways, and,

ultimately, rational design of risk-adjusted bundled payment plans for major pancreatic surgery.

P 136. CLINICAL IMPLICATIONS OF EXTENSIVE LYMPH NODE METASTASES FOR RESECTED PANCREATIC CANCER

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Background: Outcomes of patients with resected pancreatic ductal adenocarcinoma (PDA) and extensive lymph node metastases have not been fully characterized.

Methods: 637 patients underwent resection for pancreatic ductal adenocarcinoma (PDA) between 2002 and 2014 at Thomas Jefferson University. Positive lymph node count (LNC) and positive lymph node ratio (LNR) were analyzed retrospectively as predictors of cancer-specific outcomes, with a focus on extensive lymph node burden.

Results: Patients with regional lymph node metastases had a median survival of 17.1 months (n=425, 70%), compared to 25.5 months (n=185, 30%) for patients without lymph node spread (N0) (HR= 1.9, p<0.001). Overall survival decremented with increased lymph node spread, but plateaued at a LNC4 (HR 2.4 vs. N0, p<0.001) and LNR 0.4 (HR 2.2, p<0.001). Compared to historical cohorts with metastatic disease, superior long-term survival was achieved in patients with extensive lymph node metastases (LNC4); 24 and 36-month survivals were 25% (vs. 16%, p<0.001) and 12% (vs. 6%, p<0.001), respectively. Extensive lymph node metastases (both LNC and LNR) was associated with an increased postoperative CA 19-9 (p=0.044) and a systemic recurrence pattern (p<0.001).

Conclusion: The negative effect of extensive lymph node spread after resection for PDA plateaus above a defined threshold (LNC4 or LNR 0.4), supporting the 8th Edition AJCC criteria for N2 disease. A high lymph node disease burden is a surrogate marker for occult systemic disease, as evidenced by increased postoperative CA 19-9 and a systemic pattern of failure. However, survival is still better than patients with macroscopic metastases (stage IV).

P 137. PREDICTING SUCCESSFUL CATHETER DRAINAGE IN PATIENTS WITH SEVERE PANCREATIC FISTULA AFTER PANCREATODUODENECTOMY: A MULTICENTER COHORT STUDY

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Background: Pancreatic fistula remains a dreaded complication after pancreatic resection. Catheter drainage appears to be superior to relaparotomy in terms of clinical outcomes, but is not successful in all patients with clinically relevant pancreatic fistula. The aim of this study is create a prognostic model for successful catheter drainage in patients with pancreatic fistula after pancreatoduodenectomy.

Methods: This is multicenter cohort study on patients undergoing catheter drainage as first intervention for ISGPS grade B/C pancreatic fistula after pancreatoduodenectomy (January 2005 to September 2013) in 9 centers of the Dutch Pancreatic Cancer Group. Possible prognostic factors for successful catheter drainage (i.e. survival without relaparotomy) were evaluated using logistic regression and selected using the Akaike Information Criterion. The model was internally validated and definitive predictors were combined in a nomogram.

Results: Of 2196 patients undergoing pancreatoduodenectomy, catheter drainage as first intervention for a pancreatic fistula in 227 patients. Primary catheter drainage was successful in 175/227 patients (77%). Multivariable logistic regression revealed the following negative prognostic factors for success: male sex (odds ratio [OR] 0.46, 95% confidence interval [CI] 0.21-1.00, P=0.049), higher age (for every 5 years over 50; OR 0.69 95%CI 0.57-0.84; P<0.001) and respiratory failure in 24h before catheter drainage (OR 0.10, 95%CI 0.03-0.33, P<0.001). A prognostic model incorporating these factors yielded an AUC of 0.76. The prognostic nomogram demonstrated a success range from 98 to 14%.

Conclusion: Male sex, higher age and respiratory failure are negative prognostic factors for successful catheter drainage in patients with pancreatic fistula after pancreatoduodenectomy. Future prospective trials should determine whether early detection and management of pancreatic fistula can prevent respiratory failure and ultimately improve clinical outcome in these patients.

P 138. IMPACT OF PASIREOTIDE ON POST-OPERATIVE PANCREATIC FISTULAS AFTER PANCREATIC DISTAL RESECTION

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Background: Complications in pancreatic surgery are potentially life-threating. Post-operative pancreatic fistulas (POPF) can form in pancreatic tissue after surgery, and can cause peripancreatic fluid collections and infections. In addition, pancreatic fluid is corrosive and can lead to post-operative bleeding in the operative area. Clinically significant class B and C fistulas increase post-operative morbidity and can lead to prolonged hospital stay. Delaying of adjuvant therapy due to fistula formation in cancer patients can affect their prognosis. Diagnosis of pancreatic fistula can be set according to international study group of pancreatic surgery (ISGPS) criteria (Bassi et al. 2016). Previously the use of perioperative pasireotide decreased the number of clinically relevant pancreatic fistulas (Allen et al. N Engl J Med 2014). According to SeppÃ¤nen et al. (abstr. 2016) the use of pasireotide after pancreaticoduodenectomy was seen beneficial in risk patients.

Methods: There were 235 distal pancreatic resections in HUCH 2005-4/2016 that were analyzed. Pasireotide (Signifor) was used in 7/2014-4/2016. Pasireotide treatment was started in patients on the morning of surgery and was continued until released from hospital or for a week. In one patient treatment was discontinued on day one beacuse of side-effects. Patients who had octreotide (Sandostatin) treatment were analysed separately. Complications were analyzed 90 days post-operatively using the ISGPS POPF criteria and Clavien-Dindo I-V classification.

Results: There were 48 (20 %) patients who received pasireotide, 21 (9 %) octreotide and 165 (70 %) did not receive either. There were 34 (15 %) clinically relevant B/C POPF: 7 (15%) in pasireotide group, 3 (14%) sandostatin-group and 23 (14 %) in group without either, sandostatin or pasireotide (p=ns). Severe complications according to Clavien-Dindo were grade III-IV 61 (26%), in pasireotide-group 17 (35 %), in the octreotide group 4 (19 %) and 39 (24 %) in the group who did not receive either (p=ns). During the 90 d follow-up period mortality was 0.

Conclusion: In this study pasireotide did not reduce clinically relevant POPF or severe complications after pancreatic distal resection.

P 139. IMPACT OF THE USE OF NITROGLYCERIN TRANSDERMAL PATCH ON THE INCIDENCE OF CLINICALLY-RELEVANT POST-OPERATIVE PANCREATIC FISTULA AFTER DISTAL PANCREATECTOMY: RESULTS OF A PROPENSITY SCORE-MATCHED ANALYSIS

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Background: Postoperative pancreatic fistula (POPF) continues to occur frequently after distal pancreatectomy (DP) causing significant morbidity. Implementation of multiple prophylactic and/or mitigation strategies has failed to improve the historical, and quite unsatisfactory, results. Two recent studies, however, have demonstrated the role of main pancreatic duct pressure in the origin of POPF after DP by showing that either decreased (botulin injection) or increased (morphine-based analgesia) tone of the Sphincter of Oddi resulted in lower or higher rates of clinically relevant POPF (CR-POPF), respectively. The use of nitroglycerin produces relaxation of the Sphincter of Oddi and releases the spasm caused by morphine administration. We herein report the results of a propensity score-matched analysis comparing DP with (NTP+DP) and without (NTP-DP) use of nitroglycerin transdermic patch (NTP).

Methods: Using a prospectively maintained database we performed a retrospective cross-sectional study of patients who underwent DP between March 2008 and August 2017. Patients receiving neoadjuvant treatments and/or requiring vascular resections were excluded. Two groups of patients were identified based on the use of NTP: NTP+DP and NTP-DP. Factors associated with the development of CR-POPF were identified using linear logistic regressions. After adding to our model some additional variables (preservation of splenic vessels, technique of pancreatic transection, pancreatic area at the level of transection, and pathology), propensity scores (PS) were used to balance possible confounders between the two groups and to perform a nearest-neighbor 1-to-1 match. Relationships between use of NTP and occurrence of CR-POPF were hence evaluated by linear logistic regressions in overall population (unadjusted analysis) and in PS matched groups (PS matched analysis).

Results: Two-hundreds and two patients met the inclusion criteria: 39 (19.3%) NTP-DP and 163 (80.7%) NTP+DP. CR-POPF developed in 14 NTP-DP (35.9%) versus 46 NTP+DP (28.2%). The unadjusted odd ratio (OR) of NTP use was 0.88 (p=0.34) PS analysis matched 31 NTP-DP to 31 NTP+DP. CR-POPF occurred in 9 N-DP (29.0%) and 6 N+DP (19.3%). The PS matched OR of NTP varied from 0.88 (p=0.34) to 0.79 (p=0.3).

Conclusion: The prophylactic use of NTP after DP was associated with a trend towards the reduction of the incidence of CR-POPF. Statistical significance was not achieved, possibly because of the limited number of patients in the NTP-DP group. It is however worth to note that the use of NTP is associated with no adverse events, other than

headache in some patients, and that nitroglycerine is known to reverse the spasm of the Sphincter of Oddi caused by morphine

P 141. GENERAL CONDITION, NUTRITIONAL STATUS, AND ENDOCRINE FUNCTION OF ACTUAL 5-YEAR SUVIVORS WHO UNDERWENT WHIPPLE WITH DUCT-TO-MUCOSA PANCRETICOGASTROSTOMY

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Background: Recently published meta-analysis comparing pancreaticojejunostomy (PJ) and pancreaticogastrostomy (PG) have all demonstrated the superiority of PG in terms of postoperative pancreatic fistula after Whipple. However, PJ is the preferred reconstruction, and PG has not become a widely accepted. A very few studies have been evaluated the long-term general status of PG after Whipple. Purpose of the present study was to assess general condition, nutritional status, and endocrine function of actual 5-year survivors who underwent Whipple with duct-to-mucosa PG.

Methods: Patients, who underwent Whipple with duct-to-mucosa PG from 2004 to 2012, were enrolled in the study. Patients who have actually survived over 5 years were evaluated in terms of endocrine function (A1C, DM), nutritional status (Body mass index, Serum ALB, Prognostic Nutritional Index), and morphological change of main pancreatic duct.

Results: 109(44%) out of 249 patients who underwent Whipple have survived over 5-year. Median interval between operation and evaluation was 61 months (range 60-65 months) Median age was 71 (range 17-87), there were 61 men and 48 women. Indications for resections were malignant disease (n=75, 68%), including 33 biliary carcinoma, 31 pancreatic ductal carcinoma, and 11 others. Other indications for benign disease (n=34, 32%) included 17 intraductal papillary-mucinous neoplasms, 9 chronic pancreatitis, and 8 others. 13 patients had cancer at the time of evaluation (11 recurrence, 2 new-onset). Median value of A1C levels before and 5-year after surgery was 5.8 and 6.2%, respectively (p=0.185). Of 72 patients who had no diabetes before surgery, 58 (81%) had no diabetes at 5-year estimation. New-onset diabetes was observed in 14 patients (13%), including 12 oral medication and 2 insulin therapy. 71 (65%) had oral pancreatic enzyme supplements at 5-year after surgery. Median value of body mass index before and 5-year after surgery was 22.2 and 20.9, respectively (p<0.001). Median serum ALB level before and 5-year after surgery was 3.9 and 4.1g/dl, respectively (p=0.046). Median serum Total cholesterol level before and 5-year after surgery was 189 and 168 mg/dl, respectively (p<0.001). Median hemoglobin level before and 5-year after surgery was 12.0 and 12.6g/dl, respectively (p=0.208). Median prognostic nutritional index level before and 5-year after surgery was 48.2 and 48.9, respectively (p=0.211). Median diameter of main pancreatic duct before and 5-year after surgery was 3.0 and 4.5 mm, respectively (p<0.001).

Conclusion: In actual 5-year survivors who underwent Whipple with duct-to-mucosa PG, Impairment of general condition, nutritional status, and endocrine function were relatively minor and acceptable compare to those before surgery.

P 143. LEUKOCYTOSIS AFTER DISTAL PANCREATECTOMY AND SPLENECTOMY (DPS): A MARKER OF MAJOR COMPLICATIONS?

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Background: Post-splenectomy leukocytosis is a normal physiologic response, but has been prospectively validated as a reliable marker for postoperative complications. The aim of this study was to analyze the associations between trends in postoperative leukocytosis and infectious complications after distal pancreatectomy with splenectomy.

Methods: Between January 2013 and December 2015, patients undergoing distal pancreatectomy with splenectomy (DPS) for primary pancreatic diseases were analyzed from a single institution database. Independent t-test were performed to analyze the bivariate relationships between the postoperative leukocytosis and short-term postoperative outcomes including infectious complications, pancreatic fistula, and 30-day hospital re-admission.

Results: DPS was performed in 158 patients, 106 (67%) open and 52 (33%) laparoscopic or robotic. Median age of all patients was 57 years (range 22-89). Median BMI was 28 kg/m2 (range 15-54), and 30% had preoperative diabetes mellitus. Patients developing postoperative infectious complications had significantly higher WBC counts beginning on postoperative day (POD) 2. A similar pattern was identified for superficial surgical site infection (SSI) beginning POD 4, deep organ-space infections (DOSI) beginning POD 2, and pneumonia (PNA) beginning POD 4. Leukocytosis above 16,000 cells/mcL on or after POD3 was associated with SSI, DOSI, and PNA. WBC count did not correlate with UTI, post-operative pancreatic fistula, or 30-day readmission (Figure 1).

Conclusion: A leukcocytosis of 16,000 cells/mcL or greater on or after post-operative day three following distal pancreatectomy with splenectomy should raise awareness for postoperative infectious complications.

P 144. THE BENEFICIAL EFFECTS OF MINIMIZING BLOOD LOSS IN PANCREATODUODENECTOMY
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Background: The negative impact of intraoperative blood loss on outcomes in pancreatoduodenectomy (PD) has long been suspected but not well characterized, particularly those factors that may be within surgeons control.

Methods: From 2001-15, 5323 PDs were performed by 62 surgeons from 17 institutions. Estimated blood loss (EBL) was discretized (0-300, 301-750, 751-1300, and > 1300 mL) using optimal scaling methodology. Multivariable regression, adjusted for patient, surgeon, and institutional variables, was used to identify associations between EBL and perioperative outcomes. Factors associated with both increased and decreased EBL were elucidated. The relative impact of surgeon-modifiable contributors was estimated through beta coefficient standardization.

Results: The median EBL of the series was 400 mL (IQR 250-600). Intra-, post-, and perioperative transfusion rates were 15.8%, 24.8%, and 37.2% respectively. Progressive EBL zones correlated with intra- but not postoperative transfusion in a dose-dependent fashion ($p < 0.001$), with a key threshold of 750 mL EBL (8.14% vs 40.9%; $p < 0.001$). Increasing blood loss significantly correlated with poor perioperative outcomes (Table 1). Factors associated with increased EBL were trans-anastomotic stent placement, neoadjuvant chemotherapy, pancreaticogastrostomy reconstruction, multiorgan or vascular resection, and elevated operative time, of which 40.7% of the relative impact was potentially modifiable by the surgeon. Conversely, female gender, small duct, soft gland, minimally invasive approach, pylorus-preservation, biological sealant use, and institutional volume (>67/year) were associated with decreased EBL, of which 13.6% was potentially under the surgeon's influence.

Conclusion: Minimizing blood loss contributes to fewer intraoperative transfusions and better perioperative outcomes for PD. Improvements might be achieved by targeting modifiable factors that influence EBL.

P 145. THE SIGNIFICANCE OF CONVERSION SURGERY AFTER INITIAL CHEMORADIOTHERAPY FOLLOWED SYSTEMIC CHEMOTHERAPY FOR THE PATIENTS WITH METASTATIC PANCREATIC CANCER

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Background: Metastatic pancreatic ductal adenocarcinoma (PDAC) is commonly contraindication for resection. Our institution has been performing chemoradiotherapy (CRT) followed by surgery for locally advanced PDAC, and the same protocol has been also employed for patients with distant metastasis. The aim of this study was to evaluate the significance of conversion surgery after initial chemoradiotherapy followed systemic chemotherapy for PDAC patients with distant metastasis.

Methods: 61 consecutive Metastatic PDAC patients from February 2005 to September 2016 had been enrolled for our protocol. CRT regimen: Radiation therapy (total dose, 45 to 50.4 Gy, 25 to 28 fractions) with chemotherapy, which include G-CRT (n=4): gemcitabine (800mg/m2, day1,8,22,29) and GS-CRT (n=57): gemcitabine (600mg/m2,day8,22,36,50)+ oral S-1, active combination of tegafur, gimeracil and oteracil (60/m2, day1-21 and day 29-49). After CRT, systemic chemotherapy had been performed by evaluating disease status including distant metastases every 2 to 3 months. The patients underwent curative-intent resection after serial re-evaluations. At the time of reassessment, we determined that curative-intent resection was possible when the following findings on MDCT were observed: no stenosis or change of shape in the CA and SMA and the absence or local control of metastatic lesions in other distant organs.

Results: Completion rate of CRT was 93.4% (57/61). The 61 patients were reclassified as single-organ metastasis in 50: hepatic (HEP) in 24, peritoneum (PER) in 5, pulmonary (PUL) in 2, bone in 1, Lymph nodes(LYM) around the abdominal aorta in 17 and along the lesser curvature of the stomach in 1, and multiple-organ metastases in 11. Median survival time (MST) was 11.5 months in the whole cases. There is no significant different between single-organ metastasis and multiple-organ metastases (13.3 months vs. 10.0months, P=0.34). In HEP, PER and LYM, MST was 10.3M, NA and 17.1M. HEP was significant poor than PER (P=0.022) and LYM (P=0.041) respectively. It was significantly longer in the patients with pancreatic resection (n=11) than without pancreatic resection (n=50) (20.9 months vs. 10.0 months, P=0.028). In resection cases, the number of HEP or PUL metastasis was up to 3.

Conclusion: CRT followed by systemic chemotherapy may offer the potential for resection for metastatic PDAC patients who has limited number of metastases and well controlled, resulting in improvement of prognosis.

P 147. PREOPERATIVE 3-DIMENTIONAL ANATOMICAL IMAGE ASSESSMENT FOR LAPAROSCOPIC PANCREATECTOMY

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Background: The relationship between vessels and pancreatic parenchyma is complex. Therefore, we evaluated the relationships using 3D-CT images before laparoscopic distal pancreatectomy (LDP) and classified the cases to two types. One is the â€œBuried typeâ€; SPA is buried inside of the pancreatic parenchyma. The other is â€œNon-buried typeâ€; SPA is separated from the pancreatic parenchyma. We also evaluated the distribution of dorsal pancreatic artery (DPA). In this study, we evaluated the usefulness of 3D-CT simulation for LDP and also evaluated the clinical significance of our classification and analysis.

Methods: For the evaluation of the distribution of DPA, we defined the point of origin which is the point between the SPA and CHA, the points located along the SPA were labeled as â€œPLUSâ€ and those along the CHA were â€œminusâ€

Results: On the 55 cases we evaluated, the â€œBuried-typeâ€ is 18 cases and â€œNon-buried type is 37 cases. We found out that the 3D-CT images for buried type cases accurately predicted the actual â€œburied type cases. We also reviewed the video clips of LDP and found the 30 cases (Buried type 11 cases and Non-buried type 19 cases) and the 10 (90.9%) â€œburied type needed a wider dissection between the pancreatic parenchyma and common hepatic artery for isolating SPA. The duration for isolating SPA for the buried-type is 31.5min (14.0min to 101 min) and for the non-buried type is 8.5 min (3.5 to 445 min); there was significant difference between the two types (P < 0.01). The distribution of DPA is measured -13.4 to 65.2mm (median; 10.8mm) and the cases which has DPA within 20mm is 30 cases (65.2%). There were no cases with injury of SPA during the isolation.

Conclusion: The classification is important for deciding the approach to SPA and necessary for evaluating the difficulty of isolation of SPA. In addition, the evaluation of distribution of DPA is also helpful for the safety of isolating SPA. Preoperative 3D image may be helpful for the safety of LDP.

P 148. REFERRAL PATTERN IN ACUTE PANCREATITIS TO SURGICAL UNIT AND ITS RELATIONSHIP TO OUTCOME

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Background: Patients have been routinely referred to surgical services once diagnosis of infected pancreatic necrosis was made. However with the increasing use of step-up approach at many centers, referral pattern for these patients has changed with very sick patients getting referred to surgical services. This study was aimed to look at the referral pattern in these patients and relationship to outcome.

Methods: In this prospective observational study, 90 patients were referred to surgical services in 18 months time. 24 patients were referred for interval cholecystectomy following acute phase of pancreatitis and 66 were referred for further management in the acute phase of disease.

Results: 66 patients were given surgical consultation during this period and 4 patients were excluded from the study. 55 patients had severe disease and 7 had moderately severe disease. 40 patients were managed with PCD only, 1 patient was referred after endoscopic necrosectomy, and 16 patients required surgery of which 15 were on PCD. Overall Sepsis reversal with PCD was seen in 55.3% patients. Curative efficacy of PCD alone was 46.4%. Patients referred within one week of PCD placement had better survival as compared to patients referred after one week of PCD insertion (20.8% vs. 54.8%, P=0.011). Surgical mortality was also lower in patients referred within one week of PCD placement (16.6% vs. 77.7%). Overall mortality was 40.3% in this study. On univariate analysis, transferred patients had significantly higher mean MCTSI score, complete pancreatic necrosis (P=0.000), total number of interventions, total number of antibiotics and GI fistulas. On comparing patients managed with PCD and PCD with surgery, complete pancreatic necrosis, bleeding complications (P=0.000) were associated with significantly higher need of surgery. Bleeding complications were seen in 22.5% of the patients.

Conclusion: In the step-up era, there has been a change in referral pattern in acute pancreatitis with patients being referred to surgical service in the later part of the disease process. In this study, early referral to the surgical unit with respect to PCD placement has shown reduced mortality and higher sepsis reversal with PCD. in particular, bleeding complications and complete pancreatic necrosis require timely referral to surgical services.

P 149. COMPARATIVE OUTCOMES OF EARLY AND STANDARD DISCHARGE IN PATIENTS UNDERGOING PANCREATODUODENECTOMY

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Background: Literature with respect to enhanced recovery after surgery (ERAS) protocols in patients undergoing pancreatoduodenectomy (PD)is limited to small retrospective series. Using early discharge as a surrogate for ERAS, we utilized a national database to compare perioperative outcomes in patients undergoing early and standard discharge after PD.

Methods: Patients who underwent elective PD were extracted from the ACS-NSQIP 2014 and 2015 datasets. After excluding all patients who developed complications prior to discharge, patients were divided into either early discharge (ED) (0-5 days) from the index operation, or standard discharge (SD) (Days 6-10). The primary outcomes were all-cause morbidity within 30 days and readmission rates, whilst the incidence of specific complications were considered secondary outcomes.

Results: In total, 2759 patients met inclusion criteria, of whom 495 patients (18 %) constituted the ED group. The ED group included patients with a younger median age (64 vs 65 years; $p=0.003$), and fewer patients with hypertension (41.8% vs 51.4%; $p<0.001$), but were similar in all other preoperative characteristics investigated. The ED group had a lower median operative time (324 vs 347 min; $p<0.001$). In unadjusted analysis, there were no differences between the two groups with respect to 30-day all-cause morbidity (15.2% vs 16.8%; $p=0.40$), or serious morbidity (0.8% vs 1.1%; $p=0.8$). The 30-day readmission rate was lower in the ED group but not statistically so (10.5% vs 13%; $p=0.16$).

Conclusion: Early discharge, and by extrapolation ERAS, in patients undergoing pancreatoduodenectomy is safe without additional risk of short-term morbidity, or increased risk of readmission.

P 150. PERIOPERATIVE DEXAMETHASONE DECREASES INFECTIONS AFTER PANCREATODUODENECTOMY AND IMPROVES LONG-TERM SURVIVAL IN PANCREATIC CANCER

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Background: Perioperative dexamethasone is often utilized for prevention of surgery-related nausea and vomiting, and has also been used to reduce postoperative opioid consumption. However, deleterious effects of corticosteroids on anastomotic healing and infectious complications have been described, and potential consequences on oncologic outcomes are debated. We sought to analyze whether dexamethasone affects surgical outcomes after pancreatoduodenectomy and long-term survival for pancreatic cancer patients.

Methods: 679 pancreatoduodenectomies for ductal adenocarcinoma and for cystic lesions of the pancreas were analyzed from a prospectively-maintained database. Surgical outcomes from patients who received perioperative dexamethasone were compared to those of patients who did not.   In the pancreatic cancer subset (n= 477), Kaplan-Meier curves were compared with the log-rank test and adjusted for confounders using a Cox-proportional hazard model. A propensity analysis was performed to reduce the bias related to retrospective design.

Results: 117 patients (17.2%) received dexamethasone. Patients who received dexamethasone were on average 2 years younger than those who did not (p=0.001). No other baseline differences were observed. Including all resected patients, overall complication rate and 30-day major morbidity were similar, although the occurrence of infectious complication was reduced in the dexamethasone group (18.8% vs. 28.5%, p=0.032). In the subgroup of cancer patients, dexamethasone improved overall survival (median OS 46 vs. 22 months, p=0.017, Figure 1). This effect was independent of pathology and adjuvant therapy, with adjusted hazard ratios of 0.67 (0.47-0.97) and 0.57 (0.37-0.87) pre- and post-propensity analysis, respectively.

Conclusion: Dexamethasone was associated with improved survival after pancreatoduodenectomy, in addition to a lower rate of infectious complications. Given its benefits in the perioperative setting, dexamethasone should be considered for routine administration before pancreatoduodenectomy.

P 151. RESECTION OF THE UNRESECTABLE: A PROPENSITY SCORE-MATCHED SURVIVAL ANALYSIS OF UNRESECTABLE PANCREATIC CANCER PATIENTS AFTER ARTERY DIVESTMENT COMBINED PANCREATECTOMY

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Background: For non-metastatic pancreatic patients, artery involvement is the major obstacle of curative operation. Here we present the oncologic effect of artery divestment in unresectable pancreatic cancer patients.

Methods: 24 artery-involved unresectable non-metastatic pancreatic patients were identified with contrast-enhanced CT received curative pancreatectomy with artery divestment (UR group). 247 contemporary pT1-3NxM0 pancreatic cancer patients receiving therapeutic surgery were enrolled as control. Univariate analysis of demographic and clinical data was performed to reveal risk factors of prognosis. Propensity scored matching (PSM) analysis was performed for independent risk factors to assess the median overall survival(MOS) of two groups of patients.

Results: For the primary survival analysis, the MOS of all 271 patients was 17.8 months (95% CI: 16.0 to 19.6 months). MOS of UR group and control group were 16.7 and 17.8 months respectively (p=0.481). Pre-operative CA19-9, pancreatectomy category, tumor grading, tumor size, lymph node metastasis, and post-operative chemotherapy were independent risk factors and introduced into PSM analysis. A 24 versus 24 PSM analysis revealed no statistical MOS difference between UR group and control group (MOS and 95% CI: 16.7 months and 5.7 to 27.7 months for UR group; 17.3 months and 8.2 to 26.4 months for control group).

Conclusion: For UR pancreatic cancer patients, artery divestment combined pancreatectomy could offer similar prognosis comparing to earlier T staging patients.

P 152. POSTOPERATIVE DAY 1 AMYLASE LEVELS ARE USEFUL IN PREDICTING NON-FISTULA 30-DAY COMPLICATIONS AFTER PANCREATODUODENECTOMY
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Background: Postoperative day one drain fluid amylase (DFA-1) levels in patients undergoing pancreatoduodenectomy (PD) have been used to predict the subsequent development of a postoperative pancreatic fistula (POPF). However, literature with respect to the association of DFA levels with additional complications is limited. Our aim was to interrogate a national database to assess if early DFA-1 levels 5000 IU/l could be utilized to predict 30-day complications in addition to POPF after PD.

Methods: The American College of Surgeons-National Surgical Quality Improvement Program (NSQIP) pancreatectomy targeted files were queried from 2014-2016 to identify patients who underwent PD. Only patients with a recorded DFA-1 level were included for analysis.

Results: Of 2543 patients with DFA-1 levels, 422 patients (17 %) had DFA-1 levels 5000 U/l. Among the patients with available DFA-1 levels, most common early 30-day complications included: POPF (n=430, 17%), delayed gastric emptying (n=398, 16%), organ space SSI (n=286, 11%) and intraoperative or early postoperative transfusion with 72 hours (n=416, 16%). On multivariate analysis in patients with POPF, DFA-1 levels â‰¥ 5000 U/l were associated with organ space surgical site infection (SSI) (OR: 2.0, p<0.001) and delayed gastric emptying (OR: 1.5, p=0.002). However, after eliminating patients with POPF from the analysis, DFA-1 levels 5000 U/l were still associated with development of organ space SSI (OR: 2.4, p<0.001).

Conclusion: Early postoperative drain fluid amylase level is a useful tool to predict organ space infection. In this cohort a selective imaging policy may allow early intervention and prevent readmission.

P 153. NEW MOLECULAR DIAGNOSTIC APPROACHES BASED ON FLUORESCENCE MICROSCOPY IN PANCREATIC DUCTAL ADENOCARCINOMA (PDAC): VALIDATION OF PROGNOSTIC VALUE OF CYB5A AND FAD LIFETIME IMAGING FOR MARGIN DISCRIMINATION

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Background: Several clinicopathologic factors, such as stage, are prognostic variables in PDAC. Nevertheless, initial staging currently relies on relatively non-discriminatory imaging and stage definition, which is not known until resection, appears of limited use for the choice of the best therapeutic approach. Analysis of biomarkers in biopsies collected before surgery could improve stratification of patients to different clinical management. However, intracellular localization of biomarkers at submicron-scale is a key factor in the comprehension of effective prognostic factors, and this issue can be addressed only by cutting-edge imaging based on fluorescence microscopy. AIM: Through a multidisciplinary scientific enterprise including physicians, biophysicists, computational/experimental chemists and one industrial partner (Biomedica-Mangoni) we will achieve high-sensitivity and high spatial-resolution detection, by the use of microscopy techniques based on the spatial modulation of light excitation.

Methods: We will use computationally-designed recognition motifs with super-bright fluorescent qDots to afford novel probes for high-sensitivity detection of selected biomarkers, such as CYB5A (Giovannetti et al, JNCI 2014), in biopsies and tissue-microrrays of (N>200) PDACs. Further, recent data emphasized how some optical properties of the endogenous fluorophores NADH and FAD, such as fluorescence lifetime, can unravel the metabolic difference between tumor and normal tissues. Therefore, we tested an established method of confocal fluorescence microscopy, namely the phasor approach to lifetime imaging, in order to distinguish tumor from normal tissue taking advantage of FAD endogenous fluorescence. with a confocal microscopy apparatus interfaced with a pulsed laser source (470 nm) and a spectral acquisition system able to follow fluorescence decay in the 490-600 nm range by time-correlated single photon detection.

Results: We previously correlated CYB5A expression with survival. Here we further explored the relevance of this discovery by correlating the expression of this gene by both IHC and immunofluorescence, demostrating that PDACs are more aggressive if they have low expression of this microsomal protein. Moreover, phasor lifetime maps clearly highlighted different responses of FAD emission in mPDAC vs L in which normal regions were characterized by a shorter lifetime (1-2 ns) as compared to tumor regions (2-3 ns). Some images showed also a clear neoplastic margin infiltration.

Conclusion: Our novel imaging methodologies improve the definition of clinically relevant biomarkers, with potential implications for new therapeutic strategies. Furthermore the analysis of the FAD optical response could represent a supporting approach helping surgeons to assess safe resection margin during PDAC surgery.

P 154. THE TITANIUM SURFACE MODULATES THE EXPRESSION OF BETA-CATENIN AND DLX5 GENES IN PANCREATIC DUCTAL CARCINOMA (PDAC) IN VITRO. CAN METALLIC STENT TO INCREASE PDAC AGGRESSIVENESS?

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Background: Adenoductal panceas (PDAC) is a fatal cancer. Its aggressiveness is associated in part with the EMT process of metastasis. Two genes specifically involved in these phenomena are β-catenin and DLX5. While the first gene has been widely studied also in pancreatic cancer, few data are associated with DLX5. However, its over-expression has been recently associated with the formation of metastases in breast cancer in vivo. An exogenous factor involved in the modulation of the expression of these genes seems to be titanium. This compound is usually employed for the pallia action of patients with PDAC, to reduce stenosis choledochal due to compression. AIM: The purpose of this study was to assess whether titanium is able to modulate the expression of these two genes in vitro.

Methods: We used a primary cell culture of PADC (PP78). The cells were seeded and cultivated in contact with two different titanium surfaces for 10 days. After this period the total mRNA was extracted and the quantification of β-catenin and DLX5 genes was perfomed by RT-PCR according to the $\Delta\Delta$Ct analysis. Then cells were stained using the immunofluorescence technique (IF) to quantify the β-catenin protein expression .using a computerized high-resolution acquisition system (D-Sight, Menarini Florence - Italy) The cells were scored evaluating the cytoplasmic and nuclear positivity as follows (0 absent, 1 Low, 2 middle, 3 strong). The β-catenin migration from cytoplasm to nucleus has been highlighted by enancement of violet color in nuclear cell. The experiment was carried out in triplicate and untreated cells (without titanium contact) were used as control.

Results: Quantitative-PCR analyses showed that both titanium surfaces positively affected beta-catenin (mean 2.8 fold) and DLX5 (2.0 fold) mRNA expressions with respect to the controls ($p<0.0007$). Both titanium surfaces also increased the protein score 3 values of β-catenin in treated cells with respect to their controls ($p=0.0158$), indicating its migration into nuclei of PDAC cells.

Conclusion: Our data showed that several titanium surfaces positively modulated the expression of two genes associated with the increase of the aggressiveness of PDAC in vitro. Clinical studies are needed to find out which type of stent can be used in the surgical operation with palliative intent.

P 155. UTILIZATION OF CLASSIFICATION AND SCORING SYSTEMS IN THE MANAGEMENT OF ACUTE PANCREATITIS IN MAJOR HEALTH CENTERS: A LITERATURE AND RETROSPECTIVE REVIEW

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Background: Acute pancreatitis is the most common gastrointestinal disease that is treated in the emergency room across the United States. While most patients have mild acute pancreatitis, about 15-20% go on to develop severe acute pancreatitis. Several prognostic scoring systems have been developed to predict the severity of acute pancreatitis when a patient is diagnosed at the hospital, however, these scoring systems are often under utilized when treating and diagnosing patients.

Methods: We reviewed the medical literature to determine which scoring systems were the most accurate and easy to use in the hospital setting. Charts of 216 patients that were diagnosed with acute pancreatitis from October to December of 2015 in the Northwell Health system were also reviewed. Records were assessed to see if any type of scoring system was used at the time of diagnosis and to monitor progression during admission. Specialists from the major pancreatic treatment centers in the United States were contacted to see if any scoring systems were used in their respective clinical practices.

Results: Nine out of the 216 patients (4.2%) had any form of prognostic score calculated. Only 1 chart used a classification system based on imaging. Scoring systems did not appear to play a role in patient triage and management. Two out of 7 (28.6%) major pancreatic centers responded, and specialists from those centers reported that no classification score was used as part of routine clinical practice

Conclusion: Scoring and classification systems in acute pancreatitis, although useful clinically in assessing severity and predicting outcomes, are vastly underutilized in our institution and others across the country. There is an urgent need for provider education and development of institutional protocols for the management and triage of patients with acute pancreatitis. Future studies should try to determine the reason for underutilization of these scoring systems.

P 156. LONG-TERM OUTCOMES AFTER PANCREATECTOMY FOR PANCREATIC DUCTAL ADENOCARCINOMA IN ELDERLY PATIENTS: SPECIAL REFERENCE TO POSTOPERATIVE ADJUVANT CHEMOTHERAPY

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Background: The benefit of pancreatectomy for elderly patients with pancreatic ductal adenocarcinoma (PDAC) remains controversial. Moreover, postoperative adjuvant chemotherapy (AC) for elderly patients has not been fully evaluated. The most common adverse events are dose-dependent, and elderly patients with functional impairment have a higher risk of adverse effects. The aim of this study was to investigate the short- and long-term outcomes after pancreatectomy in elderly patients with PDAC with special reference to AC.

Methods: The medical records of 123 patients who underwent pancreatectomy for PDAC from 2007 to 2016 were retrospectively reviewed. The patients were divided into 2 groups: young (<75 years) and elderly patients (>75 years).

Results: The study population comprised 91 young and 32 elderly patients. The postoperative complication rate, hospital stay, and the medical cost during hospitalization were not different between the 2 groups. AC was given to 98 patients (gemcitabine in 37, tegafur/gimeracil/oteracil potassium (S1) in 60, and gemcitabine plus S1 in 1). AC was more frequently administered to young patients (n = 77, 85%) than elderly patients (n = 21, 66%; P = 0.04). The interval from pancreatectomy to starting AC tended to be shorter in young patients (median, 38 days; range, 15-163 days) than in elderly patients (median, 52 days; range, 18-93 days; P = 0.11). Creatinine clearance at the time of AC initiation was significantly lower in elderly (median, 77.2 ml/min; range, 42.3-119.9 ml/min) than young patients (median, 93.4 ml/min; range, 57.3-158.1 ml/min; P < 0.01). The weekly dose of gemcitabine tended to be lower in elderly patients (median, 798 mg/m2; range, 693-993 mg/m2) than young patients (median, 955 mg/m2; range, 579-1000 mg/m2; P = 0.15). The weekly dose of S1 was significantly lower in elderly (median, 423 mg/m2; range, 342-541 mg/m2) than young patients (median, 491 mg/m2; range, 321-559 mg/m2; P = 0.02). The prevalence of adverse events and the completion rate of AC were not significantly different between the 2 groups. There were no significant differences in recurrence-free survival (P = 0.73) or overall survival (P = 0.68) between the 2 groups. Tumor size, postoperative complications, and completion of planned AC were significant independent factors for RFS. Age, preoperative biliary drainage, tumor size, postoperative complications, and completion of planned AC were significant independent factors for OS.

Conclusion: Pancreatectomy for PDAC can be performed safely even in elderly patients, and old age alone might not be a contraindication for pancreatectomy for PDAC according to both short- and long-term outcomes. Lowered-dose AC using S1 for elderly patients might be safe and therapeutically useful. When tolerability might be improved by tailored-dose AC, more elderly patients may be able to receive and complete AC.

P 158. TLR1 PREDICTS FAVORABLE PROGNOSIS IN PANCREATIC CANCER

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Background: The link between inflammation and carcinogenesis is irrefutable. Trying to pinpoint key factors at play, cancer research has found interest in Toll-like receptors (TLRs), through which pathological molecular patterns trigger immune cell response. TLRs appear to show prognostic value in adenocarcinomas of the mouth, colon and ovaries. We set out to investigate whether the expression of Toll-like receptors 1, 3, 5, 7 and 9 could be used for prognostic evaluation in pancreatic ductal adenocarcinoma (PDAC) patients.

Methods: We collected tumor biopsies from 154 stage I-III PDAC patients who were surgically treated at Helsinki University Hospital between 2000 and 2011. We used tissue microarray and immunohistochemistry to assess the expression of TLRs 1, 3, 5, 7, and 9 in PDAC tissue. Differences in staining results against clinicopathological parameters were tested with the Fischers test. For survival analysis we used the Kaplan-Meier method and log-rank test, and the Cox regression proportional hazard model for univariate analyses. Patients receiving neoadjuvant therapy were excluded from the study.

Results: High TLR1 expression was observed in 60 (39%), high TLR3 in 48 (31%), high TLR5 in 58 (38%), high TLR7 in 14 (9%), and high TLR9 in 22 (14%) patients. Univariate analysis showed high TLR1 expression to associate with slightly better survival in pancreatic cancer patients (Mean survival time 4.3 (95% CI 3.2-5.5) years and 2.1 (95% CI 1.3-3.0) years; Log rank with Sidak adjustment for multiple comparisons, p=0.0439). Also, we found noteworthy how poorly those few patients with negative in TLR1, TLR3, TLR7 and TLR9 expression fared.

Conclusion: We found high TLR1 expression to be of positive prognosis in PDAC patients.

P 161. SERUM PROTEIN PROFILE IN IPMN

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Background: The incidence of intraductal papillary mucinous neoplasm (IPMN) is increasing and thereby the number of patients under surveillance. There is a need for easily available serum biomarkers to distinguish patients with low or moderate grade dysplasia from those with high grade dysplasia or IPMN-associated cancer needing surgery.

Methods: In 45 patients operated for IPMN 2000-2015 had preoperative serum samples available. There were 13 patients with mild, 10 with severe dysplasia and 22 with IPMN associated cancer. The preoperative serum samples of the IPMN patients and of 11 healthy individuals were analyzed with mass spectrometry (Synapt-G2S, Waters Ltd). Two or more unique peptides were used to identify 436 proteins that were quantified. Statistical analysis was performed with principal component analysis, orthogonal partial least square discriminant analysis and receiver operating curve analysis.

Results: The proteomic signature separated IPMN patients and controls by CRP (UniProt accession P02741), kininogen-1 (P0042), lipoproteinlipase (P06858), SPINK2 (kazal-2 type serine-protease-inhibitor (P20155) and SPARCL1 (secreted protein acidic rich in cysteine like protein, Q14515). The proteomic signature between dysplastic IPMN and cancer differed less. Mild and severe dysplasia did not differ significantly.

Conclusion: The protein profile differed between IPMN-patients and healthy controls but not within IPMN groups.

P 163. OPEN PANCREATIC DÉBRIDEMENT: CONTEMPORARY OUTCOMES IN CHANGING TIMES

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Background: Operative debridement is the historic gold standard for treating necrotizing pancreatitis. Recent enthusiasm for minimally invasive treatment approaches raise the question of which necrotizing pancreatitis patients may benefit from open debridement. We therefore sought to define contemporary outcomes of patients undergoing open pancreatic debridement.

Methods: Retrospective review of 101 consecutive patients undergoing open pancreatic débridement (2006-2016). Data were obtained and reviewed from the prospectively collected institutional Necrotizing Pancreatitis Database.

Results: 75 (74%) patients underwent open pancreatic débridement and 26 (26%) underwent open transgastric débridement. Median follow-up was 24 months (range 1-121). Mean age was 52.7 years (range 17-87); 64 (63%) were male. Pancreatitis etiology included biliary (49.5%), alcohol (22.8%), idiopathic/other (20.8%), and post-ERCP (6.9%). Median time from diagnosis to débridement was 63 days (range 1-333). Mean (+/- Standard Deviation) APACHE-II score was: admission 8.76 +/- 6.0; worst 12.3 +/- 7.9; immediate pre-operative 7.4 +/- 4.5. 29 patients (29%) were initially managed with minimally invasive techniques (percutaneous drain in 21, endoscopic in 7, combination in 1). Mean post-operative LOS was 18.2 days (range 3-128). 90-day morbidity was 72% (Table). 90-day mortality was 2%.

Conclusion: Necrotizing pancreatitis patients who require operative debridement are critically and chronically ill. Operative debridement is associated with substantial morbidity, but acceptable mortality in an experienced center with multidisciplinary support. This large contemporary series demonstrates that in properly selected patients, open pancreatic debridement remains an important treatment for necrotizing pancreatitis.

P 164. TO COMPARE CLINICAL OUTCOME AND PANCREATIC PERFUSION FOLLOWING HEAD CORING VERSUS HEAD PLUS BODY CORING IN CHRONIC PANCREATITIS

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Background: To compare the clinical outcome and pancreatic perfusion following head coring versus head plus body coring in chronic pancreatitis.

Methods: 14 patients (12 males, 2 females) of chronic pancreatitis with symptoms of intractable pain, complications like GOO, biliary obstruction, intractable pancreatic pseudocyst and suspicion of malignancy were included in this study and underwent following investigations: FBS, PPBS, HbA1c, C- Peptide, fecal elastase, EUS and CECT abdomen with pancreatic perfusion (for following parameters: MIP, Blood flow, blood volume and permeability at head, body and tail regions of the pancreas). Later these patients randomised for head coring versus head plus body coring surgery (7 patients for MF group, 6 for Freys and 1underwent pancreatoduodenectomy). And followed at 1 and 3 months after surgery.

Results: From the study we observed that all patients had intractable pain abdomen [2 patients in Freys group and 3 patients in MF group were on opoid analgesics], 1 patient had GOO, 1 patient had suspicious of malignancy, 1 patient had pancreatic pseudocyst. All patients were significantly relieved of pain after surgery, but without any statistically significant difference of pain between the head coring [izbicki pain score 62.5Â±14.34{preop} and 0 score {post op}] versus head plus body coring [Izbicki pain score 69.21Â±8.58 {pre op} and 0 score at {post op}] group. All 4 patients in Freys group had improvement in diabetes, 3 out of 4 patients in Head plus body coring had improvement and 1 patient had no change in sugar control. No new onset of diabetes was observed in either of the groups. Pancreatic perfusion showed improvement in both groups but was again not statistically significant in the two groups. The quality of life was assessed by EORTC QLQ 30, all patients had statistically significant improvement in quality of life at 3 months but no significant difference between 2 surgical groups. The duration of surgery is more in Freys group (275.71Â±74.35 mins) than MF group (225.43Â±240.08 mins) but no significant statistical difference is noted (P value 0.134). Blood loss is almost comparable in both groups [Freys = 285.71Â±149.2 ml , MF = 225.71Â±35.52 ml]. Post operative stay in Freys group [9.29Â±5.024 days] is more than Modified group[6.14Â±0.690] with a P value 0.126. All patients are currently free of analgesics and 1 patient had 3 episodes of pain which subsided on oral non-opioid analgesics.

Conclusion: All patients had significant relief of pain which improved the quality of life. Improvement in glycemic control and pancreatic perfusion is noted in 2 groups. No new onset of endocrine or exocrine insufficiency noted after surgery. Despite no

morbidity and mortality noted in 2 groups at 3 months, in head plus body coring patients didn't show any disadvantage compared to head coring group.

P 165. MINIMALLY-INVASIVE VS. OPEN ENUCLEATION FOR BENIGN AND LOW-GRADE PANCREATIC TUMORS: AN ACS-NSQIP EVALUATION

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Background: Pancreatic enucleation (PE) preserves pancreatic parenchyma, eliminates anastomoses and minimizes the risk of endocrine and exocrine insufficiency. In single-center studies of benign and low-malignant lesions of the pancreas, reduced operative time and length of stay have been reported for enucleation compared to standard pancreatectomy. Despite being established as oncologically adequate, the use of PE is still limited. We tested our hypothesis that minimally-invasive PE exhibits equivalent rates of composite major morbidity compared to open using ACS-NSQIP data.

Methods: 200 patients who underwent pancreatic enucleation (CPT code: 48120) were identified from the pancreas-targeted ACS NSQIP database (2014-2016). Patients with unknown surgical modality and enucleations with combined organ resection were excluded. Groups were analyzed according to the intended surgical approach regardless of conversion. The primary outcome was composite major morbidity (CMM), an aggregate of 30 day adverse events including mortality, unplanned reoperation, abdominal surgical site infection, pancreatic fistula, nonsurgical complications (pneumonia, circulatory, sepsis/shock), unplanned readmission and length of stay.

Results: Enucleations comprised 1.1% of procedures reported (200/17,463). After exclusion criteria, 114 patients underwent PE between 2014-2016 using an open (n=71; 62.3%) or minimally-invasive (n=43; 37.7%) approach with 7 conversions (16.2%). Groups were equivalent with respect to preoperative characteristics, and multivariable analysis demonstrated no selection factors governing the surgical approach. Composite major morbidity was equivalent (p=0.541) after open (24; 33.8%) and MI-PE (12; 27.9%) but median length of stay was shorter after MI-PE (4 vs 5 days; p=0.003). Predictors (Figure 1) of CMM upon multivariable regression included: female gender (OR 0.38, 95% CI 0.161-0.941); ASA score <3 (OR 0.39, 95% CI 0.161 - 0.963); and prolonged operative time (OR 2.7, 95% CI 1.141- 6.743). The surgical approach did not increase the risk of CMM.

Conclusion: Pancreatic enucleation remains infrequently utilized for benign and low-grade tumors compared to formal resection in ACS-NSQIP analysis. Open and MI-PE demonstrate similar rates of composite major morbidity in this nationwide evaluation with the expected reduction in length of stay. Adverse events after PE were associated with prolonged operating time and unmodifiable patient factors (gender, ASA score) but not surgical approach.

P 167. ROLE OF CHARLSON COMORBIDITY INDEX (CACI) VERSUS PATIENTS AND TUMOUR CHARACTERISTICS ON ASSESSING PROGNOSIS OF PANCREATIC DUCTAL ADENOCARCINOMA (PDAC) AND MALIGNANT INTRADUCTAL MUCINOUS PAPILLARY TUMOUR (IPMN)

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Background: CACI is considered a predictor of the risk of death in longitudinal study on chronic diseases. We evaluated how CACI could influence Overall Survival (OS, primary endpoint) of resected PDAC and malignant IPMN, versus other patients and disease characteristics (secondary endpoints).

Methods: This is a retrospective observational study considering all patients that underwent pancreatectomy for PDAC and malignant IPMN at Humanitas Cancer Center between 2010 and 2016. Exclusion criteria was stage 0 according to Union for International Cancer Control's (UICC) 8th edition (UICC8th). Variables analyzed, other than CACI, were: gender, age, body mass index (BMI), CACI, previous malignant neoplasia, American Society of Anesthesiologists (ASA)-Physical Status score, pre-operative CA 19-9 and total bilirubin values, type of surgery, postoperative complications according to Clavien-Dindo classification, tumour features, postoperative chemotherapy (CT). Patient's distributions were compared by the Chi-square test (Fisher when appropriated). OS was estimated using Kaplan-Meier curves and the Cox univariable and multivariable model. P value was set at 0.05, all analyses were performed with SAS 9.4.

Results: Four hundred and two subjects were included, 357 (89%) PDAC and 45 (11%) malignant IPMN. PDAC patients presented a statistically significant worst distribution for tumour stage, grade (G), angioinvasion, neuroinvasion, positive resection margins (R1) and lymph node ratio versus malignant IPMN ($p < 0.05$). Therefore we stratified our evaluation for PDAC and malignant IPMN. With a median follow up of 42 months, 2 years (y) OS was 51%, 47% for PDAC and 77% for malignant IPMN, $p<0.001$. For IPMN, CACI was not statistically significant (HR:1.0, p:0.975); tumour stage was the only factor influencing survival (HR:2.9, p:0.001) both in univariable and multivariable model. For PDAC, OS was statistically significant influenced by ASA (HR:1.4, p:0.048), tumour grade (HR:1.9, p:0.001), postoperative CT (HR:0.3, $p<0.001$), tumour stage (HR:1.5, $p<0.001$), R1 (HR:1.8, $p<0.001$). CACI presented a HR:1.2 ($p<0.001$) in the univariable analysis but it was not confirmed in the multivariable model.

Conclusion: CACI didn't result affecting long term overall survival of this cohort of patients. Patients affected by PDAC and by malignant IPMN present different

characteristics at diagnosis and they should be regarded and analyzed as different populations.

P 168. PANCREATIC INVOLVEMENT SHOULD NOT LIMIT THE AGGRESSIVE SURGICAL MANAGEMENT OF RETROPERITONEAL SARCOMA

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Background: Retroperitoneal sarcoma (RPS) is a rare tumor type accounting for approximately 15% of soft tissue sarcomas. Aggressive surgical resection is the gold standard of management, and, while previous reports have investigated the morbidity of distal pancreatectomy during RPS surgery, data including pancreaticoduodenectomy are limited. We investigated a cohort of patients undergoing pancreas resection during RPS surgery to determine if differences in outcomes exist by procedure type.

Methods: Patients who underwent pancreas resection during surgery for RPS with curative intent at a high-volume tertiary center between 1994 and 2015 were identified. Post-operative outcomes were evaluated using univariable, bivariate, and chi-squared analysis.

Results: A total of 37 patients were identified who met inclusion criteria. The median age at time of index surgery was 61 years (IQR: 49-66) with 59.5% (n=22) of patients being male. 67.6% (n=25) of patients had a distal pancreatectomy while 32.4% (n=12) had a pancreaticoduodenectomy. Pathology was 70.2% (n=26) liposarcoma, 10.8% (n=4) leiomyosarcoma, and 18.9% (n=7) other. Median tumor size was 12 cm (IQR: 7-21). High grade tumors (grade 3) were most common at 48.6% (n=18) compared to 24.3% (n=9) grade 1 and 27.0% (n=10) grade 2. Complete resection (R0/R1) was achieved in 81.1% (n=30) of patients. Charlson Comorbidity Index was high (>=5) in 51.4% (n=19), moderate (3-4) in 29.7% (n=11) and low (1-2) in 18.9% (n=7). 73.0% (n=27) of patients had three or more organs resected during their operation. Median length of stay was 13.5 days (IQR: 8.5-21); 38% (n=14) were readmitted in the first 30 post-operative days. 86.5% (n=32) of patients developed a post-operative complication with the most frequent Clavien-Dindo Classification being Grade III at 54.1% (n=20) followed by 16.2% (n=6) Grade IV, 8.1% (n=3) Grade II, 5.4% (n=2) Grade 1; failure to rescue was observed in one patient. Pancreatic leaks/fistulas developed in 21.6% (n=8) of patients. On bivariate analysis, the likelihood of having any postoperative complications was not associated with resection type or with having â‰¥3 organs versus <3 organs resected (p=0.698 and p=0.074 respectively). The median overall survival was 36.9 months (IQR: 22.6-92.2) with 78.4% (CI: 0.61-0.89), 40.5% (CI: 0.25-0.56) and 21.6% (CI: 0.10-0.36) of patients alive at 1, 3 and 5 years, respectively. 5 year survival rates were 33% (CI: 0.10-0.59) for pancreaticoduodenectomy and 16% (CI: 0.05-0.33) for distal pancreatectomy.

Conclusion: Outcomes of pancreatic resection during RPS surgery do not differ based on procedure performed suggesting that pancreatic involvement should not limit the

aggressive surgical management of RPS. While this study focused on post-operative outcomes, further investigation of oncologic outcomes is warranted.

P 170. RECURRENCE PATTERNS AND SURVIVAL FOLLOWING PANCREATICODUODENECTOMY WITH PORTAL VEIN RECONSTRUCTION COMPARED TO PATIENTS NOT REQUIRING PORTAL VEIN RECONSTRUCTION

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Background: Pancreaticoduodenectomy (PD) is standard for resection of pancreatic head malignancies. When borderline-resectable tumor involves the portal system, portal vein reconstruction (PVR) is undertaken to achieve an R0 resection. It is unknown if the need for PVR affects recurrence patterns in pancreatic adenocarcinoma (PDAC). This study compares recurrence and survival in patients who underwent PD with PVR for resection of PDAC to patients who underwent PD alone.

Methods: Retrospective review of patients in a prospectively-collected registry who had PD for PDAC from 2007 to 2016. Demographics, tumor characteristics, and chemotherapy information were collected. Initial recurrence sites were recorded based on imaging or biopsy results for the following categories: liver, lung, peritoneum, tumor bed or other. Differences in patient and tumor characteristics between PVR groups was evaluated with chi-square tests. Estimated time to recurrence, disease free-interval, and overall survival (OS) was evaluated with Kaplan-Meier. Significance was set at Î± = 0.05.

Results: There were 192 PD patients, of which 63 (32.81%) had PVR. Sixteen patients had neoadjuvant chemotherapy, 10 of which required PVR. R0 resection was achieved in 65.1% of PVR patients and 65.9% of non-PVR patients (p=0.86). There was no difference between tumor stage (p=0.64), lymph node positivity (p=0.91), tumor grade (p=0.43), lymphovascular invasion (p=0.24), or perineural invasion (p=0.95). There was no difference in overall number of recurrences (p=0.34). PVR patients did not recur more commonly in any one site. Median disease-free interval (DFI) was significantly different for liver recurrences (PVR 4 months, non-PVR 8.5 months, p=0.01) and tumor bed recurrences (PVR 5 months, non-PVR 12 months, p=0.01, Figure 1). OS was also decreased in PVR versus non-PVR patients with liver recurrences (6 vs. 15 months, p<0.01) and tumor bed recurrences (11 vs. 20 months, p=0.01). OS for PVR patients was shorter than for non-PVR patients (8 months vs. 15 months, p<0.01).

Conclusion: PVR is equivalent to non-PVR in achieving R0 resection. There are no differences in recurrence rates or location; however, following a recurrence, DFI and OS are shorter for PVR patients. This study, spanning the transition to neoadjuvant therapy, highlights the critical need to optimize neoadjuvant therapy and local control. Improvements in our understanding of the post-therapeutic clonal evolution of recurrent disease will ultimately drive improved outcomes for patients undergoing PD independent of operative conduct.

P 171. TUMOR SIZE CORRELATES WITH GRADING IN NONFUNCTIONING PANCREATIC NEUROENDOCRINE TUMORS AND IS NOT AGE-DEPENDENT

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Background: Tumor size is a predictor of aggressiveness among nonfunctioning pancreatic neuroendocrine tumors (NF-PanNET). Natural history of small PanNET is largely unknown and it is unclear if tumor growth is time-dependant and/or correlated with Ki67. Aim of this study was to evaluate a possible correlation between age, tumour size and tumour grading in patients with NF-PanNET and its impact on disease free survival (DFS).

Methods: Patients who underwent surgery for NF-PanNET at three institutions were retrospectively analysed. Linear regression analysis was performed to evaluate possible correlation between continuous variables. Multiple logistic regression and Cox's regression analysis was also performed.

Results: Overall 235 patients were enrolled. There were 133 (57%) male, 102 (43%) were female with a median age of 61 years. The median radiological and histological diameter was 25 mm. The median Ki67 index was 2 and neoplasms were classified as PanNET G1 in 138 (59%) cases and PanNET G2 in 72 (41%). Age was not correlated neither with tumor size nor Ki67 value. Tumor size was significantly associated with Ki67 value (r: 0.273, P<0.0001). On multivariate analysis, independent predictors of tumor grade were tumor size (OR: 3.72, P=0.0001) and microvascular invasion (OR: 6.94, P<0.001). A tumor size cut-off of 27 mm resulted to accurately predict PanNET G2 on ROC curve. Patients with R2 resection (n=9) were excluded from survival analysis. At a median follow-up of 59 months, 192 patients were alive and 9 died of disease. Overall, 32 patients (14%) had a recurrence. The 1- and 5-year DFS were 92% and 85.5%, respectively. On multivariable analysis, independent predictors of DFS were tumor size > 27 mm (HR: 3.400, P<0.036) and the presence of perineural invasion (HR: 5.27, P<0.0001).

Conclusion: Tumor size correlates with grade and is not associated with increasing age. The natural evolution of these lesions is not time-dependent, supporting the safety of a surveillance policy for small asymptomatic NF-PanNET also in young patients.

P 172. POSTOPERATIVE PROTON THERAPY FOR PANCREATIC CANCER PATIENTS ENROLLED ON THE PROTON COLLABORATIVE GROUP (PCG) REGISTRY

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Background: The PCG registry is a multicenter registry for patients receiving proton therapy for various malignancies. The current abstract reviews the outcomes for patients receiving postoperative proton therapy for resected pancreatic cancer.

Methods: From March, 2013 to August, 2016 18 patients with resected pancreatic adenocarcinoma received postoperative proton therapy. The current study reviews the pretreatment characteristics and outcomes of these patients.

Results: Median age -70 years (range 52 to 79); Males 12, Females 6; pT Stage -T24, T313, T41; N Stage -N112, N06; Margin Status -Close-8, Positive-4, Negative-6; Surgical approach -open-16, laparoscopic 2; Operations performed: standard pancreaticoduodenectomy-11, pylorus sparing pancreaticoduodenectomy-4, total pancreatectomy-1; Pancreaticoduodenectomy with portal vein reconstruction â€"1; Pancreaticoduodenectomy with irreversible electroporation. Median lymph nodes taken-16.50 (range 3 to 72); Median lymph nodes positive-1.5 (range 0 to 7); PNI positive-9, PNI negative-2, PNI unknown-4; LVI positive-7, LVI negative-6, LVI unknown-5; Median tumor size 3.1cm (range 2.2 to 6.2); Median dose delivered 50.51Gy(RBE) (range 27.88 to 54.00); Median treatment duration 38 calendar days (range 25 to 48); One patient died during treatment. Only one patients treatment was protracted by more than 5 days. Median available follow up is 1.1 years (range 0.07 to 3.4 years); 2 year survival 37%.

Conclusion: Postoperative proton therapy after pancreatectomy was well tolerated without significant toxicity or treatment interruption. Toxicity and survival updates will be available at the June, 2018 meeting of the Pancreas Club.

P 173. SHORT-COURSE NEOADJUVANT CHEMOTHERAPY FOR RESECTABLE PANCREATIC DUCTAL ADENOCARCINOMAS: SINGLE AGENT GEMCITABINE MAY NOT BE INFERIOR TO MULTI-AGENT CHEMOTHERAPY

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Background: Use of neoadjuvant chemotherapy for patients with borderline resectable pancreatic tumors has become standard of care; however, the utility of upfront systemic therapy for tumors that are considered resectable at diagnosis is less certain. We evaluated the role of short-course neoadjuvant chemotherapy for patients with radiographically resectable pancreas carcinomas.

Methods: Using our institutions pancreatic patient registry, we identified patients who received neoadjuvant-intent chemotherapy for resectable pancreas cancer between 2010 and 2017. We defined resectable cancers as tumors with no radiographic evidence of vascular involvement and no evidence of distant metastatic disease on pre-operative diagnostic workup. Short-course neoadjuvant chemotherapy was defined as 2-3 months of chemotherapy prior to surgery. Patient demographics, surgical outcomes, pathologic characteristics, surgical, and survival data for all patients were evaluated in an intention-to-treat analysis. Patients were excluded if they did not undergo neoadjuvant treatment, or were lost to follow-up prior to surgery.

Results: We identified 36 patients with radiographically resectable pancreas cancer who received neoadjuvant-intent chemotherapy between 2010 and 2017. Median age at diagnosis was 66 years. 61% of the cohort were male and 94% were self-classified as white. Chemotherapy regimens included Gemcitabine alone (18, 50%), Gemcitabine/Abraxane (7, 20%), or 5FU/Oxaliplatin/leucovorin/irinotecan (FOLFIRINOX) (11, 30%). Surgical resection was attempted in 28 (78%) patients, and was successful in 24 (67%) of patients. Four patients (11%) were found to have previously unrecognized liver metastases at the time of surgical exploration. Radiographic progression of disease preventing surgery occurred in 3 (8%) patients. Another 3 patients (8%) elected not to undergo surgery. Procedures performed include pancreaticoduodenectomy (20, 83%) and distal pancreatectomy (4, 17%). Portal vein resection was required in 3 (13%) patients. Median overall survival for all patients receiving neoadjuvant intent chemotherapy was 29.8 months. Survival for patients completing neoadjuvant chemotherapy and undergoing surgical resection was 33.9 months and disease-free survival was 28.3 months. Median survival was 29.9 months for patients treated with neo-adjuvant Gemcitabine alone and 29.3 months for multi-agent chemotherapy. Disease-free survival for the patients who underwent neoadjuvant chemotherapy and resection

was 23.9 months for Gemcitabine alone and 23.5 months for patients given multi-agent chemotherapy.

Conclusion: Radiographic progression of disease is rare during neoadjuvant chemotherapy for resectable pancreas cancer. A short course of neoadjuvant gemcitabine may not be inferior to multi-agent neoadjuvant chemotherapy regimens.

P 174. PROPHYLACTIC DRAINAGE IN DISTAL PANCREATECTOMY IS ASSOCIATED WITH AN INCREASED INCIDENCE OF POST-OPERATIVE PANCREATIC FISTULA AND HIGHER READMISSION RATES
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Background: Pancreatic bed drainage has long been considered the standard of care in distal pancreatectomy (DP) and is still performed for the vast majority of DP. The aim of this study is to determine if prophylactic drainage helps to prevent adverse outcomes and decrease the need for additional interventions after DP.

Methods: All patients who underwent DP without vascular resection were identified in the 2014 Targeted NSQIP Participant Use File. Patients undergoing emergency procedures, ASA 5, or diagnosed with preoperative sepsis were excluded. Univariate and multiple variable analyses were performed to evaluate postoperative outcomes based on use of surgical drain.

Results: 1158 patients (age median 62, IQR 16; female 58.6%) underwent elective distal pancreatectomy with 85.1% (n=985) having drain placed at time of operation. Laparoscopic technique was used in the majority of patients (54.1%, n=619). POPF occurred in 201 patients (17.5%). Additional percutaneous drain was required in 106 patients (9.2%). For patients with any type of drain, postoperative drain amylase level was evaluated in 715 patients (71.6%). POPF was higher in surgical drain group, 19.4% vs. 6.9% (p<0.001). Need for percutaneous drain was similar between drain and no drain groups, 9.3% vs 8.1% (p=0.600). Postoperative sepsis, shock, major complication, reoperation, and 30-day mortality was similar between drain and no drain groups (all p > 0.05). However, readmission was higher in the surgical drain group, 17.8% vs 10.4% (OR 1.9, 95% CI 1.1-3.1, p=0.018). After adjusting for age, ASA, and operative time, readmission remained higher in the surgical drain group (OR 1.9, 95% CI 1.1-3.2, p=0.016).

Conclusion: The use of prophylactic drainage during DP was associated with increased incidence of readmission and POPF. Prophylactic drainage showed no effect on outcomes of postoperative sepsis, shock, major complications, reoperation and 30-day mortality. Based on these results, routine prophylactic drainage should be reconsidered for patients undergoing DP.

P 175. ROUTINE ARTERIAL BLOOD GAS MEASUREMENT AND APACHE II SCORE CALCULATION IN PATIENTS WITH ACUTE PANCREATITIS: A RETROSPECTIVE REVIEW

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Background: While it is relatively simple to make the diagnosis of acute pancreatitis, scoring and classification systems used for the purpose of determining severity and making clinical decisions are more complicated. There are many classifications and scoring systems used to assess severity of acute pancreatitis, such as Ranson's criteria, APACHE II, BISAP score, Balthazar score, etc. We hypothesize that medical practitioners do not routinely use these scoring systems because of the many parameters required, and complex calculations. However, we also hypothesize that health practitioners at Northwell are already collecting most of the data required to calculate the scoring systems. We chose to focus on APACHE II score because it is a clinically objective scoring system that can be recalculated at any point in time, and it is also the most widely used scoring system to determine severity of disease course and mortality for patients.

Methods: We carried out a retrospective chart review study to determine frequency of use of classification and scoring systems for acute pancreatitis. We analyzed 216 patients with acute pancreatitis who were admitted to the hospital from October to December 2015 in the Northwell health system. We looked for the etiology, the type of severity scoring system used, comorbidities, laboratory values, and other markers of clinical status.

Results: Seven percent (7%) of patients had every single parameter required to calculate APACHE II scores, and all (100%) patients had 9 of the 12 parameters. The most common missing parameters were arterial pH, PaO2 or A-a gradient, and Glasgow Coma Score.

Conclusion: APACHE II is an excellent scoring system choice for patients with acute pancreatitis, very helpful in predicting severity and mortality. Most of the parameters are already collected on a routine basis. We recommend routine arterial blood gas measurements for patients diagnosed with acute pancreatitis. We also recommend a process for the automatic calculation of APACHE II scores for patients with acute pancreatitis, using the electronic medical record (EMR).

P 177. DAMAGE CONTROL PANCREATIC DEBRIDEMENT: SALVAGING THE MOST SEVERELY ILL

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Background: Damage Control Laparotomy is a widely accepted practice in trauma surgery. We have applied this approach selectively to severely ill patients requiring open pancreatic debridement. Damage Control Debridement (DCD) is a novel, staged approach to pancreatic debridement; we sought to evaluate outcomes associated with this technique.

Methods: Retrospective review evaluating 75 consecutive patients undergoing open pancreatic debridement between 2006 and 2016. Data were prospectively collected in our institutional Necrotizing Pancreatitis Database. 12 patients undergoing DCD were compared to 63 undergoing single stage debridement (SSD). Two independent groups T-tests and Pearsons correlations or Fishers exact tests were performed to analyze the bivariate relationships between DCD and suspected factors defined pre- and post-operatively. P-values of <0.05 were accepted as statistically significant.

Results: Patients treated by DCD were more severely ill globally. DCD patients had higher incidence of preoperative organ failure, need for ICU admission, APACHE-II scores (table), and more profound malnutrition (albumin DCD=1.9 g/dL; SSD=2.5 g/dL; p=0.03). Indications for DCD included: hemodynamic compromise (n=4), medical coagulopathy (n=4), or a combination (n=4). 6 of 12 DCD patients required more than one subsequent debridement prior to definitive abdominal closure (mean number of total debridements=2.6; range 2-4). Length of stay (DCD=43.8, SSD=17.1, p<0.01) and ICU stay (DCD=20.8, SSD=5.9, p<0.01) was longer in DCD patients. However, no difference was seen in the rate of readmission (DCD=42%, SSD=41%, p=0.90) or repeat intervention (any: DCD=58%, SSD=33%, p=0.10; endoscopic: DCD=17%, SSD=11%, p=0.59; percutaneous drain: DCD=42%, SSD=19%, p=0.09; return to OR after abdominal closure: DCD=0%, SSD=13%, p=0.20). The DCD group had a decreased rate of pancreatic fistula (DCD=33%, SSD=65%, p=0.04). Overall mortality was 2.7%; no significant difference in mortality was observed between DCD (8%) and SSD (2%), p=0.19.

Conclusion: Despite having substantially more severe acute illness, necrotizing pancreatitis patients treated with damage control debridement had equivalent morbidity and mortality as those undergoing elective single stage pancreatic debridement. Damage control debridement is an effective technique with which to salvage severely ill necrotizing pancreatitis patients.

P 178. IMPROVING THE ACCURACY OF PANCREATIC CANCER CLINICAL STAGING BY EXPLOITATION OF NANOPARTICLE-BLOOD INTERACTIONS: A PILOT STUDY

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Background: Pancreatic ductal adenocarcinoma (PDAC) is high lethal. Metastases are often detected at the diagnosis and unexpected systemic disease is reported in almost 30% of the tumors of about 3 cm. Early diagnosis is crucial and new, cheap and user-friendly techniques for biomarker identification are needed. Nanotechnology can become a game changer in cancer diagnosis and treatment. When nanoparticles (NPs) interact with organic fluids (i.e. human plasma) they are covered by a protein shell called protein corona (PC). PC is emerging as a new bio-interface with many potential applications in tumor early diagnosis. Whereas alterations in plasma proteins concentration are difficult to be detected by conventional blood analyses, PC acts as a œnano-accumulator of proteins with high affinity for NPs surface enabling detection of otherwise undetectable protein changes. PC is shaped by environmental factors (temperature, pH, etc.), experimental conditions (incubation time) and NPs physical-chemical properties (material, size, shape etc.); effect of tumor biology and stage on PC has been only marginally addressed and needs to be investigated. We already developed a novel NP-enabled blood (NEB) test for PDAC detection, based on the differences between the protein patterns of PCs formed on lipid NPs after exposure to PDAC and non-cancer plasma samples. To improve the NEB test sensitivity, we performed a pilot study using one-dimensional sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) to investigate the effect of PDAC tumor size and distant metastases on PC composition.

Methods: Twenty PDACs were clinically staged according to the UICC TNM staging system 8thâ€¯Edition. Plasma samples were let to interact with lipid NPs; resulting PCs were characterized by SDS-PAGE. To properly evaluate changes in the PC, the protein intensity profiles were reduced to four regions of molecular weight: < 25kDa, 25-50kDa, 50-120kDa, > 120kDa.

Results: Data analysis allowed to distinguish T1-T2 cases from T3 and from metastatic ones ($p < 0.05$). Discrimination power was particularly due to a subset of plasma proteins with molecular â€¯weight comprised between 25-50kDa and 50-120kDa.

Conclusion: PC composition is critically influenced by tumor size and presence of distant metastases in PDAC. These findings are in line with the concept that PDAC size is the best surrogate of tumor biology and that a strictly size-based staging system, as recommended by the 8th TNM edition, is valid and clinically relevant. Moreover, if our findings will be further confirmed on larger series, we envision that future developments

of cheap and user-friendly PC-based tools will allow to improve the accuracy of PDAC clinical staging, identifying among resectable PDACs with potentially better prognosis (e.g. T1 and T2) those at higher risk of occult distant metastases.

P 179. NATIONAL SURVEY ON USE OF OPERATION TECHNIQUES FOR HEPATICOJEJUNOSTOMY IN GERMANY
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Background: Hepaticojejunostomy represents an important component of many surgical procedures, including pancreaticoduodenectomy. The most commonly used techniques are the single-stitches technique and the continuous suture technique, however, to date no data concerning the use of these techniques in Germany are available.

Methods: In total, 102 hospitals were contacted in September 2017 to participate in this survey. After 2 months, a reminder was sent to all non-participating clinics up to this time.

Results: A total of 74 of the 102 contacted hospitals in Germany - including 23 university hospitals and 51 non-university clinics - participated in the analysis. On average, each clinic performed 73 hepaticojejunostomies per year - most often in the context of pancreaticoduodenectomie (71%), bile duct (15%) and liver resections (14%). Of the 74 (100%) responding clinics, 24 (32%) clinics always use a single-stitches suture technique, 7 (9%) clinics always a continuous suture technique, 3 (4%) clinics a combination of continuous and single stitches suture technique and 40 (54%) clinics both techniques depending on intraoperative findings (figure 1). 98%, 38% respectively 24% of the clinics using both techniques stated that the width of the bile duct, the bile duct thickness respectively another reason duct play a role in selecting technique. All hepaticojeunostomies were performed using a resorbable monofilament most often with the strength 5.0, alternatively with 4.0 or 6.0. According to the participants in this survey, performing the hepaticojejunostomy in a continuous technique is significantly faster than in single-stitches technique (p=0,015). There were no significant differences in the overall complication rate (p=0,902) and insufficiency rate (p=1,000).

Conclusion: In Germany, various techniques are used to perform a hepaticojejunostomy. Both techniques are considered equally secure, with the continuous technique taking less time. A randomized controlled study is necessary.

P 180. PANCREAS RESECTIONS MOST COST-EFFECTICTIVE AND SAFE IN HIGH-VOLUME CENTRES. A NATIONWIDE STUDY IN FINLAND 2012-2014

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Background: Centralization of pancreatic surgery has proceeded gradually in Finland. The aim of this study was to analyse the effect of operation volumes on short-term prognosis and costs of the operative treatment during the first 90 days after the procedure.

Methods: Patients who had undergone pancreatoduodenectomy or total pancreatectomy in Finland between 2012 and 2014 were selected from the national register. Demographic, operative and complication data was recorded up to ninety days postoperatively. Readmissions as well as possible treatment in other hospitals than the operative hospital were included. Complications were classified according to Clavien-Dindo. The operation volume was defined according to the yearly rate of PDs (pancreatoduodenectomy) as high (â‰¥20, HVC), intermediate (6-19, MVC) and low (â‰¤5, LVC) volume centres. Costs based on the 2012 billing list of Tampere University Hospital and prices were adjusted with the cost of one post-operative day in surgical ward.

Results: 501 patients were included into the study. Demographics did not differ between the centres. 30-day and 90-day mortality were significantly the lowest in HVCs (0.7% vs 8.8- 12.1% and 1.8% vs 10.4-15.2%; p<0.01). Operation volume and age were significant factors in multivariate analysis. Median costs were at lowest in the HVC group among all patients (p=0.014), among cancer patients with Clavien-Dindo classes 0-II (0.002), among patients over 75 years (p=0.002) and among patients who survived over 5 days (p=0.010).

Conclusion: This nationwide study showed the safest and the most cost-effective results in pancreatic surgery in high-volume centres. Mortality rates were at lowest in HVCs both in 30- and 90-days postoperatively as well as overall costs were lowest in the HVC-group. Better short-term prognosis and lower overall costs favor centralization of pancreatic surgery to high-volume centres.

P 181. ANALYSIS OF VOLUME THRESHOLDS AND OUTCOMES FOR DISTAL PANCREATECTOMY FOR PANCREATIC ADENOCARCINOMA

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Background: Trends towards care centralization for complex operations have raised many concerns pertaining to negative unintended consequences such as promoting health disparity. Therefore, defining subsets of patients who are appropriate for treatment at lower volume centers is important.

Methods: The National Cancer Data Base was used to identify patients undergoing resection for pancreatic adenocarcinoma from years 2004-2011. For distal pancreatectomy patients, 90-day mortality rates, Kaplan-Meier survival curves, and Cox proportional hazards models were used to compare hospital volume quartiles.

Results: Of 26,105 patients, distal pancreatectomy (DP) was performed in 3,361. Among those undergoing DP, low volume hospitals (<4 cases/yr.) had significantly worse survival compared with each of the other three volume quartiles (Table 1). However, no significant differences in 90-day mortality or median overall survival were observed between medium volume hospitals (4-10 cases/yr.) and the top two volume quartiles (Table 1). Furthermore, medium volume hospitals used minimally invasive approaches at similar rates to high (10-20 cases/yr.) and very high (>20 cases/yr.) volume centers (15% vs. 12% vs. 15%, p=0.460). After adjusting for socioeconomic, demographic, tumor, and treatment variables, Cox modeling revealed that medium volume hospitals had equivalent survival (HR=1.053 [0.934-1.118], p=0.395) compared to the highest volume hospitals.

Conclusion: Distal pancreatectomy for cancer can be safely performed at hospitals with modest volume of 4-10 pancreatic cases per year, with equivalent peri-operative mortality and oncologic results when compared to higher volume centers. This finding can partially decrease the burden and consequences of centralization for this particular procedure.

P 185. MODIFIED RADICAL ANTEGRADE MODULAR PANCREATOSPLENECOTOMY

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Background: Radical antegrade modular pancreatosplenecotomy (RAMPS) has been reported to increase the chance of R0 resection as well as long-term survival. However, the range of lymph node dissection as well as the clearance of perivascular connective tissue have been poorly defined in literature. We aim to propose a modified RAMPS procedure to achieve better oncological results.

Methods: Our modifications for RAMPS targeted at the following key points: 1. An extended range of lymphadenectomy including No.7 (proximal), 8, 9, 10, 11, 12a/p, 14 (left-sided), 16a1/a2/b1 lymph node (LN) station; 2. A radical clearance of the perivascular connective tissue at common hepatic artery (CHA), beginning of left gastric artery (LGA), the left side of celiac trunk (CT) and left side of superior mesentery artery (SMA), especially at the triangular area between the origin of CT, SMA and aorta.

Results: From December 2015 to July 2017, a total of 11 patients underwent modified RAMPS in our institute. There were 7 male and 4 female patients, with a median age of 61(59.5, 69.5) year old. All procedures were carried out as open surgery. There were 3 cases of anterior approach, and 8 posterior approach in our cohort. Combined modified Applebys procedure were carried out in 3 cases. Median surgical time was 245(237, 295) min, and 4 patients (36.4%) received blood transfusion with a median 2.5U of packed RBC. Postoperative morbidity occurred in 8 patients (72.7%), with the highest incidence of grade B pancreatic fistula in 6 patients (54.5%), and delayed gastric emptying in 2 (18.2%). Hemorrhage and mortality were nil. The postoperative hospital stay was 11(11,18) days. All cases were T4 tumor with a median diameter of 4(3.25, 4.5) cm, were classified as stage III with 8th AJCC TNM staging system. R0 resection was achieved in 6 patients (54.5%), and R0 rate at posterior tangential margin was 72.7%. N stage were positive in 9 cases (81.8%), with 4 cases of positive No.16 LN station and 2 of No.8.

Conclusion: Modified RAMPS can be safely applied, while extended LN dissection should be emphasized in radical resection for pancreatic body-tail adenocarcinoma.

P 186. NO INK ON TUMOR: IMPLICATIONS OF PATIENT AGE AND RESECTION MARGIN STATUS ON OVERALL SURVIVAL AFTER PANCREATICODUODENECTOMY

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Background: Margin negative (R0) resection of pancreatic adenocarcinoma is known to be associated with improved survival as compared to margin positive resection (R1), whether no tumor at ink is equivalent to greater margin width in terms of survival is unknown. We hypothesized that larger margin width would correlate with improved chances of survival beyond two years.

Methods: After IRB approval, a retrospective chart review was conducted of patients who underwent pylorus preserving pancreaticoduodenectomy for adenocarcinoma in a single institution from 1999-2016. Demographic, pathology, and follow-up data were collected from the patient medical record and deaths verified by the Social Security Death Index.

Results: 461 patients met inclusion criteria. Mean age was 66.3 years, 55% were male, mean disease free interval was 534 days and mean overall survival was 718 days. Surprisingly, 50% of the patients surviving over two years were node positive. Patients were categorized into two groups for analysis, those who survived beyond two years (n=180) and those who did not (n=280). A multivariable linear regression analysis was conducted to determine factors that were individually associated with survival beyond two years. Among patients <65 years old, R0 versus R1 was not independently predictive of survival beyond 2 years; however, distance from closest margin was found to be independently associated with survival as tumor free margin increased. (OR 1.1; 95%CI:1.02-1.17) For patients older than 65, resection margin status (R0 versus R1) was found to be independently predictive of survival beyond 2 years, (OR 3.7; 95%CI: 1.3-10.1), irrespective of nodal status. However, increasing margin width was not associated with increased survival in this older population.

Conclusion: We found that increasing margin width was associated with higher likelihood of surviving beyond two years only in patients <65, while in patients over 65, â€œno ink on tumorâ€ seemed sufficient. Further work is necessary to confirm this finding in multiple institution studies, as well as determining if there is a margin width beyond which further tissue removal will no longer provide a slight survival advantage to patients under 65.

P 187. CHARACTERISTICS OF POSTOPERATIVE PANCREATIC FISTULA ON ABDOMINAL COMPUTED TOMOGRAPHY: A MULTICENTER COHORT STUDY
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Background: Pancreatic fistula is a potentially severe complication after pancreatic resection. The aim of the current study is to describe the characteristics of clinically relevant postoperative pancreatic fistula on abdominal imaging.

Methods: All consecutive patients undergoing abdominal computed tomography (CT) scan for (suspected) pancreatic fistula after pancreatoduodenectomy in 2015 and 2016 in 4 centers of the Dutch Pancreatic Cancer Group were included. Scans were systematically re-evaluated by two expert radiologists according to a predefined record form. Scans were considered positive when followed by an invasive intervention for postoperative pancreatic fistula or clinical deterioration due to abdominal sepsis causing Intensive Care Unit admission or death.

Results: A preliminary analysis was performed in a total of 213 abdominal CT scans in 150 patients: 72 scans were positive and 141 scans were negative for clinically relevant pancreatic fistula. The pancreatic anastomosis was dehiscent in 38 positive scans and 51 negative scans (53% vs. 36%; P=0,03; positive predictive value [PPV]0.42, negative predictive value [NPV]0.72). Fluid in direct contact to the pancreatic anastomosis was seen in 57 positive scans and 94 negative scans (80% vs. 67%; P=0.06; PPV0.38; NPV0.76), these collections contained gas in 40 positive scans and 52 negative scans (70% vs. 55%; P=0.10; PPV0.43; NPV0.70).

Conclusion: Characteristics of clinically relevant pancreatic fistula after pancreatoduodenectomy include dehiscence of the pancreatic anastomosis and fluid in direct contact to the anastomosis containing gas, although diagnostic accuracy of these individual variables is low. Further analysis will be focused on combining radiologic and clinical data to ultimately create a model that can be used in practice for early identification of patients with clinically relevant postoperative pancreatic fistula.

P 188. EUS-FNA WET-TECHNIQUE IN 31 SOLID PANCREATIC LESIONS: PISA EXPERIENCE

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Background: A preoperative diagnosis of pancreatic adenocarcinoma is often indispensable to guide the right treatment. EUS-FNA is an established procedure for obtaining a pathological specimen and a correct diagnosis. The FNA wet suction technique relies on pre-flushing the needle with saline instead of the air column contemplated in the dry technique. The aim of this study was to evaluate the performance of wet EUS-FNA technique with 19 and 22 G needles.

Methods: Thirty-one consecutive patients underwent EUS-FNA for pancreatic lesions between May 2016 and January 2017 at our Interventional Endoscopy Unit. The type and size (19 or 22 gauge) of FNA needle were chosen at the discretion of the endosonographers. Macroscopic on-site quality evaluation (MOSE) was performed and if a visible core was available, it was placed in formalin for histologic examination. Cellularity was assessed by using a 4-point scale (0=no cells to 3=highly cellular). Specimen adequacy was graded on a 2-point scale (0=not sufficient to make a diagnosis, 1=sufficient to make a diagnosis). The final diagnosis was based on pathological diagnosis of the surgically resected specimen for patients underwent surgical operation (8/31; 25.81%) while in the absence of surgical operation on a minimum follow up of 36 weeks (23/31; 74.19%): lesions spontaneously resolvedwithout signs of deterioration were consideredas benign; lesions showed enlargement, metastasis or with malignant symptoms were considered as malignant.Â

Results: Patient median age was 63.03Â±11.98 years and the male/female ratio 15/16. Lesions were located in the pancreatic head in 17/31 (54.8%), pancreatic body/tail in 11/31 (35.5%) and uncinate process in 3/31 (9.7%). The mean size of lesions was 4.29 ±1.56 cm.The cytological diagnosis was pancreatic adenocarcinomain 24 (77.4%) cases, GI stromal tumor in 1 (3.2%) caseand was negative for malignancy in 6(19.4%) cases.22 G needles have been used in 10/32 procedures, 19 G in 22/32. Mean number of passes 3.4 ±0.1.Inthe 31/32 (97%)cases with adequate specimens, cellularity score (mean 2.29 ±0.78) was 1 in 6 (19.4%) cases, 2 in 10 (32.3%) cases and 3 in 15 (48.4%) cases.Only 2 cases resulted false negatives. No significant differences were found between the 19G and 22G needles in terms of number of passes (19G 3.30 ±0.82 vs 20G 3.41±0.73; p=ns), adequacy (19G 90% vs 22G 100%; p=ns) and cellularity of the sample (19G 2.0 ±0.71 vs 22G 2.41 ±0.80; p=ns), as well as in ability to obtain a correct diagnosis (19G 90.0% vs 22G 94.5%; p=ns). No adverse events occurred.Wet EUS-FNA technique

had sensitivity 92.59%, specificity 100%, positive predictive value 100%, negative predictive value 66.67% and diagnostic accuracy 93.55%.

Conclusion: In our study wet EUS-FNA technique, performed with 19 and 22 gauge needles, showed a high performance in terms of adequacy and cellularity of the sample as well as in obtaining a correct diagnosis.Â

P 190. GASTRODUODENAL ARTERY-PRESERVING PANCREATICODUODENECTOMY: INDICATIONS AND OUTCOMES

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Background: Section of the gastroduodenal artery (GDA) represents a main technical step during pancreaticoduodenectomy(PD). Two particular conditions requires a systematic preservation of the GDA along with the right gastroepiploic artery (RGEA): a previous Ivor-Lewis subtotal oesophagectomy and RGEA used as in situ graft for a coronary artery bypass graft (CABG). We describe the technique and the outcomes of GDA preserving-PDs in these particular cases.

Results: From January 2011 to December 2017, four patients underwent GDA-PDs. Indications for surgery were pancreatic metastasis (n=1), distal cholangiocarcinoma (n=1), and pancreatic adenocarcinoma (n=2). GDA-PDs were performed because of previous oesophagectomy(n=2) and RGEA-CABG(N=2).In one case a synchronous venous resection was performed and pancreaticogastrostomy was used as reconstruction method. There was no postoperative mortality and RGEA was successfully preserved in all cases. One patient needed completion pancreatectomy because of grade C pancreatic fistula and is currently doing well at one year. No patients developed gastric necrosis or myocardial infarction in the postoperative period

Conclusion: GDA preserving-PD can be included safely in the armamentarium of pancreatic surgeons for some selected indications. This technique can be used safely at referral centers.

P 193. IS THE POSTOPERATIVE DAY 1 DRAIN-FLUID-AMYLASE LEVEL OF VALUE AFTER DISTAL PANCREATECTOMY: A NSQIP DATABASE ANALYSIS
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Background: Unlike post pancreatoduodenectomy (PD), the role of postoperative day 1 drain fluid amylase (DFA-1) in predicting postoperative pancreatic fistulae (POPF) following distal pancreatectomy (DP) is less clear. We aim to assess the significance of the cutoff DFA-1 level of 5000 U/L suggested for PD and try to establish the optimal DFA-1 threshold best correlating with fistula formation.

Methods: Background and Aims: Unlike post pancreatoduodenectomy (PD), the role of postoperative day 1 drain fluid amylase (DFA-1) in predicting postoperative pancreatic fistulae (POPF) following distal pancreatectomy (DP) is less clear. We aim to assess the significance of the cutoff DFA-1 level of 5000 U/L suggested for PD and try to establish the optimal DFA-1 threshold best correlating with fistula formation.

Results: Background and Aims: Unlike post pancreatoduodenectomy (PD), the role of postoperative day 1 drain fluid amylase (DFA-1) in predicting postoperative pancreatic fistulae (POPF) following distal pancreatectomy (DP) is less clear. We aim to assess the significance of the cutoff DFA-1 level of 5000 U/L suggested for PD and try to establish the optimal DFA-1 threshold best correlating with fistula formation.

Conclusion: The cutoff DFA-1 value of 5000 U/L used in PD should not be applied to cases of distal pancreatectomy due to its low sensitivity. Furthermore, clinically significant fistulae cannot be determined by DFA-1 levels which questions its usefulness in the setting of DP.

P 195. PREDICTIVE FACTORS FOR POOR SURVIVAL AFTER RESECTION FOR POTENTIALLY-RESECTABLE PANCREATIC CANCER
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Background: Efficacy of neoadjuvant therapy for patients with potentially-resectable pancreatic ductal adenocarcinoma (PDAC) remains unclear. Neoadjuvant therapy might be indicated for patients with risk factors for poor survival outcomes. The aim of this study was to evaluate risk factors for poor survival after surgical resection in patients with potentially-resectable PDAC.

Methods: Between January 2006 and December 2015, there were 192 patients who underwent curative-intent pancreaticoduodenectomy for potentially-resectable PDAC. Patients with intraductal papillary mucinous carcinoma, neoadjuvant therapy, or postoperative mortality were excluded. Preoperative CTs were re-reviewed. Risk factors for shorter time to cancer death or recurrence-free survival (RFS) were evaluated.

Results: Median age was 69. There were 124 males (65%). Median follow-up was 26 months. Independent risk factors for a shorter RFS were lower serum albumin level (hazard ratio (HR), 1.835, P = 0.017) and extrapancreatic nerve plexus invasion (HR, 3.018; P < 0.001). Independent risk factors for a shorter time to cancer death were lower serum albumin level (HR, 2.128, P = 0.002), serosal invasion (HR, 1.746, P = 0.011), and extrapancreatic nerve plexus invasion (HR, 2.699, P < 0.001). Patients with serum albumin level â‰¤ 3.5 g/dl showed a shorter RFS (8 months vs. 13 months, P = 0.002) and a shorter time to cancer death (17 months vs. 39 months, P = 0.002), than those with serum albumin level > 3.5 g/dl. Patients with extrapancreatic nerve plexus invasion showed a shorter RFS (6 months vs. 14 months, P < 0.001) and a shorter time to cancer death (16 months vs. 38 months, P < 0.001), than those without extrapancreatic nerve plexus invasion.

Conclusion: PDAC patients with low serum albumin level or extrapancreatic nerve plexus invasion showed poor survival outcomes after upfront surgery. Neoadjuvant therapy may be recommended for those patients with risk factors.

P 196. TUMOR VOLUME AND MICROSATELLITE INSTABILITY INVERSELY AFFECT EARLY PROGRESSION FREE SURVIVAL IN ADJUVANT SETTING OF PATIENTS WITH PANCREATIC DUCTAL ADENOCARCINOMA: LIGHTS AND SHADOWS OF MOLECULAR PATHOLOGY AND IMMUNOTHERAPY

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Background: Molecular alterations described in Pancreatic Ductal AdenoCarcinoma (PDAC) include MicroSatellite Instability (MSI), phenotype related to a damage of DNA Mismatch Repair (MMR) system, in which protein expression is altered in 30% of genes (MLH1, MSH2, MSH6 and PMS2). In PDAC, Humphris et al. recently identified MMR/MSI in 1% of tumors. The MSI-driven cancer pathway leads to the synthesis of aberrant and potentially immunogenic neo-antigens by tumor cells. The emergence of immunotherapy with ICK inhibitors has recently constituted a source of personalized treatment for MSI cancer patients and support the evaluation of MSI phenotype in PDAC. The aim of this study is to evaluate MSI in metastatic PDAC patients after pancreatic resection featuring first line of chemotherapy in order to evaluate a possible immunotherapy treatment.Â

Methods: Ten patients with metastatic PDAC after surgical resection and adjuvant chemotherapy with curative intent were selected for MSI analyses. Immunohistochemistry (IHC) evaluations for genes MLH1, MSH2, MSH6 and PMS2 were performed. We assessed MSI when at the least 30% of selected markers lost their protein expression. Pathological data of primary tumor were assessed consulting VIII edition of TNM and the dimension of tumor was evaluated as volume (cm3). Clinical data, Progression Free Survival (PFS) and Overall Survival (OS) were obtained by Long-Rank tests.Â

Results: The mean follow-up was 19.02 months and the living patients were 70% (7/10). The median PFS and OS were 7.51 months and 23.02 months, respectively. All patients showed a microsatellite stability, in which no alteration of protein expression in MMR system was found. Indeed nobody was treated with immunotherapy. However, looking at the PFS survival, we identified two different groups (5 patients each), based on their early (E) or late (L) metastatic pathology (less or more six months after surgery), respectively. Furthermore we found a significant difference in terms of PFS between these two groups (E vs L; 2.20 vs14.63; HR=4.644; CI95% 3.982-103.200; p=0.0018). Nevertheless, we found significant differences comparing E vs L group in terms of mean tumor score (2.780 vs 1.870; p=0.0067) and mean tumor volume (88.68 vs 8.30; p=0.0068). No significant difference in term of OS were observed, until now.Â

Conclusion: Our results confirmed that MMR/MSI alterations are very rare or absent in PDAC patients. This represents a limit in order to submit the PDAC patients to immunotherapy clinical trials. However, the MSI analyses leave the open question whether MSI pathways might be involved in early metastatic process of PDAC. Nevertheless we demonstrated that both tumor scoring and tumor volume play a pivotal role in early recurrence of pathology. The molecular sub-types of PDAC and their validation and application in early metastatic patients may increase the know-how around the PFS in PDAC patients in order to up-grade their quality of life.

P 197. 13-YEAR FOLLOW-UP AFTER NON-OPERATIVE TREATMENT OF SEVERE ACUTE PANCREATITIS SHOWS BETTER LONG-TERM SURVIVAL

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Background: As previously shown by our group conservative treatment of severe acute pancreatitis led to significantly decreased in-hospital mortality. This former study represented the basis of the current investigation. All patients had a severe course of the disease and showed unfavourable prognostic scores upon admission. Patients of group 1 were operated if routine FNA was positive whereas patients of group 2 were treated conservatively for at least three weeks. Most patients of group 2 received interventional drainage or in rare cases operation, if needed (group 2A). 38% of group 2 did not receive any intervention or operation at all (group 2B). Patients of group 1 and 2 as well as patients of group 2A and 2B were comparable with regard to demographic or prognostic data.

Methods: A median follow-up of 13 years was performed of the described patient cohorts. Survival was analysed using log-rank test.

Results: Long-term survival of patients with severe acute pancreatitis treated conservatively was significantly better even after 20+ years (p = 0.0089) after initial hospital admission. Sole conservative treatment without any kind of intervention or operation showed the same long-term survival compared with patients treated mainly conservatively including interventional techniques or a step-up approach.

Conclusion: Non-operative treatment of severe acute pancreatitis shows decreased in-hospital mortality and increased long-term survival. Even pure conservative treatment (based on clinical course and presentation) without any intervention or operation is a safe treatment option and does not negatively affect long-term survival.

P 198. EVALUATION OF SOMATOSTATIN ANALOGS FOR THE PREVENTION OF POST-OPERATIVE PANCREATIC FISTULAS
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Background: Post-operative pancreatic fistula (POPF) is the most common major complication after pancreatic resections (PR). Somatostatin analogs (SA) have been used to reduce the incidence of POPF with mixed results. This study evaluated the rate of POPF in patients who received SA after PR at our institution.

Methods: A retrospective study was conducted on patients who underwent PR between 2012 and 2016 at out institution. Patients were included if they were > 18 years old, and received either pasireotide or octreotide prophylactically. Patients were matched in a 1:1 ratio based upon type of surgery, pancreatic gland texture, and pancreatic duct size. The primary endpoint was 30-day incidence of POPF. Categorical data was analyzed using Chi-square or Fishers exact test and continuous data was analyzed using Wilcoxon rank sum test. Analyses were performed using STATA 13.0.

Results: A total of 50 patients were included in the study after matching, with 25 patients in each group. A majority underwent a pancreaticoduodenectomy (N=48, 96%), had a soft pancreatic gland texture (N=46,92%), and dilated pancreatic duct (N=48,92%). The 30-day incidence of POPF was 12% (n=3) and 52% (n=13) in the pasireotide and octreotide group respectively (p=0.005). No significant differences were observed between the two groups in terms of maximum QT interval, maximum blood glucose, delayed gastric emptying, antiemetic use, 30-day readmission, and 30-day mortality. Patients in the pasireotide group had a shorter length of stay (9 days vs. 12 days, p=0.002) and required a shorter duration of prophylaxis (6 days vs. 8 days, p=0.0001). The multivariate logistic regression demonstrated significantly lower rates of POPF in the pasireotide group after adjusting for age, body mass index, and intraoperative blood loss (OR: 11.9, 95%CI: 2.3-60.5, p=0.003).

Conclusion: When compared with octreotide, despite a shorter duration of prophylaxis, the use of pasireotide was associated with a significant reduction in the incidence of POPF.

P 199. COMPARISON OF CIRCUMFERENTIAL INTERRUPTED SUTURES AND MODIFIED BLUMGART METHOD: WHICH IS SUITABLE FOR THE 2ND LAYER ANASTOMOSIS AFTER PAIR-WATCH SUTURING TECHNIQUE IN PANCREATICOJEJUNOSTOMY?

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Background: Our standardized pancreaticojejunostomy technique is a duct-to-mucosa type consisting of the 1st layer (duct to all-layer jejunum) and the 2nd layer (pancreatic parenchyma to seromuscular layer of jejunum). We performed the 1st layer anastomosis with pair-watch suturing technique (PWST: World J Gastrointest Surg, 2010), in which 12 stitches are put regardless of duct size or consistency of parenchyma. In the 2nd layer, we had performed circumferential interrupted sutures since April 2007. Using this technique, incidence of grades B and C postoperative pancreatic fistula (POPF) had been around 12%. Recently, modified Blumgart method has been reported to markedly decrease the incidence of POPF. Therefore, we compared its incidence between CIS and MBM, to clarify which technique is suitable for the 2nd layer after PWST.

Methods: The subjects are 332 pancreaticojejunostomy patients from April 2007 to December 2017: PWST with circumferential interrupted sutures (n=297) and with modified Blumgart method (n=35). As a prospective study, the 2nd layer has been switched to modified Blumgart method. The incidence of POPF was compared between the two groups.

Results: The incidence of grades B and C POPF was 8.4% (25/297) in PWST with circumferential interrupted sutures and 14.3% (5/35) in PWST with modified Blumgart method (NS). In the patients with soft pancreas, it was 14.7% (19/129) in PWST with circumferential interrupted sutures and 25% (5/20) in PWST with modified Blumgart method, being higher in the latter group although not statistically significant.

Conclusion: As of the 2nd layer technique after PSWT for pancreaticojejunostomy, PWST with modified Blumgart method could not decrease the incidence of clinically relevant POPF, although further study is required to accumulate the number of patients.

P 202. THE PREDICTIVE FACTORS OF SURGICAL DIFFICULTY OF PANCREATODUODENECTOMY

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Background: Pancreatoduodenectomy (PD) requires high-end performance of well-trained surgeon, while education is indispensable for young surgeon under safe condition. An evaluation method of surgical difficulty of PD is demanded to assess whether difficult or not. However we still don't know what kind of factor define the difficulty. In this study, we therefore tried to reveal it.

Methods: Original questionnaire survey about surgical difficulty were carried out between 2016 and 2017 (n=50). Surgeons who performed PD were subjectively assessed surgical difficulty whether DIFFICULT or EASY/MODERATE, severity of intra-abdominal adipose and adhesions around pancreas head. Patients factor, peri-operative and postoperative factors were divided into two groups as DIFFICULT or EASY/MODERATE, and analyzed by using SPSS.

Results: As a result of survey, 13 patients categorized as DIFFICULT, and 37 patients were EASY/MODERATE. In DIFFICULT cohort, massive adipose (53.9 vs 2.7 %) and severe adhesions (61.6 vs 16.2%) were frequently observed with statistical significance compared with EASY/MODERATE cohort. Additionally, DIFFICULT cohort demonstrated prolonged operative time (485 vs 373 min), more blood loss (1315 vs 687 ml) with significance. Clavien-Dindo 3a and more (30.8 vs 5.4 %) is more frequently observed in DIFFICULT cohort with significance. Multivariate logistic regression analysis by using 13 preoperative factors detected that past major abdominal surgery, past cholangitis/pancreatitis and long distance between navel and lumbar (more than 81.5mm) were predictors of DIFFICULT. If these three predictors were all negative, all patients belonged to EASY/MODERATE cohort.

Conclusion: Our study revealed characteristics and predictors of DIFFICULT cohort. These predictors could be useful to assess difficulty preoperatively.

P 203. ROBOTIC ASSISTED VERSUS OPEN LEFT PANCREATECTOMY FOR CYSTIC TUMORS: A SINGLE CENTER EXPERIENCE

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Background: Cystic pancreatic lesions are increasingly found incidentally. The present study compares the robotic assisted surgical approach with the open surgery in the surgical management of cystic lesions of the pancreas, with a view to documenting benefits from the more expensive robotic approach.

Methods: From April 2010 to April 2017 37 robotic-assisted left sided pancreatectomy (LSP) for lesion of the body/tail of the pancreas were performed, of which 27 were patients with cystic tumors (RAS-group). Baseline features, surgical outcomes and histopathological examination were compared retrospectively with a group of 27 consecutive patients treated with open surgery for the same indication from May 2005 to April 2010, obtained from the institutional prospectively collected database (OS-Group).

Results: The spleen-preserving rate was significantly higher in the RAS group (63% vs. 33.3% in the OS-Group, $p<0.05$). No difference in the post-operative pancreatic fistula and morbidity was found between the two groups. The median postoperative length of hospital stay was significantly shorter in the RAS-group: 8 days (range 3-25) vs. 12 days (range 7-26) in the OS-Group ($p<0.01$). No conversion to open approach was reported in the RAS-group.

Conclusion: The robot-assisted LSP is a safe and effective procedure. The robotic approach significantly increases the spleen preservation rate and reduces the post-operative hospital stay. By reducing the trauma of access, it results in smoother post-operative course and faster recovery, particularly important in patients harbouring cystic pancreatic tumors, in increasing their acceptance for surgery when recommended. Prospective studies are necessary to validate the clinical benefits of robotic approach for LSP.

P 204. A CASE SERIES OF PATIENTS PRESENTING WITH PANCREATIC CANCER AND RENAL CELL CARCINOMA

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Background: Pancreatic cancer is the 4th leading cause of cancer-related death in the United States. The majority of patients present after they have developed advanced disease or metastatic lesions. With treatment advancements and increased life expectancy, more individuals are presenting with a second primary malignancy. Limited data is available regarding pancreatic cancer with synchronous malignancies. In contrast to the short life expectancy associated with pancreatic cancer, the prognosis associated with renal cell carcinoma is better with estimated 5-year survival rates greater than 70%. Extensive literature review yielded a limited number of case reports with incidentally discovered renal cell carcinomas at the time of pancreatic adenocarcinoma resection. In this retrospective case series, we further describe synchronous pancreatic and renal malignancies to better understand presentation of the disease, surgical management, and short-term outcomes of such patients.

Methods: A retrospective chart review was conducted and all patients who had both diagnoses of renal cell carcinoma and pancreatic adenocarcinoma were identified from a single university hospital system from 2008-2017. ICD-9 (pancreatic cancer: 157; renal cell carcinoma 189) and ICD-10 codes (pancreatic cancer: C25; renal cell carcinoma C64) were used to identify such patients. Demographic, clinical, and pathological data were then identified and organized into a retrospective database and subsequently analyzed to characterize patients with concurrent disease.

Results: Six patients meeting study criteria were identified. Five patients were male. Median age was 67 (range 47-76). Five out of the six patients had a past medical history significant for hypertension and two patients had a history of a malignancy unrelated to renal cell carcinoma and pancreatic adenocarcinoma. The mean BMI of the six patients was 27. Only two of the six patients were active smokers and one patient was a former smoker. Average pack-years among tobacco users was 27.5. No patient had a family history of pancreatic adenocarcinoma or renal cell carcinoma. Three of the six patients had lesions located in the pancreatic head; two had lesions in the pancreatic body and one had a mass located in the uncinate process. Two patients underwent neoadjuvant chemotherapy prior to resection of the pancreatic mass. Three patients had pancreatic AJCC 7th edition stage IIb disease and two had stage Ib disease. There was insufficient data on final pathology for the remaining patient to determine stage of disease.

Conclusion: Though uncommon, synchronous pancreatic and renal cell malignancies are more frequently encountered in an aging population. With better understanding of

the presentation of such patients and their clinical course, unique risk factors can be elucidated in attempts to identify those at risk earlier.

P 206. TREATMENT OF LATE SEVERE POSTOPERATIVE HEMORRHAGE IN PATIENT WITH PANCREATIC FISTULA GRADE C

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Background: Postoperative pancreatic fistula (POPF) is the most important complication after pancreatic surgery. In 2005, the International Study Group of Pancreatic Surgery (ISGPS) introduced a standardized POPF definition with severity grading from A to C and redefined in 2017. POPF grade C is the most frequent cause of death after pancreatic surgery. Gastrointestinal or intraabdominal hemorrhage occurs in somewhere between 1% to 8% of all pancreatic resections and accounts for 11% to 38% of overall mortality. In 2007 postoperative hemorrhage was classified by international study group of pancreatic surgery.

Methods: In our study, we analyzed patient with POPF grade C, where postoperative hemorrhage occurs. Between 2015 and 2017 late severe hemorrhage occurred in 17 patients with complicated postoperative period. There were 9 female and 8 male patients, aged from 33 to 67 years (mean 56,4 + 8,3 years). In 15 patients POPF was a complication of pancreas resections, including 11 pancreas head resections and 4 distal pancreas resections; in 2 patients, late severe hemorrhage occurred as a result of acute postoperative pancreatitis in patients after gastrectomy. Specific attention was paid to the tactics during the first relaparotomy.

Results: All patients were operated. Five patients survived, 12 patients died. Postoperative mortality in this group of patients was 70,6%. Among these patients 3 died in the first 24 hours after relaparotomy, due to hemorrhagic shock. In 4 patients completion pancreatectomy was done during the first relaparotomy (in all patients that included resection of the left pancreas remnant). In 2 patients 1 recurrent bleeding occurred, causing 1 postoperative death. Postoperative mortality was 25,0% in this subgroup of patients. In 10 patients completion pancreatectomy was not performed during first relaparotomy, including 1 patient after gastrectomy and 4 patients after left pancreas resection. 8 patients (80%) of this group died. Of 2 survived patients from this group in 1 patients there was no recurrent bleeding, and in another patient completion pancreatectomy was done after recurrent bleeding. In all other 8 patients from 1 to 5 recurrent bleedings occurred (mean 2,1+1,4), fatal in 4 patients. Other 4 patients died of septic complications. Mortality in patients without completion pancreatectomy was 88,9%. Completion pancreatectomy could decrease the risk of recurrent bleeding from 90,0% to 50,0% (Ϊ‡2=2,7; p >0,05) and significantly decrease postoperative mortality from 88,9% to 25,0% (Ϊ‡2=5,9, p<0,05).

Conclusion: Completion pancreatectomy should be done whenever possible in patients with late severe hemorrhage and POPF grade C.

P 209. PREVENTING UNNECESSARY RESECTIONS: A MULTIMODALITY APPROACH FOR INTRAPANCREATIC ACCESSORY SPLENULE DETECTION
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Background: Differentiation of an intrapancreatic accessory splenule (IPAS) from other pancreatic tail lesions such as pancreatic neuroendocrine tumors (PNET) and metastatic disease presents a diagnostic challenge preoperatively. These are often indistinguishable on CT or MRI and can lead to unnecessary operations. Despite increasingly sophisticated imaging and expertise in the interpretation of imaging, preoperative differentiation is still challenging. Specific radiotracers such as Ga-DOTANOC (gallium conjugated with a somatostatin analog) and octreotide scans may have false positive results due to presence of somatostatin receptors in IPAS lymphocytes. Endoscopic ultrasound (EUS) has perhaps demonstrated utility in assisting with differentiating these entities, as contrast enhanced EUS and elastography has been used to help differentiate between benign and malignant pancreatic tissue. Additionally, EUS/FNA is able to diagnose IPAS in 90% of cases, however, this is not always anatomically feasible. 99Tcm heat-damaged red blood cell (HDRBC) scintigraphy and 99Tcm Sulphur colloid scans are very sensitive and specific tests for IPAS detection. In our experience, we have resected IPAS despite negative 99Tcm HDRBC and 99Tcm Sulphur colloid testing. We reviewed the literature and our own experience in developing a diagnostic algorithm for these patients.

Methods: We report on 2 patients who were operated on because of negative 99Tcm HDRBC/ 99Tcm Sulphur colloid scan and final pathology for these patients demonstrated IPAS. A PUBMED literature review was performed focusing on preoperative diagnosis of IPAS. We then developed an algorithm that can be applied to this subset of patients to aid with diagnosis.

Results: Figure 1: Diagnostic Algorithm for hyperenhancing pancreatic tail lesions unable to be differentiated on CT or MRI

Conclusion: Complications after pancreatic resection are not insignificant, IPAS is a benign condition and preoperative identification will help reduce unnecessary pancreatic resections. We suggest a multimodality approach as outlined in our diagnostic algorithm for hyperenhancing pancreatic tail lesions.

P 210. USE OF AN INSULIN PUMP IN THE ELDERLY SURGICAL PATIENT: TOLERANCE OF TOTAL PANCREATECTOMY IN A 72 YEAR OLD PATIENT FOLLOWING NEOADJUVANT CHEMOTHERAPY FOR MULTIFOCAL PANCREATIC CANCER

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Background: Pancreatic cancer is one of the most fatal cancers and is associated with late disease presentation. Multifocal pancreatic cancer is particularly difficult to treat as cases that are amenable to surgical resection require total pancreatectomy. These patients are at risk for developing brittle diabetes as they require exogenous insulin after surgery. The role of neo-adjuvant chemotherapy has been shown to be useful in the management of multifocal pancreatic cancer to down stage tumors to make them amenable for formal resection. We present a patient who underwent neoadjuvant chemotherapy and total pancreatectomy. The patient has good glycemic control postoperatively being managed with an insulin pump and remains disease free at two years after resection.

Methods: Case Report Detailing Clinical outcome

Results: A 72 year old male with 2 tumors present in the head and distal portion of the pancreas which were consistent with pancreatic adenocarcinoma by EUS biopsy. He underwent neo-adjuvant FOLFIRINOX prior to total pancreatecomy. The patient underwent a total pancreatectomy and did well postoperatively. He was discharged on post operative day eight. The patient was seen by endocrinology who started the patient on an insulin pump for management of acquired diabetes. He was able to make the transition to insulin pump therapy easily. The patient's A1C was 7.9% at three months. The patient remains disease free at two years with an A1C of 7.0%. His CA19-19 is normal at most recent follow up and remains disease free at 2 years.

Conclusion: Postoperative glycemic control can be managed with standard insulin delivery systems including the insulin pump for patients undergoing total pancreatectomy with neoadjuvant chemotherapy.