

overall survival time, a multivariate analysis was performed using the Cox proportional hazard model with a step-wise selection procedure.

Results: Preoperative TACE was performed in 15 patients among the 34 patients who underwent hepatic resection. In these patients, 6 patients were identified as having a tumour size reduction or necrosis of 50% or higher by preoperative TACE. The median operative time and blood loss during surgery were 355 min and 1983 ml, respectively. The postoperative morbidity and mortality rates were 44% and 2.9%. The proportional surviving rate (95% CI) for the 60 month time point was 0.20 (0.074–0.352), which was better than that of patients treated by TACE alone. The response after preoperative TACE (hazard ratio, 4.65; 95% CI, 1.39–15.5) and tumour diameter (hazard ratio, 2.78; 95% CI, 1.16–6.64) were identified as significant favorable preoperative prognostic factors for survival in the multivariate analysis. Patients with tumours smaller than 10 cm and significant effect of preoperative TACE had a more favorable survival than patients with tumours 10 cm or larger and who did not have a good effect of preoperative TACE.

Conclusion: A combination of aggressive surgical treatment and neoadjuvant treatment such as effective preoperative TACE treatment may prolong survival in selected patients with hepatocellular carcinoma invading the major vascular invasion.

6549

POSTER

Comparison of Two Gallbladder Cancer Treatment Strategies at a Chilean Cancer Center

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Background: Gallbladder cancer is the leading cause of cancer death in women in Chile. Even when present at a localized, resectable stage, prognosis is grim. Previous series have shown a survival benefit with an aggressive surgical approach. The objective of this study is to evaluate if the introduction of re-resection with hepatic segmentectomy and lymphadenectomy and the use of adjuvant treatments has improved overall survival for patients with gallbladder cancer treated at the Instituto Nacional del Cáncer, Santiago, Chile.

Material and Methods: We conducted a retrospective analysis of all patients with gallbladder cancer admitted to our institution between January 1983 and December 2002. Because of the implementation of an active treatment strategy after 1992, the series was divided into two treatment cohorts (TC): TC1 (1983–1992) where a conservative treatment approach was used, and TC2 (1993–2002), where a treatment plan including re-resection and adjuvant chemoradiation was offered to patients. Data was obtained from the medical charts. For patients lost for follow-up, date of death was obtained by death certificate. The sixth edition of the AJCC Staging system was used for TNM classification. Statistical analysis was performed using Epi Info™ Version 3.5.1.

n (%)	Total: 350 (100)	TC 1: 104 (100)	TC 2: 246 (100)
Age (years), mean (range)	57 (24–89)	58 (24–79)	57 (30–89)
Females, n (%)	286 (82%)	89 (86%)	197 (80%)
Stage			
Stage 0	1 (1%)	1 (1%)	0 (0%)
Stage I	83 (24%)	22 (21%)	61 (25%)
Stage II	82 (23%)	23 (22%)	59 (24%)
Stage III	54 (15%)	15 (15%)	39 (16%)
Stage IV	130 (37%)	43 (41%)	87 (35%)
Treatment ^a			
HS + LA	67 (19%)	1 (1%)	66 (27%)
CT (any indication)	42 (12%)	1 (1%)	41 (17%)
RT (curative)	40 (11%)	3 (3%)	37 (15%)
HS + LA + RT +/- CT	35 (10%)	0	35 (14%)
No curative treatment offered	305 (87%)	101 (97%)	204 (83%)

^aHS, Hepatic segmentectomy; LA, lymphadenectomy; CT, chemotherapy; RT, radiotherapy.

Results: A total number of 350 patients were identified: 104 in TC1 and 246 in TC2. Mean age at diagnosis was 57 years, and 82% of the patients were women. More than one third of the patients had stage IV disease at admission. The two groups were similar in terms of stage, age and gender. Treatment differed, with more radical surgeries performed, and radiation and chemotherapy administered in TC2 compared to TC1. Five and 10 year overall survival for TC1 was 10% and 7% respectively versus 15%

and 13% for TC2 (p = 0.014 and 0.009). When analyzed by stage, 5 year OS was 35% vs 49% for Stage I, 8% versus 12% for stage II, 1% versus 2% for stage III and 0 for stage IV. Multivariate analysis showed that re-resection (p = 0.03), radiation (p = 0.03) and chemotherapy (p = 0.007) were associated with longer survival.

Conclusions: Our series suggests that an active treatment approach with re-resection and adjuvant chemoradiation may increase survival of gallbladder cancer patients, although randomized trials are needed to establish a standard adjuvant treatment. Efforts towards prevention and early diagnosis are needed, as only a minority of patients are diagnosed at a stage where a curative treatment can be offered.

6550

POSTER

Fluorescence Angiography in Surgery of the Esophagus as a Tool in Reducing Rate of Anastomotic Leakage

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Introduction: Leakage at the anastomosis site is a very serious complication after esophageal resection, and can occur in up to 26% of patients. One of the factor involved in this complication is poor blood flow in the distal portion of the gastric tube. Fluorescence angiography using indocyanine green (ICG) was used as a method of determining the perfusion of the gastric conduit after esophagectomy. The effect on the rate of anastomotic complications was evaluated in a retrospective matched-pairs analysis.

Material and Methods: Analysis of 33 consecutive patients who underwent transhiatal esophagectomy (THE) due to cancer was done. In the first group in years 2008–2009 (15 patients) before performing the anastomosis, the blood flow in the area of the tube was evaluated using intravenous indocyanine green and observing its vascular flow with a camera equipped with an infrared laser. Patients with THE in years 2006–2007 (18 patients) without fluorescence angiography served as a control group. These two groups were matched for age, T-stage, anastomosis leakage, postoperative stay, emergency conditions, and body mass index.

Results: An overall reduction in the anastomotic leakage using fluorescence angiography was 21.1%. In the group without fluorescence angiography leakage was observed in 5 of 18 patients (27.8%). The fluorescence angiography showed vascular insufficiency of the distal gastric conduit in 4 patients – in all of these patients the anastomosis was performed end-to-side below the poor blood supply area and there was no subsequent leak. Leakage at the anastomosis site was observed only in 1 patient (6.66%) with good blood supply. The hospital stay was reduced from on average 23.7 days into average 11.7 days.

Conclusion: Fluorescence angiography is a simple tool in assessing the blood supply of the anastomotic side. In esophagus surgery it plays a big role and is associated with postoperative complications. This technique may significantly reduce not only the rate of severe complications but also the hospital length of stay.

6551

POSTER

Improved Lymph Node Retrieval in Gastric Cancer – Preliminary Positive Results of the DoCCS-study

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Background: The surgical treatment of gastric cancer consists of a gastric resection with a lymph node dissection. According to international guidelines, at least 15 lymph nodes should be harvested. Improved lymph node retrieval seems to be related to better survival. However, in the Netherlands, these goals are often not met.

In the Southern part of the Netherlands, therefore, a study is conducted to improve results by implementing a protocolized extended lymphadenectomy, the so called D1-extra lymphadenectomy. Goal is to harvest more lymph nodes without increasing morbidity and mortality.

Methods: In this phase II feasibility study 50 patients with curable gastric cancer are treated with 4 cycles of neoadjuvant chemotherapy consisting of docetaxel, cisplatin and capecitabine, followed by protocolized surgery and pathology. Surgery is performed by two surgeons from different hospitals. A (partial) gastric resection is performed and a lymph node dissection of stations 3–9 (Japanese classification) and according to location of the

tumour station 1, 2, 10 and/or 12. Stomach and the different lymph node stations are sent separately to the department of pathology. Furthermore, all specimens are revised later on by a referral department of pathology.

Results: In the first 18 patients, a mean of 26 lymph nodes is found (range 11–52, median 26). After pathologic revision, per patient a mean of 31 lymph nodes (range 13–58, median 26) was detected. 14 patients underwent a total gastric resection, 3 patients a subtotal gastric resection and 1 patient a distal gastric resection. Morbidity and mortality were comparable to published series. One patient died due to small bowel necrosis.

Conclusion: The D1-extra protocol including a protocolized lymph node dissection in gastric cancer leads to a much higher lymph node retrieval compared to common practice in the Netherlands. Morbidity and mortality are acceptable. Implementation of a protocolized lymphadenectomy seems warranted.

Trial registry number: NTR2306. Trial status: open for inclusion. Trial sponsors: none.

6552

POSTER

Long-term Outcomes and Prognostic Factors of Extended Esophagectomy for Submucosal Esophageal Cancer

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Background and Aims: There are still considerable controversies regarding the extent of lymph node dissection necessary during the course of esophagectomy for submucosal esophageal cancer. The aim of this study was to examine the long-term outcomes after esophagectomy with extended lymphadenectomy and to determine the prognostic factors in patients with submucosal esophageal cancer.

Patients and Methods: We retrospectively reviewed the records of 105 previously untreated patients with submucosal esophageal cancer who underwent transthoracic esophagectomy with extended (2- or 3-field) lymphadenectomy between May 1990 and April 2008.

Results: All patients had R0 resection. Ninety-eight patients had squamous cell carcinoma, and 7 had adenocarcinoma. N1 disease was present in 38 patients (36.2%), and angiolymphatic invasion in 74 (70.5%). Thirty-four patients had other primary malignancies. At a median follow-up of 101 months, the overall 5- and 10-year survival rates were 74.4% and 57.4%, respectively. Causes of death are non-cancer related diseases in 18, recurrent disease in 16 patients, other malignancies in 12. Univariate analyses showed that other primary malignancy ($P=0.0041$), poor differentiation ($P=0.0203$), and angiolymphatic invasion ($P=0.0347$) significantly affected overall survival. There was no difference in survival between patients with N1 disease and those without ($P=0.9809$). Multivariate analysis found other primary malignancy to be the only prognostic factor associated with poor prognosis (HR, 2.295; 95% CI, 1.201–4.386; $P=0.0119$).

Conclusions: Esophagectomy with extended lymphadenectomy can be performed safely in patients with submucosal esophageal cancer with good long-term outcomes. After the esophagectomy with extended lymphadenectomy, no difference in survival was seen between patients with N1 disease and those with N0. Patients should be rigorously examined for other primary cancers as well as recurrent diseases during follow-up.

6553

POSTER

Outcome of Middle and Lower Bile Duct Carcinoma After Surgical Resection at Our Department

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Background: Middle and lower bile duct carcinoma (MLBDC) is a difficult disorder for diagnosis and treatment. MLBDCs are usually in the advanced stage at the time of the diagnosis and pancreatoduodenectomy (PD) is a golden standard of the treatment. In this study, we retrospectively reviewed our experiences of MLBDCs, in terms of clinicopathological features and the outcome.

Methods: Between April 2000 and March 2011, there were 70 patients with MLBDC who underwent PD at our department. Patients' clinical backgrounds, operative data, histological findings, and outcomes were reviewed.

Results: There were 40 males and 30 females with a mean age of 68.1 years. Major symptom at the time of the diagnosis was jaundice. Preoperative biliary drainage was performed in 69 cases. PD with extended lymph adenectomy, including lymph nodes located along the common hepatic artery and celiac axis, was performed in all the patients. In 10 patients, PD with extended hepatectomy was performed because

carcinoma invaded hepatic hilus. And 5 patients underwent PD with portal vein resection due to portal invasion.

Median operation time was 553.0 min and median operative blood loss was 635.0 ml. There were no operation-related deaths. Pathological examination revealed that there were 3 cases of stage I, 20 cases of stage II, 30 cases of stage III, and 17 cases of stage IV. There were lymph node (LN) metastasis in 22 patients, serosal invasion (S) in 25 patients, hepatic infiltration (Hinf) in 6 patients, pancreatic invasion (panc) in 32 patients, and portal vein invasion (PV) in 2 patients. Overall 1-, 3-, and 5-year survival rates were 72%, 52% and 38%, respectively. Median survival periods of stage I, II, III, and IV were 57.5, 53, 51.4, and 21.0 months ($P>0.05$). Median survival periods of patients with positive and negative for LN metastasis were 13.0 and 57.6 months ($P=0.01$) respectively. No significant differences for survival rates were found in S, Hinf, panc, PV, and arterial invasion. Recurrence was found in the resected area (40.0%), liver (26.7%), distal metastasis (20%), and lymph nodes (13.3%).

Conclusions: Surgical resection is highly recommended for MLBDC. Lymph node metastasis is an only prognostic parameter after surgical resection.

6554

POSTER

Surgical Exploration is Superior to All Other Modalities for Locating Occult Neuroendocrine Tumours

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Background: Many patients with neuroendocrine tumours have hepatic metastases at diagnosis. However, even when extensive metastases are present, primary tumours remain very small and difficult to locate. The majority of primary tumours are located in the intestine and their resection is recommended to prevent bowel obstruction and ischemia. In addition, recent studies indicate that removing midgut neuroendocrine tumours is associated with improved survival rates. Most patients undergo extensive preoperative imaging and procedures to search for these tumours. We hypothesized that laparoscopic abdominal exploration is superior to all other techniques for locating them.

Materials and Methods: Records of patients with neuroendocrine tumour hepatic metastases with a diagnosis in years 2006–2010, in whom a search for the primary tumour was conducted, were retrospectively reviewed. Patients presenting with acute bowel obstruction were excluded. Results of preoperative imaging and procedures and surgical explorations were compared for their efficacy at finding primary tumours.

Results: Sixty-one patients were identified. Only 18% (11/61) of tumours were located by preoperative testing. The sensitivities of preoperative colonoscopy (25% [$n=24$]), CT scan (6.9% [$n=58$]), and octreoscan (2.0% [$n=50$]) were low. No tumours were found by MRI ($n=9$), upper endoscopy ($n=23$), capsule endoscopy ($n=2$) or bronchoscopy ($n=4$). Surgical exploration was the most sensitive (79% [$n=61$]) method of tumour detection. 70% of successful surgical localizations were laparoscopic. 72% ($n=44$) of tumours were located in the small intestine, 3% ($n=2$) in the appendix, 1.6% ($n=1$) in the colon and 1.6% ($n=1$) in the ovary. Twenty-one percent ($n=13$) of tumours remained occult after an average follow up of 19 months with serial CT scans.

Conclusions: Surgical exploration was superior to all other modalities for locating primary neuroendocrine tumours. A laparoscopic approach had a high probability of finding occult primary tumours and has the advantage of rapid recovery from negative exploration. Other tests can provide information concerning extent of disease, but their sensitivity is too low to utilize them for primary tumour localization. Therefore, we recommend surgical exploration as the best method to locate primary neuroendocrine tumours in patients with known hepatic metastases.

6555

POSTER

Results of Surgical Treatment of Gastric Cancer in the Older Patients

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Background: To determine the role of age on outcomes of expanded and modified gastrectomy for gastric cancer.

Methods: We carried out the analysis of 189 gastric cancer patients with III-IV stages, older 70 years, with regard to study the role of age factor. Men – 105 (55.5%), women – 84 (44.5%). Stage III is established in 108 (57.1%) patients, stage IV in 81 (42.9%). Adenocarcinoma of various differentiation established in 50.3%, undifferentiable cancer in 22.6%, mucous cancer in 8.9%, solid cancer in 7.9%, scirr in 6.9% and squamous cell carcinoma in 3.3% patients. Radical surgery was performed in 108 (57.1%) patients, palliative resection in 68 (36%). From them gastrectomy was performed