Clinical Pancreatic Cancer

1 CANCER RISK AMONG THE RELATIVES OF PROBANDS WITH PANCREATIC DUCTAL ADENOCARCINOMA

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INTRODUCTION AND AIM: Adenocarcinoma of the pancreas is a leading cause of cancer-related death (about 7500 deaths/year in Italy). It is estimated that 3–5% of all pancreatic cancer cases are caused by germ-line mutations in known predisposing genes, though some families may carry genes unrelated to any identified syndrome. In 2002, the Associazione Italiana Studio Pancreas (AISP) launched a collaborative study to investigate these issues in Italy. PATIENTS AND METHODS: 1) To determine cancer risks, both of pancreas and of other sites, for the relatives of the probands with pancreatic adenocarcinoma; 2) to collect a large number of consecutive pedi-grees for studies of segregation and linkage analysis. Family history of cancer and blood samples are collected from all incident cases with pancreatic ductal adenocarcinoma. Pedigrees are recorded in a centralized database. Selected samples are forwarded to genetic labs for DNA analysis. RESULTS: Three collaborating centers provided 351 pedigrees ascertainment consecutively, including 3685 informative relatives. Pancreatic cancer among first-degree relatives was reported in 25 families (7.1%), 3 including two affected relatives; this corre-sponded to 2.8-fold risk increase compared to the general population at age 65 and to 3.0-fold increase at age >75 years. Adding the second-degree relatives to the analysis, 33 families (9.4%) reported positive family history (1.8-fold risk increase at both ages up to 75 years). Familial aggregation of cancers at any site was highly significant; gastrointestinal and uterine cancers were present in large excess. CONCLUSION: The present study provides the founda-tions for investigating the genetic susceptibility to pancreatic cancer in Italy.

2 LONG-TERM SURVIVAL AFTER PancreATIC CANCER RESECTION: A EUROPEAN HISTOLOGICAL EVALUATION

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INTRODUCTION AND AIM: The vast majority of patients diagnosed with ductal adenocarcinoma of the pancreas (PDAC) die within 1 year after diagnosis. Only a few patients survive more than 5 years after surgery. The current European study re-evaluates the histology of patients surviving >5 years as well as in a matched control group of patients surviving only 3–12 months after surgery. The aim was to find histological differences between long- and short-term survivors. PATIENTS AND METHODS: The entire records of the nationwide Finnish and Danish cancer registers and the local cancer registers of the University Hospital of Bern, Switzerland, were screened for the diagnosis pancreatic cancer (ICD:C25) for the years 1990–1996. A matched group of patients with a survival between 3 and 12 months served as control. The original histological slides were printed to re-evaluated by the local pathologist, thereafter by two reference pathologists in a blinded manner. RESULTS: A total of 38 long-term survivors were histologically re-evaluated. In 24 cases the primary diagnosis of a DAC could be confirmed. 37% of the 5-year survivors were suffering from pancreatic lesions/tumors different from PDAC. Papillary carcinoma and IPMT were the most common differential diagnosis in this group. Followed by endocrine tumors, chronic pancreatitis and bile duct carcinoma. Surprisingly, the short-term survival group showed the same range of misclassification (36%). Surprisingly, the short-term survival group showed the same range of misclassification in the first place. CONCLUSION: The histological classification of ductal pancre-atic cancer remains difficult especially due to newly described tumor entities like IPMTs. There is no obvious histological difference between long- and short-term survivors in pancreatic cancer.

3 NON-RADICAL PancreATIC CANCER RESECTIONS

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INTRODUCTION AND AIM: To assess: 1. the incidence of margins involvement; 2. the pattern of failure after non-radical resection; 3. the value of intraoperative radiotherapy (IORT) in this setting; 4. the effect of margins invasion on survival. PATIENTS AND METHODS: Retrospective evaluation of prospectively collected data. Study group: 296 patients undergoing resection for pancreatic cancer (1990–2002). R1 status was defined histologically, R2 status intraoperatively. Data were analysed by the x2, log-rank and Cox analysis (covariates: radicality, diameter, stage, grading, nodal status, adjuvant therapies). RESULTS: 175 patients (59%) were classified as R0, 68 patients (23%) as R1 and 53 patients (18%) as R2. The posterior margin was the most frequently involved (69.4%). Local relapse (LR) was detected in 40% of cases after R0 resection, 50% after R1 and 55% after R2 (p=0.4). IORT was applied in 127 patients: it has no effect to reduce local relapse in either R0 patients (p=0.9), or R1 (p=0.3), or R2 (p=1). The survival of R2 patients was worse than R0 patients (p<0.001), but the prognosis of R1 and R0 patients was similar (p=0.2). 2and 5-year survival rates were 38.6% and 14.8% in R0 patients, 32.7% and 8.6%, in R1 patients; 13.9% and 6.9% in R2 patients. The multivariate analysis confirmed that R2 status is an independent prognostic factor (p=0.02), whereas R1 was not (p=0.4). CONCLUSION: It is important to differentiate R1 and R2 resections because R1 does not significantly influence LR or survival, whereas R2 have a worse prognosis. IORT had no effect to reduce LR.

4 DETECTION OF TUMOR CELL DISSEMINATION IN PANCREATIC DUCTAL ADENOCARCINOMA PATIENTS BY CK 20 RT-PCR PREDICTS SURVIVAL

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INTRODUCTION AND AIM: This prospective study evaluates the diagnostic potential of cytokeratin 20 (CK 20) RT-PCR for the detection of disseminated tumor cells in bone marrow and blood of patients with ductal adenocarcinoma of the pancreas and investigates the prognostic value with respect to overall survival. PATIENTS AND METHODS: Between 1994 and 2003, 172 patients with pancreatic ductal adenocarcinoma underwent surgery. Bone marrow samples and venous blood were taken preoperatively and analyzed for disseminated tumor cells by nested CK 20 RT-PCR. RESULTS: Disseminated tumor cells were detected in 81 (47.1%) of the 172 patients in the bone marrow and/or the venous blood. Detection rates increased with the UICC tumor stage. Uniivariate survival analysis of all 172 resected patients according to Kaplan-Meier was statistically significant for radicality of the operation (p<0.0000), the UICC stage of the tumors (p=0.0011) and the detection of disseminated tumor cells in bone marrow and/or venous blood (p=0.05). Patients with well and moderately differentiated tumors (G1 and G2) had a significantly longer survival (p=0.045) than patients followed by endocrine tumors, chronic pancreatitis and bile duct carcinoma. Surprisingly, the short-term survival group showed the same range of misclassification (36%). Surprisingly, the short-term survival group showed the same range of misclassification in the first place. CONCLUSION: The histological classification of ductal pancreatic cancer remains difficult especially due to newly described tumor entities like IPMTs. There is no obvious histological difference between long- and short-term survivors in pancreatic cancer.
5 PARTIAL RESECTION OF THE PORTAL VEIN IN PANCREATICODUODENECTOMY IS NOT ASSOCIATED WITH INCREASED MORBIDITY AND MORTALITY

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INTRODUCTION AND AIM: Pancreaticoduodenectomy (Whipple’s operation) is the treatment of choice for malignancies of the head of the pancreas and the juxtapapillary region of the duodenum and is an option in chronic pancreatitis. Especially in malignant disease or adherence of the portal vein is a common occurrence. Therefore, vascular resection is necessary to achieve R0 situation. The clinical value of this procedure, however, is still discussed controversially. PATIENTS AND METHODS: Retrospective analysis of the treatment results of 189 patients undergoing Whipple’s operation from January 2000 until April 2004. RESULTS: The two groups (with/without vascular resection) did not differ significantly in age, gender or underlying disease. Resection of the portal vein was performed in 31 (18%) patients, 158 (62%) underwent surgery without vascular resection. Overall hospital mortality in patients with and without portal vein resection (1/31, 3.2% vs 7/158, 4.4%), overall morbidity (38% vs 45%, p > 0.1) and median hospital stay (25 vs 29 days, p > 0.1) did not differ significantly. Partial resection of the portal vein in 11 patients and total portal vein resection in 11 patients did not differ significantly in mortality. Concluding: Pancreatectoduodenectomy combined with partial resection of the portal vein is not associated with increased morbidity and mortality.

6 REG IV, A HITHERTO UNDESCRIBED PRODUCT OF THE REG GENE FAMILY, IS SPECIFICALLY EXPRESSED IN PANCREATIC PP CELLS

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INTRODUCTION AND AIM: The Reg gene family has been implicated in a variety of functions including regeneration, proliferation and malignancy. Their physiological function, however, is not well understood. Recently, a novel member of the Reg gene family, Reg IV, has been identified and its expression in normal and diseased gastrointestinal mucosa including dysplasia and cancer has been reported. Its expression in pancreatic tissue, however, has not yet been investigated. We report, for the first time, the expression of Reg IV in the normal and diseased pancreas.

PATIENTS AND METHODS: The expression of Reg IV was examined by a polyclonal antibody in five normal pancreases from organ donors, four chronic pancreatitis, 13 pancreatic cancer specimens, and in cultured human islet cells by multi-labeling immunohistochemistry. RESULTS: The expression of Reg IV was limited to pancreatic polypeptide (PP) cells. Multi-labeling technique indicated that pancreatic polypeptide is not the target of the Reg IV antibody. No staining of pancreatic exocrine cells or endocrine cells other than PP cells were observed and no cancer cells were immunoreactive with the antibody. CONCLUSION: In the pancreas, Reg IV is a marker for PP cells. Its upregulation seems to be implicated in a variety of functions including regeneration, proliferation and malignancy.

7 EARLY AND ENDURING FUNCTIONAL AND NUTRITIONAL RESULTS OF PYLORUS PRESERVATION VS CLASSIC WHIPPLE PROCEDURE FOR PANCREATIC CANCER

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INTRODUCTION AND AIM: There have been many supportive data that the pylorus-perserving pancreaticoduodenectomy (PPPD) might be equal to the classic Whipple pancreaticoduodenectomy (PD) in terms of oncological radicality. However, few reports are available on the early postoperative and enduring functional changes, the nutritional status, body composition, and the onco-logic outcome after surgery. The aim of this study was to compare these changes in a retrospective and prospective setting.

PATIENTS AND METHODS: In May 1998 the standard surgical approach in the Department of Surgery, University-Hospital Mannheim changed from PD to PPPD. Early postoperative and enduring functional changes, quality of life, oncological radicality, and long-term nutritional status were compared in a group of 111 patients after PD (1996–1998) and 128 patients after PPPD (1998–2002). In a retrospective manner the intra- and postoperative course was evaluated. Prospectively, we analyzed functional, nutritional, and onco-logic outcome after 5 years in PD, and after 2 years in PPPD patients.

RESULTS: The PPPD group was significantly favourable for: operating time (PPPD: 341 +/- 74 vs PD: 386 +/- 89 min), blood loss (793 +/- 565 vs 1000 +/- 590 ml), blood transfusions (416 +/- 691 vs 653 +/- 776 ml), delayed gastric emptying (6 vs 13%), and hospital stay (20 vs 24 days). However, long-term survival and good palliation may be achieved.

8 SURGICAL TREATMENT OF SECONDARY TUMOURS TO THE PANCREAS

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INTRODUCTION AND AIM: Unlike primary pancreatic carcinoma, metastases to the pancreas are rare and their resection may be performed as palliative treatment. The aim of this study was to review our experience with the operative management of pancreatic metastases.

PATIENTS AND METHODS: Between January 1994 and December 2003, 13 patients (9 female and 4 male, median age 58.8 years, range 36–79) were admitted to our institution for metastatic lesion to the pancreas. The clinical features, treatment and results were examined. RESULTS: Primary tumours were renal cell carcinoma (n = 5), lobular carcinoma of the breast (n = 3), endometrioid carcinoma of the ovary (n = 1), colonic adenocarcinoma (n = 1), jejunal leiomysosarcoma (n = 1), melanoma (n = 1) and non-small cell lung cancer (n = 1). The median interval between primary tumor and pancreatic metastases was 55.9 months. 6 patients (46%) were asymptomatic. The other 7 patients presented with jaundice, pain, duodenal obstruction. Two patients with extrapancreatic disease underwent palliative surgery. In the remaining patients operative procedures performed included seven pancreaticoduodenectomy and four dissection of pancreatocyst with stapled endoscopical closure. Postoperative mortality was nil, morbidity rate was 30%. 2 patients who underwent palliative surgery died after 7 and 9 months.

Median survival of the resected patients was 26 months (range 13–95). 5 patients died of disease, 8 are alive, 3 with disease. A trend toward improved survival, even if not statistically significant, was observed in renal carcinomas patients.
**9 PANCREATIC METASTASES FROM NON-RENAL CELL CARCINOMA**


**INTRODUCTION AND AIM:** Isolated pancreatic metastases are uncommon and the value of their management is poorly defined. We review our experience with pancreatic metastases different from renal cell carcinoma, better defined in literature. **PATIENTS AND METHODS:** We analysed histology, management and long-term results of 12 (7 female, 5 male, mean age 62 years, range 35–80) patients with a diagnosis of pancreatic metastasis different from renal cell carcinoma observed in our department from 1994 to June 2004. **RESULTS:** Over 2601 patients discharged with a diagnosis of pancreatic neoplasm were found: 41 (1.6%) with pancreatic metastasis, 29 (70.7%) were from renal cell carcinoma, 12 (29.3%) from: breast (n = 3), colon/rectum (n = 2) and one patient respectively from bladder, endometrium, adrenal gland and prostate carcinomas, melanoma, periantrum leiomyosarcoma and chronic lymphocytic leukaemia. In two cases metastases were synchronous (adrenal gland cancer and LLC), in the others the median disease-free interval was 77 months. Two patients had multiple metastases while in the others the metastases were located in the head (n = 6), body-tail (n = 8). One patient did not receive any surgical treatment (LLC and prostatic cancer) and underwent chemotherapy. Three patients underwent surgical palliation. The remaining patients underwent atypical resection (n = 2), distal pancreatectomy (n = 1) and pancreaticoduodenectomy (n = 4). Overall mean survival was 21.6 months (range 3–72); the resected patients had a mean survival of 28.6 (12–72) and the unresected patients of 12 months (3–42). **CONCLUSION:** Pancreas rarely can be the site of metastatic disease, but when this occurs it can either be synchronous or metachronous. Surgical therapy can give survival benefit in selected patients. **10 ASSESSMENT OF POTENTIALLY RESECTABLE PANCREATIC MALIGNANCY WITH LAPAROSCOPY AND INTRAOPERATIVE ULTRASOUND**

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**INTRODUCTION AND AIM:** Staging laparoscopy for pancreatic malignancy is controversial. Our aim was to assess the efficacy of laparoscopy with intraoperative ultrasound (IOUS) in the management of patients with potentially resectable pancreatic carcinoma. **PATIENTS AND METHODS:** The study involved patients undergoing laparoscopy and IOUS over a period of 32 months. Entry criteria were radiological (CT or ultrasound) diagnosis of potentially resectable pancreatic carcinoma, and no evidence of metastases. Possible resectability was defined as up to a 5-cm pancreatic head mass, or a body or tail mass of any size. **RESULTS:** 91 patients were included (48 male and 43 women, aged 43–83 (mean 63.5). 25 (27.5%) patients were found to have undetected peritoneal or liver disease. Seven (7.7%) patients had been misdiagnosed: lymphoma (n = 1), sarcoma (n = 2), ampullary tumour (n = 1), chronic pancreatitis (n = 3). 36 (39.6%) patients were suitable for curative resection. One of these was deemed unfit following response to anaesthetic at laparoscopy. Of the remainder, 16 (45.7%) underwent potentially curative resection. Reasons for unsuitability were lymphi node metastases (n = 9), mass too large or involving vessels (n = 8), undetected liver metastases (n = 2). A further group of 14 patients underwent bypass surgery for gastric outlet obstruction. **CONCLUSION:** Laparoscopy and IOUS avoided open surgery in 42 (46%) of the patients studied. It should therefore be utilised in the preoperative staging of pancreatic tumours. **11 ALCOHOL: A RISK FACTOR FOR PANCREATIC CANCER EVEN WITHOUT INDUCTION OF CLINICALLY APPARENT CHRONIC PANCREATITIS?**

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**INTRODUCTION AND AIM:** Alcohol is considered a risk factor for pancreatic cancer. Epidemiological studies may have been confounded by tobacco smoking. The more generally accepted link between alcohol consumption and pancreatic cancer is through pancreatitis, particularly chronic pancreatitis. Clinically apparent pancreatitis, however, is estimated to explain only 0.1–5% of pancreatic cancer cases. **PATIENTS AND METHODS:** We tested the hypothesis that if alcohol were a risk factor it would accelerate the development of pancreatic cancer. Age at diagnosis of histologically or cytologically confirmed adenocarcinoma of the pancreas among male smokers and nonsmokers who consumed > 55 g alcohol/day (group A) was compared with those whose average daily consumption was < 10 g alcohol (group B) using the Cox proportional hazard model. The model was adjusted for smoking and history of chronic pancreatitis. Data were collected from 1982 to 2004. **RESULTS:** The Cox proportional hazard model, adjusted for patients with chronic pancreatitis, showed that nonsmoking group A patients (n = 16, mean age 57.1, SE 1.95, 1 case with chronic pancreatitis) acquired pancreatic cancer at a younger age than group B patients (n = 68, mean age 62.6 years, SE 1.31, 2 cases with chronic pancreatitis, p < 0.05). Similarly, smoking group A patients (n = 58, mean age 56.7 years, SE 1.09, 4 cases with chronic pancreatitis) were younger than group B patients (mean age 59.6 years, SE 1.56, p < 0.05, 2 cases with chronic pancreatitis). **CONCLUSION:** Greater quantities of alcohol may be a risk for pancreatic cancer even prior to induction of clinically apparent chronic pancreatitis. **12 COMPARATIVE EPIDEMIOLOGICAL-PATHOHISTOLOGICAL STUDIES ON PANCREATIC CANCER**

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**INTRODUCTION AND AIM:** Several factors have been proposed as etiological factors of pancreatic cancer, including tobacco, diet, environmental pollution and obesity. It is also estimated that around 4% of the disease is genetic. There is, however, no information about a relationship between the causative factors and the histological type of the tumors. It is presently unclear whether the same histological and biological type of cancer develops in obese people or in persons with familial pancreatic cancer. The prevalence of ductal type of adenocarcinoma in more than 90% of pancreatic cancer cases casts doubts about a relationship between the causative agents and tumor type. The rarely occurring cancers, on the other hand, could be more promising for the establishment of such a relationship as shown for certain rare types of tumor. **PATIENTS AND METHODS:** A prospective epidemiological study was performed in 230 cases. Of these, the histological tumor tissue from 80 cases collected from the local hospitals were found suitable for the study. Comparison was made between the histological classification of tumors and available epidemiological data. **RESULTS:** Morphologically, 55 of 80 classifiable tumors were ductal adenocarcinomas, 9 cystadenocarcinomas, 3 anaplastic. The remaining 13 tumors were of uncommon type (5 microglandular, 4 small cell, 3 adenosquamous cell and 1 squamous cell carcinomas). Correlation of these 13 tumors with the epidemiological data showed a statistically high incidence of microglandular adenocarcinomas that occurred in four cases, all four were middle-aged black obese women; three of these four cases had family history of cancer and two had history of exposure to agricultural toxins. There also seemed to be an association between adenosquamous cell carcinoma, race, gender, obesity and exposure to toxins, similar to the situation with the microglandular carcinoma cases. All cases with small cell (anaplastic) carcinomas occurred in smokers and mostly in men (3 of 4). **CONCLUSION:** The presented data may be the first message that such correlative studies could be useful when done on a broader spectrum of investigation. Multidisciplinary work employing cohort and genetic epidemiology, bioinformatics, pathomorphological and molecular biological information could shed more light on this dark area of our knowledge. **13 QUALITY OF LIFE (QOL) IN PATIENTS AFTER PANCREATODUODENECTOMY FOR DUCTAL ADENOCARCINOMA OF THE Pancreatic HEAD**

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INTRODUCTION AND AIM: QoL was evaluated in patients who underwent pancreaticoduodenectomy (PD) for ductal adenocarcinoma of the pancreatic head. Special attention was given to the influence of extended lymphadenectomy and classic Whipple procedure (PD) versus pylorus-preserving pancreaticoduodenectomy (PPPD). PATIENTS AND METHODS: From 1993 to 03/2004 QoL was analyzed in a prospective single-center study in 91 of 169 patients, who underwent resection of the pancreatic head for ductal adenocarcinoma. All patients received either classic PD (n = 34) or comparable PPPD (n = 57). Most patients had additional extended lymphadenectomy (ELA; n = 70), remaining patients underwent regional lymphadenectomy (RLA; n = 21). QoL was assessed by the EORTC QLQ-C30 supplemented by a disease specific module. Data were collected preoperatively, before discharge, 3, 6, 12, and 24 months after surgery. The statistical analysis was performed using Cox regression. RESULTS: No significant difference was found concerning long-term survival between the PD and the PPPD group as well as between the ELA and the RLA group. General QoL significantly decreased after surgery and only slowly recovered to almost preoperative level within the period of 24 months. This applied for most QoL scales. Compared to the RLA group, patients with ELA reported clinically significantly higher levels of diarrhea, pain and poorer global health. Compared parameters of QoL between PD and PPPD showed disadvantages particularly concerning pain scales in the PPPD. However, the PPPD group included a significantly higher proportion of ELA patients. CONCLUSION: Comparison of surgical techniques of reconstruction did not demonstrate significant differences in terms of general QoL, but an extension of lymphadenectomy seemed to impair the patients’ QoL.

14 SURGICAL TREATMENT OF PANCREATIC METASTASES OF RENAL CELL CARCINOMA

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INTRODUCTION AND AIM: The pancreas is an unusual site for metastases of renal cell carcinoma (RCC), sometimes occurring many years after nephrectomy. We present herein two cases of pancreatic metastases of renal cell carcinoma, 17 and 19 years after the primary diagnosis. PATIENTS AND METHODS: In the first case, metastases were encountered in the head of the pancreas, right upper arm and right lobe of the thyroid gland. In the second case, tumor was found in the tail of the pancreas and remnant of the right kidney. This was the third recurrence of the original tumor after an initial left nephrectomy and two subsequent partial right nephrectomies in the past. Treatment in the first case consisted of excision of the tumor in the right upper arm, Whipple operation, and thyroidectomy. In the second case, a distal pancreatectomy and rest right nephrectomy were undertaken. RESULTS: Both patients recovered from the operations without complications and remain free of tumor in follow-up periods of 54 and 8 months, respectively. CONCLUSION: Resection of RCC metastases involving the pancreas provides satisfactory long-term survival, and should be undertaken in selected cases.

15 HIGH MUC1 CONCENTRATION PREDICTS ADVERSE OUTCOME IN PATIENTS WITH PANCREATIC CANCER

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INTRODUCTION AND AIM: MUC1 is a polymorphic, highly glycosylated, type I transmembrane protein expressed by ductal epithelial cells of many organs including pancreas. MUC1 is overexpressed and differentially glycosylated by pancreatic ductal adenocarcinomas and there is evidence in vitro that it could contribute to invasive and metastatic potential by cell surface adhesion promoting migration and by dendritic cell function modulation. The aim of this study was to investigate the prognostic impact in vivo of MUC1 in patients with pancreatic cancer. PATIENTS AND METHODS: MUC1 concentrations were measured prospectively in 155 patients with histologically confirmed pancreatic cancer at the diagnosis. MUC1 concentrations were related to patient outcome by both univariate and multivariate analysis. RESULTS: Patients with high concentrations of MUC1 (H-MUC1: > 25 units/L; 31.6% of patients) had a significantly shorter overall survival pattern than those with low concentrations (L-MUC1) (median survival: 175 + 32 vs 350 + 44; p = 0.0017). As a prognostic factor, MUC1 was independent of tumor size, presence of metastasis, surgery treatment, and patient age. MUC1 was also predictive of outcome irrespective of the type of therapy administered, i.e. whether chemotherapy or radiotherapy was administered. In both groups being prognostic in the total population of patients, MUC1 also predicted outcome in different subgroups of patients, including those submitted to resective surgery node-negative and node-positive disease, high and low grading.

CONCLUSION: Assay of MUC1 is a relatively inexpensive, convenient, and noninvasive method for evaluating prognosis in newly diagnosed pancreatic cancer patients.

16 RE-RESECTIONS FOR TUMOROUS PANCREATIC LESIONS – A WORTHWHILE RISK IN SELECTED PATIENTS

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INTRODUCTION AND AIM: Re-resections for tumorous pancreatic lesions are controversial due to their putative high risk and doubtful prognosis. PATIENTS AND METHODS: Patients with re-resections for recurrent or secondary tumor after resection for a pancreatic neoplasia or chronic pancreatitis were selected from our pancreatic tumor database (1992–2004). RESULTS: 14 patients (8 male, 6 female, median age 59 years) underwent re-resections. There were 3 groups of patients: (A) 4 with malignant tumor at both operations (5 adenocarcinoma, 1 serous cystadenocarcinoma, 1 chronic pancreatitis with ductal dysplasia but CA19-9 > 3500 U/ml after first resection and recurrence within 9 months); (B) 5 with primary benign tumorous lesions and secondary malignant tumor (2 chronic pancreatitis, 1 mucinous cystadenoma with chronic pancreatitis, 1 islet cell adenoma with chronic pancreatitis, 1 islet cell adenoma with nodules, 1 borderline-IPMT); and (C) 2 with benign tumors at both resections (1 adenoma of Vater’s papilla, 1 IPMT-adenoma). Primary resections were: 5 (pp)Whipple’s, 4 duodenum-preserving pancreatic head, 3 left, 1 corpus resection, 1 ampullectomy. Re-resections were: 4 (pp)Whipple’s, 3 subtotal head/corpus, 1 left resection, 6 pancreactomies. Median operating time of re-resections, estimated intraoperative blood loss, stay in the intensive care unit and post-operative hospital stay were 350 min, 1000 ml, 6 and 18 days, respectively. Major complications were 1 intra-abdominal bleeding and 1 subphrenic abscess. Mortality was 0%. Median survival after first and second resection was: (A) 51 and 19 months and (B) 91 and 20 months, respectively. CONCLUSION: Re-resections for pancreatic tumorous lesions may be performed safely and with considerable survival in selected patients.

17 PATTERNS OF PRIMARY FAILURE FOLLOWING DUODENOPANCREATECTOMY FOR AMPULLARY AND PANCREATIC HEAD ADENOCARCINOMA

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INTRODUCTION AND AIM: Survival following duodenopancreatectomy is determined by the primary localization of the peri-ampullary carcinoma. The aim of the present study was to analyze the pattern of failure and clinicopathological factors influencing the disease-free survival after curative resection of ampullary and pancreatic head adenocarcinoma. PATIENTS AND METHODS: Between 1998 and 2001, 88 consecutive patients with ampullary (n = 30) and pancreatic head (n = 52) adenocarcinoma underwent duodenopancreatectomy with curative intent (R0). Multivariate analysis was performed using Cox proportional hazard technique in order to determine factors influencing the survival. RESULTS: The estimated 5-year overall survival (OS) and disease-free survival (DFS) rates were 31.8% and 35.4%, respectively, for all patients. DFS was significantly better after resection of ampullary as compared to pancreatic head carcinoma, i.e. 60.8% vs 16.4% (p = 0.0001), respectively. In patients with ampullary carcinoma, cancer recurrence was mainly in the pancreatic duct and determined by the number of lymph nodes metastases. The estimated 5-year overall survival (OS) and disease-free survival (DFS) rates were 31.8% and 35.4%, respectively, for all patients. DFS was significantly better after resection of ampullary as compared to pancreatic head carcinoma, i.e. 60.8% vs 16.4% (p = 0.0001), respectively. In patients with ampullary carcinoma, cancer recurrence was mainly in the pancreatic duct and determined by the number of lymph nodes metastases (p = 0.009) and lymph vessel invasion (p = 0.025). Maximum tumour diameter (p = 0.044) was found to be the only significant variable to predict cancer recurrence in patients with pancreatic head carcinoma. Cancer recurrence occurred in 12/36 (33%) and 40/52 (77%) patients after resection of ampullary and pancreatic head carcinoma, respectively. In both groups, local recurrence was more common than distant spread. In both groups, the most common site of first recurrence was intra-abdominal, 100% (12/12) in patients with ampullary cancer and 92.5% (36/40) in patients with pancreatic head adenocarcinoma. CONCLUSION: The most common site of primary recurrence after
curative surgery of ampullary and pancreatic head adenocarcinoma is intra-abdominal. Therefore, the search for new and effective loco-regional (neo-)adjuvant therapeutic modalities should further be stimulated.

18 PANCREATICOGASTROSTOMY, MORE THAN AN ALTERNATIVE!
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INTRODUCTION AND AIM: Management of the pancreatic stump following pancreaticoduodenectomy (PD) is still very much debated. Traditionally, the pancreatic stump is anastomosed to the jejunum. Recently, there has been an increased interest in pancreaticojejunostomy (PG), as it is thought it may be safer. However, pancreaticojejunostomy is still the most common method. Our aim was to assess the safety of PG in terms of major morbidity, mortality and relaparotomy rates. PATIENTS AND METHODS: Prospective data were collected on 48 consecutive patients who had pancreaticojejunostomy for the pancreatic stump as part of PD from January 2001 to April 2004 in a single institution. All PGs were made with a 3-cm pancreatic remnant being telescoped into the gastric lumen with stenting of the main pancreatic duct (Dunk method). We collected data on pre-operative clinical and pathological features, peri-operative parameters, morbidity, relaparotomy and mortality rates. The main outcome measures were major morbidity, mortality and relaparotomy rates. RESULTS: Of the 48 patients who received PG, there were 2 in-hospital deaths (4.2%). One was due to cerebrovascular accident and the other secondary to sepsis from a pancreatic leak. There were 7 patients with major morbidity (14.6%). Of these, 5 were anastomotic leaks, of which 4 were pancreatic and 1 was biliary. All these patients were treated successfully by CT-guided percutaneous drainage and antibiotics. There were 2 cases of significant gastric stasis proved on contrast imaging. One of 48 patients required relaparotomy (2.1%). CONCLUSION: PG is a safe procedure with low major morbidity, mortality and relaparotomy rates.

19 SINGLE LOOP VERSUS ISOLATED ROUX LOOP PANCREATICOJEJUNOSTOMY FOLLOWING PANCREATICODUODENECTOMY
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INTRODUCTION AND AIM: The aim of this study was to review the experience of single loop versus isolated Roux loop pancreaticojejunostomy in a series of patients undergoing pancreatic head resections. PATIENTS AND METHODS: A retrospective review involving 111 patients who underwent pancreatic head resections over a 13 year period (1990–2002) for malignant (n = 106) and benign (n = 5) disease was performed. Reconstruction of the pancreatic remnant was done using a single loop in 51 patients and by an isolated Roux loop in 60 patients. All pancreatic anastomoses were performed as a duct to mucosa anastomosis, in two layers, with pancreatic stent and closed suction drainage. Pancreatic fistula was defined as drainage of > 50 ml of amylase-rich fluid for > 7 days postoperatively. RESULTS: The two groups were comparable as regards their demographic profiles, preoperative laboratory values and disease status in terms of pathology, pancreatic texture and pancreatic duct diameters. The overall incidence of pancreatic anastomotic leak was 10.8% (12/111) and was similar in both the single loop (11.7%) and isolated Roux loop pancreaticojejunostomy (9.8%). Isolated Roux loop pancreaticojejunostomy was associated with a significant prolongation of operative time (7.25 ± 1.14 vs 6.7 ± 1.12 h) (p < 0.05) and the need for more blood transfusion (2.9 ± 0.8 vs 2.5 ± 0.69 units) (p < 0.05). There was no significant difference in the morbidity or mortality between the two groups. 45% (23) of patients had complications in the single loop group and 48% (29) of patients had complications in the isolated group. There were 4 (7.8%) deaths in the single loop group and 5 (8.3%) in the isolated group (p = 0.05). CONCLUSION: There does not appear to be a significant difference in the rates of pancreatic fistula following either method of reconstruction. However, performance of an isolated Roux loop pancreaticojejunostomy entails a prolongation of operative time and intraoperative requirement of blood.

20 CENTRAL PANCREATECTOMY: INDICATIONS, TECHNIQUE, EARLY AND LATE RESULTS
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INTRODUCTION AND AIM: Central pancreatectomy (CP) is an operation that allows resection of benign or low malignancy tumors located in the pancreatic isthmus that are not suitable for enucleation. The main advantage of this operation compared with major resections is that it permits sparing of normal pancreatic parenchyma. PATIENTS AND METHODS: The operation is carried out by exposure of pancreatic neck involved by the lesion and incision of the peritoneum along the superior and inferior margin of the part of the gland to be resected. Thereafter the gland is dissected from the splenic artery and porto-mesenteric axis and divided with a 1-cm clear margin. The cephalic stump is sutured and the distal stump is anastomosed end-to-end or end-to-side with a Roux-en-Y jejunal loop. We treated 20 patients with this technique. The indications for CP were: serous cystadenoma in 7, mucinous in 3, solid cystic papillary tumor in 1, metastasis from renal cancer in 1 and endocrine tumor in 8 patients. RESULTS: Mortality rate was 0% and morbidity rate was 35%; pancreatic fistula occurred in 25% of the cases and was treated conservatively. Mean postoperative hospital stay was 18 days. Postoperative endocrine and exocrine functional tests were normal in all controlled patients. All the patients are alive without clinical and imaging evidence of disease. CONCLUSION: CP is a safe technique for benign or low malignancy tumor of the pancreatic neck that allows cure of the tumor with evident functional results without increasing the risk for the patient.

21 CURATIVE RESECTION FOR LEFT-SIDED PANCREATIC MALIGNANCY
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INTRODUCTION AND AIM: Due to their late presentation, malignancies of the pancreatic body and tail generally have a worse prognosis than those of the head. Selection for surgery is difficult and often based on unreliables criteria. There is an increased interest in central pancreatectomy (CP) with the hope that improved diagnosis and staging may make this operation safe and feasible. Present study aims to assess the feasibility of CP for selected patients with malignancies of the pancreatic body and/or tail. PATIENTS AND METHODS: Patient charts were analysed for all resections of a malignant tumour of the body and tail of the pancreas from 1977 to 2003. RESULTS: Sonography was positive in 15/17 (88%) patients and CT scanning in 9/9 (100%). Preoperative cytology was positive in 10/20. 14 patients had distal pancreatic resection; 5 with resection of stomach, renal capsule, portal vein (2) and renal vein. Six patients had total pancreatectomy with three portal vein resections. Median operating time was 360 min, median blood loss 2500 ml and median tumour size 5 cm. Adenocarcinoma was present in 16, mucinous cystadenocarcinoma in 2, and endocrine cancer in 2 patients. Stage IA was present in one case, stage IB in three, stage IIA in two, stage IIB in seven and stage III in seven cases. R0 and R1 radicality was achieved in 17 and 3 cases, respectively. 60% of patients had postoperative complications such as wound infection (4/20), wound dehiscence (2/20), abscess (2/20), postoperative jaundice (1/20), intra-abdominal bleeding (1/20), and anastomotic bleeding (1/20). Medical complications were pneumonia (3/20), and pleural exudate (2/20). One patient died of sepsis with multiple organ failure. Median survival of all patients was 17 months (range 0–174; IQR 11–44). The subgroup with ductal adenocarcinoma had a median survival of 17 months (range 0–174; IQR 12–44), and 5-year survival was 15.6%. CONCLUSION: (1) Selected patients can be resected for cure, but resection of adjacent organs or vessels may be needed. (2) The postoperative mortality was 5%, i.e. similar to Whipples operation. (3) 60% of patients had postoperative complications. (4) Median survival was 17 months. The subgroup with ductal adenocarcinoma had a median survival of 17 months and 15.6% had a 5-year survival.

22 PANCREATIC CARCINOMA: EFFECTIVE DIAGNOSIS WITH DUAL-PHASE SPIRAL CT, DSA OR ERCP?
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INTRODUCTION AND AIM: To present the effectiveness, accuracy and sensitivity of dual-phase spiral CT, DSA and ERCP, for the preoperative staging of a pancreatic carcinoma and estimate its resectability. PATIENTS AND METHODS: In 63 patients with pancreatic tumors (staged resectable from the US) we proceeded with: dual-phase spiral CT, ERCP, and DSA preoperatively. The surgery and histopathology of the tumor established the diagnosis. RESULTS: 51 patients (80.64%) had malignant tumor and the rest 12 (19.36%) had benign tumor. The distinction between malignant and benign tumors was: sensitivity of CT 88% and of ERCP 81%. The histopathological diagnosis was confirmed in 43 patients from (combining extrahepatic tumor invasion and vessel infiltration) was accuracy of CT for the arterial infiltration was 85% and of the DSA 80%. The infiltration of veins was demonstrated with CT in 64% and with DSA in 54% of the patients. The accuracy of DSA was 81% and of CT 56%. The accuracy of CT for local non-resectability (combining extrapancreatic tumor invasion and vessel infiltration) was 90%. CONCLUSION: Dual-phase spiral CT is a safe, noninvasive, and accurate technique for detecting and staging of pancreatic carcinoma. Angiography should no longer be a routine diagnostic procedure.

23 KAUTSCH-WHipple VERSUS PYLORUS-PRESERVING DUODENOPANCREATECTOMY IN THE TREATMENT OF malignant pancreatic HEAD CANCER – A PROSPECTIVE CONTROLLED RANDOMIZED TRIAL AND EXTENDED RANDOMIZED TRIAL.

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INTRODUCTION AND AIM: The last decades’ positive results of pancreaticoduodenectomy in the management of pancreatic and periampullary carcinoma have supported a rebirth of the Kautsch-Whipple procedure. By the introduction of preservation of the gastric antrum and pylorus by Traverso the operating risk has been reduced and the technique simplified. In many retrospective studies it could be demonstrated that both techniques yield the same results. However, it is still controversial, if the Traverso operation is oncologically equal to the Kautsch-Whipple procedure; moreover, none of these controversial questions have been addressed in a prospective controlled random trial. Thus, our group started such a trial >20 years ago and was able to follow up all surviving patients over this period. PATIENTS AND METHODS: From 121 patients referred to the Department of Medicine and Surgery of the Heinz Kalk-Hospital Bad Kissingen from 1 January 1984 to 1 January 1994, 40 patients were selected after having been investigated and declared as resectable. Full written consent was obtained before the operation; the study was carried out in accordance with the Helsinki declaration. 23 patients were randomly allocated to the Kautsch-Whipple procedure (group I) and 17 to the Traverso operation (group II) using the sealed-envelope method. Postoperatively all surviving patients were followed up after 6 months and thereafter every year by endoscopic, radiological and functional exocrine and endocrine investigations up to 20 years. RESULTS: One patient in group I died of pancreatic fistula during the first 30 postoperative days; the hospital mortality in group II was nil. Long-term survival according to Kaplan-Mayer after 10 years was 13% in group I and 20% in group II. After 20 years the survival in group I was stable at 20%, whereas in group I it was 6% which is a significant difference. In addition, digestive and exocrine functions were better restored in group II. CONCLUSION: Thus it could be shown in the first worldwide prospective randomized trial that there is no oncologic difference between Kautsch-Whipple and Traverso operation in the treatment of pancreatic head cancer. Moreover the latter procedure guarantees better nutritional and exocrine recovery and is technically easier to perform. Last not but not least on a long-term basis this operation makes a significantly longer survival possible.

24 PROGNOSTIC RELEVANCE OF CYTOKERATIN 20-ASSOCIATED TUMOR CELL DETECTION IN PANCREATIC AND PERIAMPULLARY CANCER

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INTRODUCTION AND AIM: The objective of the present prospective study was to evaluate the prognostic relevance of disseminated tumor cells detected by cytokeratin (CK) 20 RT-PCR in bone marrow (BM) and venous blood (VB) of patients with pancreatic and periampullary cancer. PATIENTS AND METHODS: Oncologic pancreatic resection was performed in patients with adenocarcinoma of the pancreatic head and of the body of Vater (n = 13), (male:female 35 : 23; age 39 + 11 [31–83] years) from 05/2000 to 10/2003. Mononuclear cells were isolated from BM and VB samples followed by RNA extraction, RT-PCR for histonic RNA as quality control BM samples and CK20-specific RT-PCR. Tumor stages were defined according to UICC (2002), survival analysis was performed according to Kaplan-Meier. RESULTS: Tumor stages were distributed as follows: IA, n = 2; IB, n = 2; IIA, n = 6; IIB, n = 15; III, n = 17; IV, n = 16. Expression of CK20 was detected in 23 of 47 (49%) BM samples. 1-year survival was 20% (median 10 months) in patients with CK20 expression in BM and 33% (median 12 months) in patients without (p > 0.05). CK20 expression was detected in 40 (69%) VB samples with a 1-year survival of 30% (median 12 months), while in patients without survival was 24% (median 11 months) (p > 0.05). CONCLUSION: More than two-thirds of patients investigated have systemic dissemination of tumor cells at the time of diagnosis. However, in the first postoperative year this is without significance for survival. As most patients had higher tumor stages, dissemination of tumor cells could be an epiphenomenon of cancer with advanced stage. However, due to the unknown biological significance of tumor cell dissemination further studies are required to elucidate this subject further.

25 CURATIVE OPERATIONS IN PATIENTS WITH MALIGNANT AMPULLARY TUMORS

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INTRODUCTION AND AIM: The problem of proper treatment of patients with ampullary malignancies is still a challenge for surgeons. Curative resection is the only effective procedure in the treatment of patients with this disease. PATIENTS AND METHODS: In the period 1992–2003, 139 patients with malignant ampullary tumors were treated in our clinic. There were 80 male patients and 59 female. Mean age was 57.7 years (range 25–87). All patients underwent surgical treatment. 79 patients underwent curative surgical resections, including 35 pancreaticoduodenal resections (PDR): 24 Whipple procedures and 11 pylorus-preserving (PPDR); 44 local resections (LR): 27 papillectomy and 17 extended papillectomy. Resectability rate was 56.8%. We performed 11 PPDR, including 2 PPDR with duodenal reconstruction after our technique: we performed PPDR with the preservation of the distal part of duodenum; the reconstruction includes step-by-step formation of pancreatico-jejunal, hepatico-jejunal, proximal and distal duodeno-jejunal anastomoses with the isolated jejunal loop. RESULTS: 1 patient after died PDR. The postoperative mortality in PDR group was 38.5% in the extended papillectomy group and 52.2% in the papillectomy group. CONCLUSION: Local resections as more physiological procedures are indicated in patients with localized tumors. PPDR with duodenal reconstruction could be indicated in patients with malignant ampullary tumors, the advantages are connected with preservation of the function of duodenojejunal connection.

26 PYLORUS PRESERVATION DOES NOT CONTRIBUTE TO DELAYED GASTRIC EMPTYING FOLLOWING PANCREATICO-DUODENECTOMY

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INTRODUCTION AND AIM: DGE has been specifically attributed to pylorus preservation. As PPPD has been shown to be comparable to the classical Kausch-Whipple pancreaticoduodenectomy (KWPD) in terms of oncological radicality. In this study we aimed to advance to be the leading argument for hemigastrectomy in PPPD. PATIENTS AND METHODS: A prospective non-randomized comparison of patients undergoing PPPD (n = 113), KWPD (n = 19) and duodenum-preserving, pancreatic head resection (DPPHR, n = 18) was performed. First, groups were analyzed with regard to structural similarity; then, they were compared with regard to differences on DGE and other postoperative complications. Finally, further prognostic factors were sought that had an impact on DGE. RESULTS: The PPPD group was comparable to the KWPD group,
but not to the DPPHR population. The in-clinic course following DPPHR compared favorably to PPPD as well as KWPD and here no DGE occurred. The overall morbidity rates of PPPD and KWPD were comparable (moderate and severe complications in 15% versus 20%, respectively; mild in 5%, respectively, n.s.); one patient died in hospital (mortality rate 0.7%). DGE was distributed evenly among PPPD (12%) and KWPD patients (21%, n.s.) and it was noted almost exclusively when other postoperative complications were present ($p < 0.0001$). No further prognostic factors influencing DGE could be identified. CONCLUSION: Pylorus preservation does not increase the frequency of DGE. DGE almost exclusively occurs as a consequence of other postoperative complications. Therefore, DGE should not be used as an argument to advocate hemigastrectomy in PPPD.

27 THE MANAGEMENT OF CANCER METASTASIZING TO THE PANCREAS
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INTRODUCTION AND AIM: Patients presenting with a mass in the pancreas are rarely found to have isolated metastases from a non-pancreatic primary. The aim of this study was to identify the incidence of such lesions and review management. PATIENTS AND METHODS: Between 01/04/96 and 01/01/2003 at the Ottawa Hospital a tertiary care centre associated with University of Ottawa, 388 patients presenting with a localized pancreatic mass (head 314, body 30, tail 44) causing obstructive jaundice or other abdominal complaints were identified. Chart review was conducted to detect instances where the pancreatic mass was found to be a cancer from a non-pancreatic primary. Patients presenting with pancreatic masses as part of a spectrum of widely metastatic disease were excluded from the study. RESULTS: 5 cases of isolated metastatic cancer to the pancreas were identified; 3 renal cell cancers, 1 breast cancer, and 1 carcinoid tumour. 3 tumours were located in the head of the pancreas, 1 in the body and 1 in the tail. One patient had two lesions, one in the head and the other in the tail. One renal cell cancer, the breast cancer and carcinoid tumour were resected for cure. All patients are alive at 54, 66, and 84 months, respectively. One renal cell cancer had invasion of the portal vein and received palliative radiation treatment only. Another renal cell cancer had significant comorbidities and was judged unfit for surgery. The pathological diagnosis was made following surgery in the resected cases, as it is not our practice to perform pre-operative biopsy in radiologically resectable pancreatic lesions. No postoperative adjunct treatment was given. CONCLUSION: Our results show that such lesions are rare but should be suspected in patients with a history of previous malignancy. If operable, long-term survival may be obtained. An isolated metastasis to the pancreas from a carcinoid tumour has not been reported previously.

28 THREE INDEPENDENT FACTORS INFLUENCE SURVIVAL AFTER CURATIVE RESECTION FOR PANCREATIC ADENOCARCINOMA
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INTRODUCTION AND AIM: To evaluate long-term survival of patients surgically treated for pancreatic adenocarcinoma and to determine independent factors influencing survival. PATIENTS AND METHODS: Data were prospectively collected from consecutive series of patients resected for pancreatic adenocarcinoma at Kaunas University of Medicine Hospital during the period 1999–2004. 110 patients underwent radical resection and postoperative chemoradiotherapy according to the protocol. Overall survival probabilities were calculated using the Kaplan-Meier method. All factors likely to be predictive of survival after pancreatic resection were evaluated by univariate analysis. Multivariate analysis using Cox model was completed for all factors with $p < 0.05$ at univariate analysis. RESULTS: Median survival of the patients was 11.2 months. Sex of the patient, preoperative bilirubin levels, intra-operative blood loss, overall postoperative morbidity, pancreas-related complications and differentiation grade of the tumor did not influence survival. Univariate analysis revealed that main factors influencing survival were age of the patient, stage of the disease, and tumor invasion into resection surface of pancreas, whereas multivariate analysis highlighted the T stage, number of metastatic lymph nodes and age of the patient at the cut-off level of 70 years as independent factors influencing survival probability. CONCLUSION: Survival probability after curative resection for pancreatic adenocarcinoma was decreased significantly for patients older than 70 years, having higher T stage, and more metastatic lymph nodes.

29 MANAGEMENT OF INFLAMMATORY PANCREATIC MASSES MIMICKING PANCREATIC CARCINOMA: OUR EXPERIENCE
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INTRODUCTION AND AIM: Pancreatic head cancer represents a frequent abdominal tumour. However, some cases of benign inflammatory masses mimicking pancreatic carcinoma have been reported in the literature. We describe four patients undergoing surgery for preoperative diagnosis of pancreatic head cancer, with a histology of inflammatory pseudo-tumour, underlining the need for an aggressive surgical approach. PATIENTS AND METHODS: Four patients were admitted for pancreatic head mass. All were male, aged 37–40 years (mean 38.7). Three of four patients had a previous history of alcohol abuse. Abdominal CT showed a large mass in the head of the pancreas defined as ‘malignant neoplasm’. Three patients underwent Whipple procedure, while in a fourth patient a ‘palliative’ left hepatic lobectomy was performed (1/11/2003) at the time of surgery. RESULTS: All patients survived surgery, with prompt return to normal bowel function. Those undergoing Whipple procedure developed temporary postoperative pancreatic fistula. This resolved spontaneously from 30 to 90 postoperative day. The patient with left hepatic lobectomy alone developed a deep wound infection and post-operatively, both specimens giving negative results. Histology in patients undergoing Whipple procedure was ‘chronic pancreatitis’ in two cases and pancreatic pseudo-tumour in the third patient. CONCLUSION: Cases of benign masses in the head of pancreas mimicking pancreatic carcinoma have often been reported in recent literature. Preoperative radiological diagnosis has proved unreliable in our series, as well as in other reported cases. As chronic pancreatitis is considered an additional risk factor for pancreatic cancer, an aggressive surgical attitude in cases of preoperative diagnostic dilemma seems justified.

30 CYSTIC TUMORS OF THE PANCREAS – RADICAL OR ORGAN-PRESERVING RESECTION?
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INTRODUCTION AND AIM: Cystic tumors comprise only 1% of all pancreatic tumors. The type of surgical management is presently under discussion. PATIENTS AND METHODS: Between 1986 and 2004 we treated 101 patients with cystic tumors of the pancreas. We report the largest European series of a single surgical institution. Data were documented prospectively and patients’ evaluation was performed retrospectively. 67% of patients were treated by radical oncological resection and 32% had an organ-preserving operative procedure. RESULTS: Hospital mortality was 0%. We observed tumor recurrence in mucinous entities in 9% after radical and in 13% after organ-preserving resection (n.s.). Postoperative ‘new’ diabetes mellitus was 41% significantly higher after radical resections than after organ-preserving resection (24%, $p < 0.01$). Patients with mucinous cystadenocarcinoma had a median survival of 90 months. Patients undergoing Whipple procedure was 70 years, having higher T stage, and more metastatic lymph nodes. CONCLUSION: In serous cystic lesions and solid pseudopapillary tumors we recommend organ-preserving resection. All mucinous cystic tumors are of malignant or borderline nature and should be treated as such by radical resection.

31 PREOPERATIVE STAGING OF PANCREATIC CARCINOMA: IS DUAL-PHASE SPIRAL CT ADEQUATE FOR THE CONFIRMATION OF ITS RESECTABILITY?
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INTRODUCTION AND AIM: To present the value of dual-phase spiral CT for the confirmation of resectability and preoperative staging of pancreatic carcinoma. PATIENTS AND METHODS: In
a period of 4 years 184 patients with pancreatic carcinoma underwent dual-phase spiral CT for preoperative staging. CT scans after IV administration of contrast material with an electronic injector were obtained at the arterial (scan delay = 20 s) and at the venous phase (scan delay = 50 s) under a protocol with total volume = 150 ml, flow rate = 5 ml/s. We correlated the CT findings with surgical-pathologicalanatomic findings. RESULTS: Dual-phase spiral CT was positive for pancreatic carcinoma at 178 patients (97.6%). In 5 patients results were false-negative (3.3%). 44 (78.4%) of 55 patients results were false-positive (3.3%). 150 ml, flow rate 5 ml/s. We correlated the CT findings with surgical-pathologicalanatomic findings. RESULTS: Dual-phase spiral CT was positive for pancreatic carcinoma at 178 patients (97.6%). In 5 patients results were false-negative (3.3%). 44 (78.4%) of 55 patients results were false-positive (3.3%).

32 PROGNOSTIC VALUE OF P27/KIP1 EXPRESSION IN ADENOCARCINOMA OF THE PANCREATIC HEAD REGION
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INTRODUCTION AND AIM: p27kip1 (p27) is a tumour suppressor gene, functioning as cyclin-dependent kinase inhibitor, and independent prognostic factor in breast, colon, and prostate adenocarcinomas. Conflicting data are reported for adenocarcinoma of the pancreas. The aim of the study was to establish the prognostic value of p27 expression in adenocarcinoma of the pancreatic head region.

METHODS AND STUDY: The study included 45 patients (male/female ratio = 2:1; mean age 59, range 38–82 years) with adenocarcinomas of the pancreatic head region: 27 pancreatic head, 13 ampullary, and 5 distal common bile duct. All patients underwent Kausch-Whipple pancreatoduodenectomy (n = 39), pylorus-preserving pancreatoduodenectomy (n = 5), or nearly total pancreatectomy (n = 1). Eight patients received adjuvant chemotherapy postoperatively. Follow-up time was 3–60 months. Tumours were staged according to the pTNM classification (UICC 1997).

Immunohistochemistry was done on paraffin-embedded blocks from tumour sections. Quantitative determination of p27 expression was based on the proportion of p27-positive cells (<10% = negative). Pearson test, survival analysis using the Kaplan-Meier method and the log-rank test were used. RESULTS: Positive p27 expression was detected in 21 tumours (47.7%), whereas 24 tumours (53.3%) were p27-negative. There were no significant correlations between p27 index and stage, lymph node involvement, or completeness of tumour removal (R0 vs R1/R2). Median survival time in patients with p27-positive tumours was 25 months, whereas in patients with p27-negative tumours it was 30 months (p = 0.7). Even when analysis was stratified according to ampullary and non-ampullary carcinoma, the survival comparison of patients with p27-positive and -negative tumours did not reveal significant differences. CONCLUSION: p27kip1 expression has no prognostic value in patients following resection for adenocarcinoma of the pancreatic head region.

33 FAST-TRACK MANAGEMENT OF PATIENTS UNDERGOING PROXIMAL PANCREATIC RESECTION
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INTRODUCTION AND AIM: Fast-track surgical treatment, with resection before biliary drainage, of jaundiced patients with proximal pancreatic/peripanillary malignancy could reduce the number of biliary drainage procedures and their attendant complications. We evaluated this approach in patients treated over a 6-month period. PATIENTS AND METHODS: Between 09-04, 15 patients were treated, based on their presenting bilirubin levels and other logistical factors, jaundiced patients who might be fast-track candidates were identified. Data on complications and hospital stay were compared with those patients in whom a conventional pathway (with biliary drainage) was used during the same time period. Data were also collected on treatment refusal among the preceding 6 months (1-10-03 to 30-9-04). RESULTS: Six patients were fast-tracked and 12 patients were treated in the conventional pathway. Fast-track patients median (range) serum bilirubin level (micromol/l) was 310 (162–391) at time of the operation. Median (range) of time from referral to operation, 14 days (6–33) vs 42 (26–126), was significantly shorter in fast-track patients vs conventional patients. Length of hospital stay at 18 days (11–28), surgical complications and mortality in fast-track patients were similar to those for conventional patients. Prior to surgery the 12 conventional patients underwent a total of 25 biliary drainage procedures resulting in 3 major complications. Comparison with the group of patients from the previous time period indicated that the conventional group were not disadvantaged. CONCLUSION: Fast-track management of patients with distal biliary strictures is safe and gives clear benefit in terms of reducing the waiting time to surgery and the number of biliary drainage procedures per patient.

34 PHASE III TRIAL CAPRI (ADJUVANT CHEMORADIOIMMUNOTHERAPY OF PANCREATIC ADENOCARCINOMA) VERSUS 5-FU ALONE
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INTRODUCTION AND AIM: Carcinoma of the exocrine pancreas has an especially poor prognosis. The 5-year survival for all stages is <1% with a median survival of 4–6 months. Even after surgical intervention with a curative intention the 2-year survival is only 25%.

PATIENTS AND METHODS: We initiated this summer a phase III trial where we compare chemoradioimmunotherapy (CapRI) with 5-FU plus folinic acid, i.e. the best arm of the first large European randomised ESPAC-1 trial. Primary objective is to compare the overall survival in both arms. Secondary objective is to evaluate the role and the mechanism of interferon alpha 2b in patients’ chemoradiation regimen, to assess the toxicity, the disease-free interval, the quality of life and to test different factors for their potential role as predictive markers. A total of 110 patients with R0 or R1 resected pancreatic adenocarcinoma will be enrolled. Recruiting phase should be finished after 1 1/2 years. With a follow-up of 2 years a total running-time of approx. 3 1/2 years should be expected. RESULTS: The chemoradioimmunotherapy protocol is based on results from a phase III trial from the Virginia Mason Clinic. They have recently published data of postoperative cisplatin, 5-fluorouracil, interferon alpha-2b, and external-beam radiation administered following pancreactoduodenectomy. They have treated 43 patients with mainly stage III tumours. 84% had positive lymph nodes and 19% had positive cut margins. After a mean follow-up of 31.9 months, 67% of the patients were still alive. Actuarial overall survival for the 1-, 2-, and 5-year survival rates were 95%, 64%, and 55%, respectively.

35 CURRENT MANAGEMENT OF PANCREATIC CANCER: HOW EFFECTIVE IS IT?
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INTRODUCTION AND AIM: Effective treatment of pancreatic cancer is dependent on correct and early diagnosis and staging. The aim of our multicentric study was to determine whether or not the diagnostic process is rational, uniform, and if correct diagnosis and staging are reflected in effective treatment. PATIENTS AND METHODS: We retrospectively analyzed initial symptoms, length of the diagnostic process, use of imaging methods and their algorithm, and the use of individual therapeutic methods in four centers specializing in hepatopancreatico-biliary surgery. RESULTS: The most frequent first symptom was dyspepsia in 35 patients followed by pain in 33 and jaundice in 24. Radical resection was performed in 24 patients, exploratory laparotomy in 14, palliative surgery in 35 and chemotherapy in 14. Mean time from the onset of the first symptoms to presentation (time I) was 32 ± 28 days. Mean time of the diagnostic process to specific treatment (time II) was 3.1 ± 3.2 months (1–24 months). Mean time I in patients presenting with dyspepsia was 44.1 ± 25.7 days, in patients presenting with jaundice or pain 30.0 ± 27.8, and in those who underwent resection 3.7 ± 4.4, 2.8 ± 2.2, and 2.1 ± 1.5 months, respectively. Ultrasound was the most frequently used imaging method (160 cases) followed by CT (116), ERCP (103), endosonography (30), and MR (7). The mean
number of diagnostic procedures per patient was 4.3±1.6. Fine needle biopsy was performed in 16 patients. The most frequent algorithm of imaging methods was ultrasound followed by ERCP and CT. CONCLUSION: The process of establishing the diagnosis of pancreatic cancer is not uniform and the imaging methods are used abundantly. The decision-making process undertaken preoperatively is not sufficient, as reflected by the inadequately high rate of explorations in cases when radical resection could not be performed. Despite the immediate availability of all imaging modalities, the process of diagnosis in pancreatic cancer is long depending on the first symptoms, which can influence resectability. In resected patients, the process of diagnosis was significantly shorter.

36 _A CASE OF OSTEOCLAST-LIKE GIANT CELL TUMOR WITH DUCTAL ADENOCARCINOMA OF PANCREAS – FOCUSING ON HISTOPATHOLOGICAL, IMMUNOHISTOCHEMICAL, ULTRASTRUCTURAL AND MOLECULAR BIOLOGICAL STUDIES_

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INTRODUCTION AND AIM: Osteoclast-like giant cell tumor of pancreas (OGTP) is a very rare neoplasm and its clinical behavior and histogenesis are still controversial. Recently we experienced a case of OGTP with ductal adenocarcinoma resected surgically, so herein we report the case with the results of histopathological, immunohistochemical (IHC), ultrastructural and molecular biological studies.

PATIENTS AND METHODS: The patient was a 63-year-old woman who underwent operation for resection of pancreatic tumor. The performed operation procedure was en bloc excision of mass with distal pancreatectomy and splenectomy, left adrenalectomy, partial resection of gastric upper body, tumor thrombectomy in splenic vein. We examined the resected tumor by microscopic examination, IHC study, electron microscopy (EM), and molecular biological studies of K-ras gene analysis.

RESULTS: In microscopic findings, the tumor is composed of typical ductal adenocarcinoma and surrounding mononuclear cells (MNC) mingled with osteoclast-like giant cells (OGC) and pleomorphic large cells. In the IHC study, ductal adenocarcinoma cells are positive for cytokeratin and EMA, and OGC are strongly positive for CD68. MNC are positive for CD68 and lysozyme, and pleomorphic large cells are negative for vimentin. In EM findings, prominent nucleioli with dispersed clumps of heterochromatin and the cytoplasm containing amyl mitochondria, moderate amount of rough ER without evidence of epithelial differentiation were observed in MNC. In OGC, multiple nuclei with dispersed chromatin and fine chromatin rim, and cytoplasm characterized by abundant mitochondria with variable size, free ribosome, dilated empty rough ER. In analysis of K-ras gene mutation, there was no mutation at codon 12–13 in ductal adenocarcinoma cells, MNC and OGC.

CONCLUSION: We report a case of OGTP with ductal adenocarcinoma focusing on histopathological, IHC, ultrastructural and molecular biological studies. In the present case, OGC and MNC were different in origin from ductal cells and suggested to be non-neoplastic and mesenchymal in origin.

37 _EARLY AND LATE OUTCOME AFTER PANCREATICO-DUODENECTOMY FOR CANCER IN THE ELDERLY_

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INTRODUCTION AND AIM: Radical surgery is the only valid treatment for pancreatic cancer and for periampullary tumors. Before the early 1990s pancreaticoduodenectomy was not recommended in patients over 70 years because of associated high mortality and morbidity. Currently, increased experience, advances in perioperative care and better patient selection have reduced the mortality and morbidity rates after pancreaticoduodenectomy. Therefore pancreaticoduodenectomy has been performed in patients over 70 and even 75 years with acceptable results. The aim of this study was to determine whether there is any threshold of patients’ age over which pancreaticoduodenectomy would be deleterious.

PATIENTS AND METHODS: From June 1995 to October 2003, 70 elderly patients (range 70–84 years) underwent pancreaticoduodenectomy for cancer. 38 patients were younger than 75 years (group A) and 32 (group B) were older. Postoperative morbidity, mortality, length of hospital stay, overall and disease-free survival were analyzed.

RESULTS: Patients from both groups had similar characteristics and were identically managed. There were no statistical differences in pathological studies of progressive obstructive jaundice, high total bilirubin and albumin levels <3 mg/dl. PATIENTS AND METHODS: In the period January 2003 to October 2004, 46 patients with periampullary tumor were studied retrospectively. The diagnosis was established by transabdominal ultrasonography and CT. In 27 men (59%) and 19 women (41%) the mean age was 58.9 years old (28–86 years). RESULTS: Among these patients, 54% had a pancreatic ductal carcinoma. Procedures were performed in all patients, of which 17 (37%) were duodenopancreatectomies. The mortality rate in the group undergoing Whipple procedure was 35% (6 patients), and the mortality rate for all patients was 37% (16 patients). The average length of hospital stay was 30.7 days (6–112 days). Variables analyzed in this study included sex, age, procedure performed, histopathology, mortality, reoperation and survival.

CONCLUSION: In recent years, surgery has been considered the gold standard of therapy because new technologies are able to reduce morbidity and mortality. In very advanced neoplasia, palliative surgical care permits better survival and quality of life.

38 _A RETROSPECTIVE STUDY OF MALIGNANT TUMOR OF THE PANCREAS AND PERIAMPULLARY AREA_


INTRODUCTION AND AIM: Mostly, patients with periampullary cancers are diagnosed at a stage in which curative resection is not possible. The aim of this study was to present our experience, diagnostic possibilities and treatment of periampullary tumors, especially tumors in advanced stage at the time of the diagnostic – patients presenting with >30 days of progressive obstructive jaundice, high total bilirubin and albumin levels <3 mg/dl.

PATIENTS AND METHODS: In the period January 2003 to October 2004, 46 patients with periampullary tumor were studied retrospectively. The diagnosis was established by transabdominal ultrasonography and CT. In 27 men (59%) and 19 women (41%) the mean age was 58.9 years old (28–86 years). RESULTS: Among these patients, 54% had a pancreatic ductal carcinoma. Procedures were performed in all patients, of which 17 (37%) were duodenopancreatectomies. The mortality rate in the group undergoing Whipple procedure was 35% (6 patients), and the mortality rate for all patients was 37% (16 patients). The average length of hospital stay was 30.7 days (6–112 days). Variables analyzed in this study included sex, age, procedure performed, histopathology, mortality, reoperation and survival.

CONCLUSION: In recent years, surgery has been considered the gold standard of therapy because new technologies are able to reduce morbidity and mortality. In very advanced neoplasia, palliative surgical care permits better survival and quality of life.

39 _PROGNOSTIC FACTORS FOR SURVIVAL AFTER PANCREATICO-DUODENECTOMY FOR AMPULLARY CARCINOMA PERFORMED WITH OR WITHOUT EXTENDED RETROPERITONEAL Lymphadenectomy_

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INTRODUCTION AND AIM: Lymph nodes and tumor characteristics were considered the most important prognostic factors for survival after curative resection for ampullary carcinoma (AC). The aim of the study was to determine whether performing a PD with extended retroperitoneal lymphadenectomy (ERL) improves survival in patients with AC. PATIENTS AND METHODS: Between July 1994 and November 2002, 24 patients underwent curative PD with standard or ERL for AC in our institution. Surgical outcome, long-term and disease-free survival of patients undergoing a standard lymphadenectomy (n = 10; group A) or ERL (n = 14; group B) were compared. RESULTS: Patients and tumor characteristics were similar. Postoperative mortality and overall morbidity did not differ between groups A and B. The median follow-up was 25 months. The 5-year overall survival rates were 40.7% in group A and 36.7% in group B. Univariate analysis showed that tumor size >35 mm (p = 0.004), number of metastatic lymph nodes (>3; p = 0.001) and ratio of positive lymph nodes/total nodes resected (>0.3; p = 0.001) significantly after overall and disease-free survival. 5-year survival for patients with small AC and <3 positive lymph nodes was 50.6%, while no 3-year survival was recorded for patients with >3 positive lymph nodes or AC >35 mm (p = 0.001). CONCLUSION: Lymph node status significantly influences survival. PD with ERL seemed to be justified to allow a better staging of the disease.
40 PALLIATIVE PROCEDURES FOR PANCREATIC CANCER
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INTRODUCTION AND AIM: The only chance of prolonged survival of patients with pancreatic cancer is radical tumour resection, but pancreatic cancer proves to be resectable in only about 10–20%. Efforts to improve the patient quality of life lead to palliative procedures. PATIENTS AND METHODS: We have performed 162 surgical procedures for pancreatic cancer from May 1998 to October 2004. 73 of them were palliative: in 63 patients biliodiagnostic anastomosis (38 males and 25 females with median of age 66 years) and in 10 palliative resections (5 males and 5 females with median of age 57 years). RESULTS: Palliative bypass: 57 biliodiagnostic anastomosis and 20 gastroenteroanastomosis were performed. 20 patients developed early complications: wound infection 7, cardiac complication 3, pulmonary infection 3, intra-abdominal abscess 2, biliary leak 1, acute pancreatitis 1, others 10. Three patients died in the early postoperative course from heart failure and cancer progression. Palliative resection: 8 patients underwent proximal duodenopancreatectomy and 2 left pancreatectomy. 5 patients developed early complications: intra-abdominal abscess in two patients pancreatic leak, acute postoperative pancreatitis and bronchopleural fistula in one case. Two patients died in the early postoperative course from acute pancreatitis and pancreatic leak. 12 (resp. 24, 30) months survival rate in the palliative resection group compared to the bypass procedures was 30%; 21%, 30%; 10% and 15%: 8% respectively (p < 0.05). There were no significant differences in survival rate between the two groups using Kaplan-Meier analysis. CONCLUSION: We have found the statistically significant difference in survival between the radical and palliative groups. There were no significant differences in patient survival between two groups for palliative resection and biliodiagnostic bypass.

41 OBSTRUCTIVE JAUNDICE IN VON RECKLINGHAUSEN DISEASE – COINCIDENCE OR CORRELATION?
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INTRODUCTION AND AIM: The occurrence of a triad of von Recklinghausen disease (VRD), peripapillary neoplasm and intestinal neurofibromas in the same patient is uncommon. The aim of this paper is to report such a case, review and analyze literature behind this rare association and to establish a positive causal link between these three conditions. PATIENTS AND METHODS: This is a case report and review of literature, from a university based teaching hospital in India. RESULTS: The patient is a 36-year-old female who complained of lumbar pain and episodic mild abdominal pain, with a history of cholecystectomy 10 years ago, cystic changes of right breast, mitral valve prolapse and iron deficiency anaemia. The tumour mass detected by ultrasound, MRI, CT. The diagnosis was confirmed after all the appropriate histological tests. CONCLUSION: The tumour mass was thought to be a rare case of von Recklinghausen disease with multiple neurofibromas in the same patient. The preoperative diagnosis was uncertain and distal pancreatectomy with preservation of the spleen was performed. The patient remains free of symptoms. In the immunohistochemical tests the neoplastic cells were positive for vimentin, neuron-specific enolase, chymotrypsin, a 1-antitrypsin, CD-10, CD-56, with expression of progesterone receptors and mild positivity to chromogranin, CD-10-9, cytokeratins 18 and AE1/AE3. CONCLUSION: SPN has good prognosis and radical resection, where technically feasible, should be considered the therapy of choice as it provides safe and effective control of the disease.

42 SYNCHRONOUS DOUBLE CANCERS OF THE STOMACH AND PANCREAS: REPORT OF A CASE

INTRODUCTION AND AIM: Multiple primary cancers generally fall into two categories: (1) synchronous, in which the cancers occur at the same time; and (2) metachronous, in which the cancers follow in sequence. Unfortunately, detection of second or later primaries often relies on the degree of post treatment surveillance, influencing the prognosis and altering consequences. This study describes a case of double cancers in which cancer of pancreas was associated with carcinoma of the stomach. PATIENTS AND METHODS: We present here the case of a 72-year-old man who developed synchronous double cancers of pancreas and stomach. The patient was referred to our hospital in January 2004, with a provisional diagnosis of pancreatic tumor. Abdominal CT scan revealed a mass in pancreatic head, and upper digestive endoscopy did not reveal any alteration. A laparotomy was performed and gastroduodenopancreatectomy was carried out. RESULTS: The patient was subsequently diagnosed as having double carcinoma of the stomach and pancreas. The histologic sections showed a moderately differentiated adenocarcinoma from the pancreatic head, whereas those from the stomach showed a poor differentiated signet ring cell adenocarcinoma infiltrating until submucosa. CONCLUSION: Pancreatic carcinoma carries a poor prognosis, especially invasive carcinoma of the stomach. Double carcinoma in this association is rare and prognosis depends on the pancreatic carcinoma.

43 SOLID PSEUDOPAPILLARY NEOPLASM OF THE PANCREAS
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INTRODUCTION AND AIM: Solid pseudopapillary neoplasm (SPN) is a rare tumor of the pancreas that frequently occurs in young females. SPN is a low grade malignant tumor that may evolve years before symptoms start. The pathogenesis of the tumor remains unclear and there are no adequate reports to evaluate the management and the long-term control of the neoplasm. However, radical resection should be considered the therapy of choice. PATIENTS AND METHODS: We describe a new case of SPN which occurred in a 36-year-old female who complained of lumbar pain and episodic mild abdominal pain, with a history of cholecystectomy 10 years ago, cystic changes of right breast, mitral valve prolapse and iron deficiency anaemia. The tumour mass detected by ultrasound, MRI, CT. The diagnosis was confirmed after all the appropriate histological tests. RESULTS: The tumor was localized at the neck of the pancreas. The preoperative diagnosis was uncertain and distal pancreatectomy with preservation of the spleen was performed. The patient remains free of symptoms. In the immunohistochemical tests the neoplastic cells were positive for vimentin, neuron-specific enolase, chymotrypsin, a 1-antitrypsin, CD-10, CD-56, with expression of progesterone receptors and mild positivity to chromogranin, CD-10-9, cytokeratins 18 and AE1/AE3. CONCLUSION: SPN has good prognosis and radical resection, where technically feasible, should be considered the therapy of choice as it provides safe and effective control of the disease.

44 COMPLICATIONS FOLLOWING PANCREATICO-BILIARY SURGERY – AN AUDIT
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INTRODUCTION AND AIM: An audit of the existing practices in the surgical management of pancreatico-biliary disorders in a surgical unit was undertaken to identify the various complications and the procedure-related morbidity and mortality. PATIENTS AND METHODS: We describe a prospective analysis of 258 consecutive cases operated for benign and malignant pancreatico-biliary disorders over a 5.5-year period between February 1999 and August 2004 was carried out. Each of the postoperative complications were carefully enlisted and analysed. RESULTS: The various surgeries were grouped under four broad categories, i.e. surgery for benign CBD pathologies (n = 87), surgery for benign pancreatic pathologies (n = 41) as well as Whipple’s pancreaticoduodenectomy’s (n = 98) and other biliary procedures for malignancy (n = 32). Procedure-related morbidity in the four groups was 18%, 15%, 41% and 31%, respectively, while the 30-day mortality was 0, 1%, 7% and 3%, respectively. CONCLUSION: Audit of the current surgical practices highlighted deficiencies at some levels compared with evidence-based guidelines, although the results are not unexpected in the Indian context in the setting of a public hospital. It remains to be seen whether new measures to aid compliance with protocols will result in improvement in morbidity and mortality.
**45 FAST-TRACK PANCREATIC SURGERY**

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**INTRODUCTION AND AIM:** Surgery of the pancreas is a major abdominal procedure leading to a number of pathophysiologic alterations during the early postoperative period. Novel approaches to perioperative care including shortened preoperative starving periods, preoperative glucose load, sophisticated pain management and early enteral feeding have resulted in major improvements of surgical results after major colorectal surgery. These alterations of perioperative care have been introduced to visceral surgery as so-called fast-track surgery or multimodal rehabilitation. So far it is not known whether or not these approaches can also be applied in pancreatic cancer surgery. **PATIENTS AND METHODS:** To study this, a prospective non-randomized clinical study was launched investigating the potential beneficial effects of fast-track perioperative care on clinical outcome parameters (complication rates, re-operation rates, time to demission) as well as physiological alterations (glucose tolerance) and immune function (lymphocyte subpopulations, circulating interleukins) during the perioperative period of patients undergoing elective pancreatic cancer surgery. Patients recruited for this prospective study receive clear carbohydrate-rich fluid until 2 h before surgery. Bowel preparation is reduced to one administration of a laxative and pain treatment consists of thoracic epidural analgesia in combination with COX-II inhibitors. Intraoperative fluid administration is restricted to 500 ml of colloids and 500 ml of electrolytes. Oral food intake starts on the day of surgery with clear fluids and is increased to a small amount of solid food on day 3 after surgery. Complete enteral nutrition is initiated on day 5 after surgery, following opaque medium examination of the upper gastrointestinal tract. Demission from hospital is planned on day 10 after surgery. **RESULTS:** This prospective clinical study aims to introduce a novel and successful perioperative care regimen into the surgical treatment of pancreatic cancer. Major goal is the improvement of postoperative rehabilitation, including glucose tolerance, mobilization and immune function. **CONCLUSION:** The feasibility of fast-track pancreatic surgery as well as clinical and immunological results of the recently launched study will be presented.

**46 NO EVIDENCE OF HELICOBACTER SPECIES IN PERIAMPELLARY TUMORS BY LIGHT MICROSCOPY**

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**INTRODUCTION AND AIM:** Epidemiologic studies and investigations on tumor tissues with polymerase chain reaction assays implicate Helicobacter species as a risk factor for pancreatic and biliary carcinomas. However, in contrast with gastric carcinomas, the presence of bacteria in these tumors has not been confirmed by direct methods. A light microscopic study was performed to investigate the possible presence of Helicobacter species in periamillary tumors. **PATIENTS AND METHODS:** The charts and surgical specimens of 25 patients who underwent pancreateoduodenectomy (10 pancreatic head carcinomas, 9 distal common bile duct carcinomas, 4 ampulla vateri tumors and 2 duodenal carcinomas) between December 2002 and May 2004 were evaluated retrospectively. The presence of Helicobacter species in tumor tissues was investigated by light microscopy after hematoxylin-eosin, modified Giemsa, and immunohistochemical staining. **RESULTS:** Helicobacter species were not detected in any of the tumors by the three methods. **CONCLUSION:** The results of this study do not support a local role of Helicobacter species in the development of periamillary tumors.

**47 Pancreaticoduodenectomy: Case Review and Description of Safe Surgical Technique**

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**INTRODUCTION AND AIM:** This survey was carried out by the first surgical clinic of the Hospital Geral de Bonfim, which is the largest public hospital in the city of Salvador. The purpose of this study was to analyze the indications for pancreaticoduodenectomy, and describe the surgical technique employed and its complications. **PATIENTS AND METHODS:** Retrospective analysis including 18 patients submitted to pancreaticoduodenectomy in the timespan from January 2003 to October 2004. The surgical technique employed was gastro-pancreatico-duodenectomy. **RESULTS:** The pancreatic-enteric anastomosis was performed in an end-to-side fashion with two layers: the first one binds the pancreatic duct to the enteric muscosa, and the second one binds the enteric wall to the pancreatic capsule. A cathether was inserted into the pancreatic duct and its other tip was externalized through the abdominal wall. The biliary-enteric anastomosis was made in an end-to-side fashion with placing of a T-tube through it. This drain was also externalized through the abdominal wall, by a Witzel procedure. The most common etiology was pancreatic head neoplasia. Pyloric preservation was performed in 3 patients. There were 7 deaths, which were associated with cardio-vascular complications. There was one biliary fistula with benign behavior. **CONCLUSION:** Our survey shows patients whose general state was compromised by peripancreatic neoplasia, under-nourishment, anemia and several comorbidities. Nevertheless, the surgical technique employed proved to be safe, bringing down the complication rate in critical patients.

**48 THE LEUKOTRIENE RECEPTOR BLT2: A KEY PLAYER IN PANCREATIC CARCINOGENESIS AND A SPECIFIC MARKER FOR PANCREATIC INTRAEPITHELIAL NEOPLASIC LESIONS (PANINS)?**

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**INTRODUCTION AND AIM:** Pancreatic cancer has an abysmal prognosis. Targets for early detection, prevention, and therapy are desperately needed. As the 5-lipoxygenase pathway is important for pancreatic cancer development, we examined the expression of the receptors (BLT1R and BLT2R) for its downstream metabolite, leukotriene B4. **PATIENTS AND METHODS:** Receptor expression was examined in pancreatic cancer cell lines (real-time RT-PCR and Western blot) and tissues (immunocytochemistry). S2-013 cells were stably transfected with BLT1R, BLT2R or empty vector to study the impact on proliferation. **RESULTS:** BLT1R and BLT2 receptors were expressed (mRNA and protein level) in all pancreatic cancer cell lines. BLT1R were expressed in cancer cells from 10/10 human pancreatic cancers, and islets from these tissues, 7/7 tissues from the resection margins, and 8/9 chronic pancreatitis (CP). No BLT1R staining was seen in PanIN lesions or in 10 pancreatic tissues from multi-organ donors. In contrast, BLT2R were markedly up-regulated in PanINs (7/10 cancer tissues and 1 CP tissue with a PanIN 1b) but not in PanIN 1a lesions or normal ductal cells (9 CP tissues did not stain for BLT2R). Infiltrating tumor cells were strongly positive for BLT2R in cancers and lymph node metastases. Overexpression of BLT1R significantly increased cell proliferation, while overexpression of BLT2R significantly inhibited growth. **CONCLUSION:** Leukotriene B4 receptors (BLT1R and BLT2R) are overexpressed in human pancreatic cancer. However, BLT2 receptors are already up-regulated in PanINs and their over-expression in tumor cells inhibits growth. BLT2 receptors are an early specific marker and a possible new target for chemoprevention or therapy of pancreatic cancer.

**49 INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS (IPMNs): MANAGEMENT OF THE PANCREATIC MARGIN AND RECURRENCE. THE UNIVERSITY OF VERONA EXPERIENCE**

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**INTRODUCTION AND AIM:** IPMNs originate from the pancreatic duct epithelium and can potentially involve the entire main duct. Histology may range from mild dysplasia to invasive carcinoma. The aim of this study is to determine local recurrences after resection and to correlate them with the histology. **PATIENTS AND METHODS:** We analysed histology, pancreatic margins, and
reurrence rates of 127 patients (70 male, 57 female, mean age 63, range 34–83) affected by IPMN who underwent surgical resection in our institution from 1990 to June 2004. RESULTS: 27 patients (21.3%) had adenoma, 37 (29.1%) borderline tumours, 13 (10.2%) in situ carcinoma and 50 patients (39.4%) had invasive carcinoma. 14 patients underwent total pancreatectomy while 113 underwent partial pancreatectomy; in this group resection margins were negative in 73 patients (64.6%), positive for adenoma in 15 (13.3%), positive for borderline in 16 (14.2%), positive for carcinoma in 1 case (0.9%) and with epithelial denudation in 8 cases (7%). Local recurrence was observed in 7 cases (6.2%), after a mean time of 51.4 months (range 34–83). After the first resection 5 patients had IPMCH and 1 IPMC, in the resection margins moderate dysplasia (n=4) and epithelial denudation (n=2) were present; the seventh had an IPMA with negative resection margin. In the latter case progression was observed, actually he showed IPMCH after the second operation.

CONCLUSION: Local recurrence even with a ‘positive’ resection margin appears to be more related to the final histology than the pancreatic margin. Because of the long-term disease progression we need to follow the patients up for a longer time.

50 PEPTIDE RECEPTOR RADIONUCLIDE THERAPY IN ENDOCRINE TUMORS OF THE PANCREAS

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INTRODUCTION AND AIM: Endocrine pancreatic tumors are known to have somatostatin receptors (SS-Rs), especially subtype SST2 and SST5. Octreotide has a high affinity for SST2 and radio-labeled somatostatin analogues can be used in an octreoscan to diagnose endocrine tumors. The aim of the present study was to assess if radioabeled 177Lu-DOTA0-Tyr3 Octreotate, can also be used in a higher dose as peptide receptor targeted radiotherapy.

PATIENTS AND METHODS: A single-center prospective study including patients with metastatic or locally advanced endocrine pancreatic tumors was performed. Exclusion criteria were little uptake at the octreoscan, Hb < 6 mmol/L, WBC < 2*109/L, platelets < 80*109/L, creatinine clearance < 40 ml/min or a Karnofsky score < 50. Patients received a cumulative dosage of 750–800 mCi through 177Lu-DOTA0-Tyr3 Octreotate. Toxicity of the therapy was evaluated. Follow-up was performed with routine blood tests, chromogranin-A levels and CT or MRI. The tumor response was measured with CT or MRI using Southwest Oncology Group (SWOG) solid tumor response criteria.

RESULTS: A total of 42 patients with neuroendocrine pancreatic tumors was included. Two patients died before receiving their final dose. Toxicity was low, with vomiting in 14%, mild nausea in 30%, hair loss in 45% of the patients and stable haematoct and kidney function. The tumor response after 3 months occurred in 7%, partial response in 47%, stable disease in 31% and disease progression in 14% of the 42 patients. There was a strong correlation between SS-R expression and response to therapy. Chromogranin-A levels showed a clear decrease in patients with a complete or partial response.

CONCLUSION: This study showed promising results for radionuclide therapy with 177Lu-DOTA0-Tyr3 Octreotate in patients with neuroendocrine pancreatic tumors. Further studies are needed to elucidate the somatostatin receptors and further tailor the receptor radionuclide therapy.

51 HANDLING OF PANCREATICODUODENECTOMY SPECIMENS INFLUENCES REPORTING OF PROGNOSTICALLY RELEVANT FINDINGS

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INTRODUCTION AND AIM: Histopathological examination of pancreaticoduodenectomy specimens (PDEs) resected for adenocarcinoma is difficult given their complex anatomy and extensive circumferential resection margin (CRM). While the tumour origin (pancreas, common bile duct (CBD) or ampulla), and the CRM status have prognostic significance, there is no standardized protocol (SP) for the examination of these specimens. PATIENTS AND METHODS: Histopathology data of a spring according to an SP for dissection, photodocumentation, CRM staining and tissue sampling (SP, n=54) were compared to those of a stage-matched series in which an SP had not been used (non-SP, n=48).

RESULTS: The proportion of pancreatic, ampullary and CBD cancers diagnosed in both series differed significantly (SP: 48%, 28%, 24% vs non-SP: 75%, 17%, 8%). In the SP series the R1 rate (tumour < 1 mm to RM) was high (9% vs 46% in non-SP) and showed a significant difference between pancreatic (85%), ampullary (27%) and CBD (42%) cancers. Extensive sampling of the CRM in the SP series (8 vs 4 blocks/case in non-SP series) revealed frequent involvement of the retroperitoneal and lateral CRM and rare positivity of the transection margin (46%, 30%, 4%). Lymph node yield (16 vs 11/case) and rate of vascular invasion (69% vs 35%) were higher in the SP series. There was no significant difference in the survival of patients in the non-SP series (R0 vs R1) while in the SP series there was a significant difference (R0 vs R1) (log rank test, p=0.001). CONCLUSION: The handling of PDEs influences the detection of prognostically important findings and standardization is needed to allow consistent reporting, as this does have implications in terms of survival.

52 USEFULNESS OF 18-FDG PET IN THE FOLLOW-UP AFTER RESECTION OF PANCREATIC AND PERIAMPULLARY CARCINOMAS

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INTRODUCTION AND AIM: Detection of recurrence after resection of pancreatic and periampullary malignancies is often difficult, and recurrent disease, when detected, is usually incurable. In this study we tried to determine the role of 18-FDG PET in detecting recurrences. PATIENTS AND METHODS: From January 1998 to December 2003, 42 patients (18 males and 24 females, mean age 62.7 years, range 37–84) underwent FDG PET after resection of pancreatic (n=29) or periampullary cancers (n=13). All patients underwent US, helical CT, chest X-ray and serum tumour markers assay (CEA and CA 19-9). Mean follow-up was 29.3 months, range 6–76. RESULTS: 28 patients showed tumour recurrence; 21 (73%) had high serum CA 19-9 levels. Sensitivity of FDG PET and CT scan in detecting tumour relapse was 91% (27/29) and 57% (16/28), respectively. Nine of 12 patients with FDG PET-positive/CT scan-negative recurrent tumours were asymptomatic: 5 patients underwent resection (3 paraortic lymph-nodes, 2 liver metastasis), 5 chemotherapy, 1 radiotherapy, and 1 supportive therapy. A second primary tumour was detected by FDG PET and resected in three patients (1 lung and 2 colon carcinomas). A wedge hepatic resection was performed for a CT scan-positive, FDG PET-negative lesion. 11 patients showed no recurrence: FDG PET was negative in all patients, while one patient had transient elevation of CA 19-9 levels and 3 had equivocal CT or US findings. FDG PET altered the clinical management in 8/31 (26%) patients.

CONCLUSION: FDG PET is very sensitive in detecting recurrent periampullary carcinomas, allowing changes in the management in one quarter of the patients.

53 RISK-ADJUSTED PREDICTION OF OPERATIVE MORBIDITY IN PATIENTS UNDERGOING PANCREATEODUODENECTOMY WITH THE USE OF POSSUM

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INTRODUCTION AND AIM: Comparison of operative morbidity rates after pancreateoduodenectomy between units may be misleading because it does not account for the physiological variation of the condition of the patient. The aim of the study was to evaluate the applicability of the Physiological and Operative Severity Score for the enUrination of Mortality and Morbidity (POSSUM) for patients that undergo pancreateoduodenectomy and to look for specific risk factors associated with morbidity in a high volume center. PATIENTS AND METHODS: Between January 1993 and December 2003, 511 patients underwent a pancreateoduodenectomy of which 423 (83%) for malignant disease. POSSUM was calculated according to the generally accepted criteria. The performance of POSSUM was evaluated by assessing the ‘goodness-of-fit’ using the exponential analysis method using observed to predicted morbidity (O : P) ratio.
Secondly, predictive factors of interest with morbidity were analyzed using univariate and multivariate analysis. RESULTS: Overall, 285 of 511 patients (51%) had one or more complication after pancreatoduodenectomy and 7 patients (1.4%) died. The O:P ratio for POSSUM was 1.09. In multivariate analysis, four statistically significant factors associated with an increased morbidity (*p* < 0.05) were identified: hypertension (OR = 1.86, 95% CI: 1.10–3.14), advanced age > 76 years (4th quartile) (OR = 1.73, 95% CI: 1.01–2.95), male gender (OR = 1.56, 95% CI: 1.05–2.94) and ampulla of Vater adenocarcinoma (OR = 1.66, 95% CI: 1.01–2.75).

CONCLUSION: Overall, POSSUM performed well and may serve as a useful comparative audit tool for patients who undergo pancreatoduodenectomy. A dedicated PAN-POSSUM model can be made by adjusting for tumor pathology as this was the only factor which was not incorporated in POSSUM.

**54 PANCREATIC RESECTIONS AFTER PRIMARY CHEMO-RADIO THERAPY FOR LOCALLY ADVANCED ADENOCARCINOMA**

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INTRODUCTION AND AIM: We analysed pancreatic resections performed in the setting of a phase II study designed to evaluate primary chemoradiation in patients with locally advanced cancer. PATIENTS AND METHODS: From 1/1999 to 6/2003, 25 patients received GEM (100 mg/m² twice-weekly for the first 15 cases and 50 mg/m² in the remaining) concurrently with RT (45 Gy; 1.8 Gy/d). All patients had biopsy-proven disease and were restaged by CT scan 45 days after the end of treatment. Patients showing PR or SD with normalisation of CA19.9 were surgically explored. RESULTS: Eight patients (5 PR and 3 SD with normalisation of CA19.9) were explored. Surgery: 4 duodenopancreatectomies and 4 total pancreatectomies; 2 vein resections. Mean operative time was 1 h 11 longer than pancreatic resections consecutively performed in the same period for 40 localized ductal carcinomas (6.6 h ± 0.5 vs 5.6 h ± 0.9, *p* = 0.02). One patient died 2 months after surgery following a biliary leak. Morbidity: 1 pancreatic fistula and 1 delayed gastric emptying. Pathologic findings: microscopic cancer foci in 2 cases; pT3N0 in 4; pT3N1 in 2. Median and 24-months survival were 21% and 31% for resected cases vs 11% and 0% for non-resected, respectively. In the group of 40 patients with localized cancer these figures were 18% and 35%. CONCLUSION: Pancreatic resection after combined treatment is feasible but more technically demanding. Both CT scan and serum CA19-9 were useful in the selection of patients to be surgically explored. Patient undergoing a pancreatic resection experienced a longer survival than non-resected and comparable to patients resected for localized cancer.

**55 THE VALUE OF FROZEN SECTION PANCREATIC BIOPSIES**

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INTRODUCTION AND AIM: Patients with potentially resectable pancreatic masses, without evidence of metastatic disease, require surgical exploration. We assessed the reliability of frozen section diagnosis of pancreatic malignancy. PATIENTS AND METHODS: We analysed data from 120 patients, with a mean age of 61.6 years, who underwent pancreatic exploration, including frozen section assessment, over a period of 41 months. RESULTS: A total of 310 pancreatic biopsies were sent for frozen section analysis. There was 98.1% concurrence with histology on formalin-fixed tissue. The false negative rate was 1.9%, with the correct diagnosis being established on subsequent frozen section in half of these cases. The majority of tumours were pancreatic cancers and their biopsy was diagnostic in 96% of cases, whereas they were less frequent in carcinoma of the ampulla and pancreatic adenocarcinoma (36%). CONCLUSION: Frozen section biopsy is 98.1% accurate in establishing the correct diagnosis of pancreatic masses. More than one biopsy is needed to make a diagnosis, and if clinically suspicious, successive sets of biopsies may be required.

**56 SIGNIFICANCE OF ISOLATED TUMOR CELLS IN LYMPH NODES AMONG PANCREATIC CANCER PATIENTS**

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INTRODUCTION AND AIM: To determine the frequency and prognostic impact of isolated tumor cells (ITC) in regional lymph nodes judged to be tumor-free in conventional histopathology among pancreatic cancer patients. PATIENTS AND METHODS: Among 115 patients who underwent pancreatic resection for malignoma, 48 were staged pN0 (42%). Archival paraffin blocks of 271 resected regional lymph nodes of 41 pN0 patients were re-evaluated for ITC using monoclonal antibody Ber-Ep4 (7 patients without archival lymph nodes). Patients with and without ITC were compared with regard to the distribution of various clinicopathological factors. Prognostic impact of ITC was tested in univariate and multivariate analysis. RESULTS: Of 41 pN0 patients, 16 (39%) exhibited single Ber-Ep4 immunoreactive cells or small cell clusters in at least one lymph node (pN0(1+)). The occurrence of ITC was not dependent on other clinicopathological factors, except for the tumor type: in distant bile duct carcinoma, ITC were encountered in each case (100%), whereas they were less frequent in carcinoma of the ampulla (33%) and pancreatic adenocarcinoma (36%). ITC impaired patients’ prognoses significantly in univariate as well as multivariate analyses (estimated 5-year survival rate: 53% for pN0(1-) vs 10% for pN0(1+) and 9% for pN1/2, *p* = 0.0047). CONCLUSION: ITC are a frequent event in apparently tumor-free lymph nodes of pancreatic cancer patients and overlooked by conventional histopathology. They are encountered even in early stages of disease and impair patients’ prognoses, which is then comparable to true lymph node metastasis. It remains to be further resolved whether those patients may benefit from adjuvant therapy.

**57 RELEVANCE OF COLOR DOPPLER ECHOSONOGRAPHY FINDINGS IN ASSESSMENT OF PANCREATIC CARCINOMA RESECTABILITY**

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INTRODUCTION AND AIM: It is highly desirable to achieve the most accurate diagnostic information possible with more noninvasive technology. By defining tumor involvement of blood vessels color Doppler sonography has been increasingly reported as an effective screening tool for clinical staging and treatment decisions in patients with pancreatic neoplasms. Our study aims to analyze sensitivity and specificity of data gathered by different diagnostic techniques in screening tool for clinical staging and treatment decisions in patients with pancreatic neoplasms. Our study aims to analyze sensitivity and specificity of data gathered by different diagnostic techniques in patients with pancreatic neoplasm.

There were 18 male and 9 female patients, aged 41–80 years (mean age 58.5). Of the 27 patients, 11 patients underwent a radical surgical procedure, while the rest had palliative operation. Tumor invasion of blood vessels was critical in the decision-making process for the type of surgical treatment. Comparison of color Doppler sonograms and operative findings show that sensitivity of color Doppler sonography for detection of vascular involvement was 80.8% (42/52), whereas its specificity was 83% (112/135), sensitivity of angiography was 70.4% (38/54), and its specificity was 83% (112/135), while sensitivity of endosonography was 90.7% (49/54), and its specificity 85.9% (122/142). CONCLUSION: In comparison to other methods for prediction of pancreatic, neoplasm resectability color Doppler sonography shows a satisfactory rate of sensitivity and specificity. As color Doppler sonography is a noninvasive and inexpensive technique, and considering results of our study and other similar studies, it appears that color Doppler sonography should be used as the initial method for detection of vascular invasion in preoperative assessment of patients with pancreatic neoplasm.
INTRODUCTION AND AIM: Mesenteric-portal vein (MPV) involvement has been traditionally considered a contraindication for resection of ductal adenocarcinoma of the pancreas (DAP). However, vein involvement cannot be ruled out until transection of pancreatic neck and actual prognostic implication of surgically infiltrated MPV has not been defined completely yet. The aim was to analyse the prognostic implications of MPV infiltration in DAP and the postoperative and long-term results of pancreatectomies associated with MPV resections.

PATIENTS AND METHODS: From November 1987 to May 2004, 128 pancreatectomies associated with vascular resection were performed at our institution. Overall there were 94 vein resections (73.4%) including 77 done for DAP. The mean age of the patients was 64.9 years (range 37–84). 39 patients were male (50.6%) and 35 female (49.4%). 48 patients (62.3%) underwent pancreaticoduodenectomy, 23 (29.9%) total pancreatoduodenectomy and 6 (7.8%) subtotal distal pancreatectomy. RESULTS: Vascular infiltration was histologically confirmed in 42 cases (54.5%). Postoperative morbidity and mortality rates were 37.6% (29/77) and 2.5% (2/77), respectively. 1-, 3- and 5-year survival rates for the patients who underwent pancreatectomies associated with MPV resection were 55%, 18.7% and 10.2%, respectively. 1-, 3- and 5-year survival rates of patients with histologically confirmed vascular infiltration were significantly higher as compared with patients with confirmed vascular infiltration (72.1%, 30.1% and 20.1% vs 47.7%, 5.6% and 5.6%; p = 0.025). CONCLUSION: MPV resection neither increases the risk of pancreatic tumors, nor reduces long-term survival as compared to standard pancreatectomies. Interestingly, lack of histologic proof of tumor involvement is associated with statistically relevant survival benefit.

59 UNIFIED ENDOSCOPIC AND LAPAROSCOPIC ULTRASOUND IN THE EVALUATION OF RESECTABILITY IN PANCREATIC CANCER

INTRODUCTION AND AIM: An accurate pretherapeutic assessment of the resectability in pancreatic cancer patients is essential in order to reduce the number of futile surgical explorations. The aim of this study was to assess the combination of endoscopic ultrasound (EUS) and laparoscopic ultrasound (LUS) in the detection of patients with non-resectable tumors.

PATIENTS AND METHODS: From 2002 to 2004, 166 consecutive patients with pancreatic cancer referred for surgical treatment were included. 28 (17%) patients were excluded due to co-morbidity and poor performance status. Patients were first examined with EUS followed by LUS, if EUS found no vascular infiltration, were significantly higher as compared with patients with confirmed vascular infiltration (72.1%, 30.1% and 20.1% vs 47.7%, 5.6% and 5.6%; p = 0.025). CONCLUSION: MPV resection neither increases the risk of pancreatic tumors, nor reduces long-term survival as compared to standard pancreatectomies. Interestingly, lack of histologic proof of tumor involvement is associated with statistically relevant survival benefit.

60 RADIOFREQUENCY ABLATION (RFA) IN Pancreatic Cancer

INTRODUCTION AND AIM: RFA is effective in the treatment of unresectable hepatic tumors and promising results also have been described in tumors of kidney, lung, brain, prostate and breast. The radiofrequency (RF) destruction of solid pancreatic tumors sounds logical but also seems risky due to the friable pancreatic parenchyma, the fear of pancreatitis and the prejudiced myth that the pancreas is not your friend.

PATIENTS AND METHODS: We present our initial experience and describe our technique during intraoperative RFA in 3 patients with locally advanced and unresectable pancreatic adenocarcinoma (head of pancreas 2, body-tail 1, median d: 7 cm). In all, the RFA was followed by bypass palliative procedures (duodenostomy and duodenal anastomosis and/or gastro-jejunostomy). Drainage tube was left close to the ablated area. Serum amylase and fluid amylase (drain) was measured for 5–7 days postoperatively. Sandostatin was also administered prophylactically for 5 days. RESULTS: In all the patients the postoperative period was uneventful without complications or evidence of pancreatitis. The post RFA CT scan showed in all remarkable changes in the density and the characteristics of the tumors (destruction). The patients are alive (8 months, 2 months, 3 weeks postoperatively). In one patient (Ca of the body of pancreas) who was on morphine because of intolerable pain a significant pain relief has been observed. CONCLUSION: From our initial results, RFA seems to be a feasible, potentially safe and promising option in patients with locally advanced and unresectable pancreatic cancer. Nevertheless, larger series of cases are needed to secure our encouraging results.

61 DELAYED VISCERAL ARTERIAL BLEEDING AFTER Pancreatic HEAD RESSECTION

INTRODUCTION AND AIM: Despite low mortality complications are frequent after pancreatic head resection. The occurrence of delayed visceral arterial bleeding (DVAB) from branches of the celiac trunk or the gastroduodenal artery is rare but life-threatening and under-reported in the literature.

PATIENTS AND METHODS: Since 1994, 464 pancreatic head resections were performed. DVAB was defined as bleeding from branches of the celiac axis. We treated 12 patients with DVAB. Three of those were referred for bleeding.

RESULTS: The frequency of DVAB was 1.9%. DVAB occurred a median of 24 days after surgery. Presentation was gastrointestinal (n = 7) or abdominal bleeding (n = 5). Median transfusions were 12.5 units. Bleeding sites were the common hepatic (n = 5), gastroduodenal (n = 5), splenic (n = 1) or gastroduodenal artery (n = 1). Angiography was performed in 10 patients and controlled bleeding in 6. One patient died during angiography. In three patients bleeding control was not possible, they underwent surgery. Surgical control was obtained in 5 patients by ligation of the common hepatic artery (2), gastroduodenal artery (2) and splenic artery (1). Of the patients, 11 patients all 6 with maintained hepatic artery blood flow had an uneventful further course. After hepatic artery occlusion 4/5 patients had complications (3 liver abscess, one bile leak). One of the patients with liver abscesses died 4 months later. CONCLUSION: DVAB bleeding is a severe complication after pancreatic head resection. In the most frequently encountered lesions of the common hepatic artery or the gastroduodenal artery stump bleeding control should optimally be achieved by angiographic stenting, as the preservation of hepatic blood flow prevents further severe complications.

62 PERIAMPULLARY TUMORS: EXPERIENCE WITH 945 CASES

INTRODUCTION AND AIM: The aim of this work is to evaluate the outcome of different modalities of treatment of patients with periampullary tumors, surgeons and irradiation (Whipple’s resection, palliative bypass (surgical or endoscopic). PATIENTS AND METHODS: In the period from 1995 to 2001, 945 patients were included in this study. Mean age was 58 ± 11 years with no statistical significant difference between different groups. Male to female ratio was 1.64:1. Larger mass mean size was detected in irresectable tumors (51 ± 18 mm compared to 37 ± 16 mm in patients who underwent surgical resection. RESULTS: Surgical resection could be achieved in 216 cases (22.9%), in 182 (84.7%) the reconstruction was by pancreaticogastrostomy and in 33 (15.3%) by...
pancreaticojejunostomy. A comparative study between the 2 modalities of reconstruction proved the superiority of pancreaticogastrostomy. Surgical palliative bypass was done in 100 cases (10.6%), in 88 cases by choledochojejunostomy Roux-en-Y, in the other 12 cases cholecystojejunostomy was performed. The latter procedure is not recommended any more. In the remaining 629 advanced cases endoscopic stenting was done as permanent drainage. The net results show that although endoscopic stent had the shortest hospital stay (2.5 ± 5.8 days), it needs several readmissions ranging from 1 to 5 times, while hospital stay after surgical resection and surgical bypass was 11.7 ± 8.6 and 5.9 ± 3, respectively.

CONCLUSION: Surgery gives the best long-term result, endoscopic stenting is reserved for palliation in poor risk patients.

63 PERIPHERAL INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS: WHERE ARE WE GOING?

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INTRODUCTION AND AIM: Some authors showed that ‘branch-duct’ intraductal papillary mucinous neoplasms (IPMNs) may have a less aggressive biological behaviour, suggesting limited resection or, at least, a conservative surgical treatment. The aim was to analyse our decision making in the branch-duct IPMNs. PATIENTS AND METHODS: All patients with a diagnosis of peripheral IPMN observed or treated by resection in the Surgical Department of the University of Verona over the period from 1990 to June 2004 were included in the study. All patients observed were submitted to MRCP to confirm the communication with the main duct. RESULTS: We considered 144 pts (53%) affected by peripheral IPMN over 272 with a final diagnosis of IPMN. In this group we resected 56 (39%) (Group A), the final diagnosis was adenoma in 22 (39.3%), 17 (30.4%) borderline, 9 (16%) in situ carcinoma and 8 pts (14.3%) had invasive carcinoma. The pts observed with a presumptive diagnosis of peripheral still benign IPMNs are 88 (61%) (Group B). The median age in the two groups was 62.3 and 64.1 years, respectively, the rate of asymptomatic patients was 17.8% vs 100% (p < 0.01); the median diameter of the lesions was 40 mm in Group A and 17 mm in Group B. Five patients were submitted to resection during the follow-up (5.7%) and the final diagnosis was adenoma in 2 and borderline in 3. CONCLUSION: This is the first report in the literature about the follow-up of a large series of peripheral IPMNs. We agree with the tendency of less aggressiveness of the peripheral IPMNs. The final diagnosis of the resected peripheral IPMNs demonstrates that the clinical-laboratory-radiological parameters that we usually use are helpful to distinguish benign from malignant IPMNs previous surgery.