
FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

Comparison of the Clinical/Histological Characteristics and Survival of Distal Esophageal Adenocarcinoma in Patients With and Without Barrett's Mucosa

G. Portale, Jeffrey H. Peters, T.A.K. Gandamihardja, C. Tharavej, C-C. Hsieh, J.A. Hagen, S.R. DeMeester, C.G. Bremner, Tom R. DeMeester. Department of Surgery, University of Southern California, Los Angeles, CA

Background: The incidence of adenocarcinoma at the gastroesophageal junction (GEJ) has been increasing in the last decades. It has been suggested that patients in whom Barrett's mucosa can be identified have a better prognosis compared to those without. This has led to the belief that they may represent two distinct cancer types. The aim of this study was to compare clinical features, tumor characteristics and outcome in patients with and without Barrett's mucosa in the distal esophageal or GEJ adenocarcinoma.

Hypothesis: Distal esophageal/GEJ adenocarcinoma with and without Barrett's mucosa are of the same etiology, but differ only in clinical presentation and outcome

Design: Retrospective cohort study

Setting: University tertiary referral center

Patients and Methods: Between 1992-2002, 215 patients (173M: 42F; median age 66 yrs, 26-91), had esophagogastrectomy for adenocarcinoma of the distal esophagus/GEJ. Patients receiving preoperative chemotherapy or radiation were excluded. Clinical features, tumor characteristics and survival were compared in patients with Barrett's mucosa (n=140) and those without (n=75).

Results: Patients with Barrett's esophagus had tumors that were diagnosed earlier, smaller in size, earlier in stage and had fewer node metastases.

Symptoms and tumor characteristics at diagnosis	With BE (n=140)	No evidence of BE (n=75)	p value
Symptoms at diagnosis	57 (40.7%)	64 (85.3%)	<0.0001
Surveillance program or worsening of GERD precipitated diagnostic endoscopy	51 (36.4%)	1 (1.3%)	0.0002
Prevalence of GEJ tumors	43 (30.7%)	16 (21.3%)	0.142
Tumor length [median (IQR)]	1 cm (0-4.5cm)	5 cm (3-6cm)	<0.0001
Stage I tumors	81 (57.8%)	1 (1.3%)	<0.0001
Stage III-IV tumors	33 (23.5%)	53 (70.6%)	<0.0001

Symptoms and tumor characteristics at diagnosis	With BE (n=140)	No evidence of BE (n=75)	p value
>4 lymph node positive	26 (20%)	30 (40%)	<0.0032
Incomplete resection	7 (5%)	9 (12%)	0.098
Degree of tumor differentiation			
Well to Moderate	73/112 (65.2%)	26/64 (40.6%)	
Poor	39/112 (34.8%)	38/64 (59.4%)	
Presence of signet ring cells	16/134	11/86	0.85
5-year survival	60.3%	27.8%	0.0002

Conclusions: Observed differences in survival between patients with distal esophageal/ GEJ adenocarcinoma with and without Barrett’s mucosa can be explained by earlier diagnosis. Patients without Barrett’s mucosa have their tumors detected later, when the disease is more advanced. This suggests the possibility that these tumors are not of different etiology, but rather these larger tumors may have obscured areas of Barrett’s mucosa.

NOTES

FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

Hospitalization for Acute Diverticulitis Does Not Mandate Elective Colectomy

Philip I. Haigh, Gregory A. Broderick-Villa, Raoul J. Burchette, Maher A. Abbas, *J. Craig Collins*.
Kaiser Permanente Los Angeles Medical Center, Los Angeles, CA

Background: Previous studies suggest that elective colectomy is often required after an episode of acute diverticulitis, especially in younger patients or complicated disease.

Hypothesis: Patients treated non-operatively for acute diverticulitis do not require elective colectomy because of a low risk of recurrence.

Design: Retrospective cohort study using discharge abstract data.

Setting: 12 regional acute-care hospitals in the Western US.

Patients: 3165 patients hospitalized with acute diverticulitis.

Interventions: Colectomy or non-operative treatment using intravenous antibiotics with or without percutaneous abscess drainage (PAD).

Main Outcome Measures: Hospitalization for recurrence.

Results: Emergency colectomy was performed in 614 (19.4%) patients. Non-operative treatment was used initially in 2551 (80.6%) patients. Of these, 185 (7.3%) had an elective colectomy and the remaining 2366 (92.7%) did not. Follow-up was for an average of 8.9 years and a maximum of 12 years. After initial non-operative treatment, 314/2366 (13.3%) patients recurred: 222 patients had a single recurrence and 92 patients had a re-recurrence. Older age was associated with a lower recurrence (odds ratio[OR] ≥ 50 yrs vs. < 50 yrs = 0.71; 95% CI 0.54, 0.93), but gender (OR males vs. females = 0.95; 95% CI 0.74, 1.2), Charlson Comorbidity Index (CCI) [1 vs. 0, OR= 1.1; 95% CI 0.76, 1.5; 2 vs. 0, OR= 0.90; 95% CI 0.56, 1.4], or PAD (OR = 1.1; 95% CI 0.36, 3.0) had no influence on recurrence using multiple logistic regression. All 92 re-recurrences were treated non-operatively. The risk of a re-recurrence (29.3%) was significantly higher than a first recurrence ($P < 0.0001$). Age, gender, CCI, and PAD did not predict re-recurrence.

Conclusions: Very few patients with acute diverticulitis treated non-operatively recur. The low risk of recurrence

argues against routine elective colectomy. Younger age, but not percutaneous abscess drainage, was associated with recurrence. A first recurrence was the only factor that predicted additional recurrences. Therefore, elective colectomy may be indicated after a first recurrence.

NOTES

FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

Failure of Nonoperative Management of Splenic Injuries: Causes and Consequences

Lisa K. McIntyre, Melissa Schiff, *Gregory J. Jurkovich.*
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Background: Non-operative management of blunt splenic injury has become the standard of care. However, some patients fail this plan, occasionally with devastating consequences. Early identification of likely failures of non-operative management remains problematic.

Hypothesis: Presenting patient characteristics can predict patients that will fail nonoperative therapy.

Design: Retrospective descriptive study.

Setting: Patients identified from a statewide trauma and hospital discharge registry between 1995-2001.

Patients and Methods: Patients characterized as requiring immediate intervention (splenectomy or embolization within 4 hrs of arrival in Emergency Department (ED)) or successful or failed nonoperative management based on time from ED arrival to surgery. Injury and patient characteristics included hypotension, ISS, GCS, age, and gender. Risk factors for the failure of nonoperative management were evaluated using chi-squared statistic.

Results: A total of 2303 patients were found to have splenic injuries from blunt trauma during the time period. 670 (29%) underwent immediate splenectomy and were excluded from further review. Of the remaining 1633 patients who were admitted with planned nonoperative management, 234 (14%) failed. In these patients, splenectomy was performed between 4-8 hrs of admission in 100 (43%) patients, 8-24 hrs in 58 (25%) patients, 24-48 hrs in 32 (14%) patients, and >48 hrs in 44 (19%) patients. Of the injury and patient characteristics reviewed, only age >55 and ISS >25 were significantly associated with failure of nonoperative management, especially late (>48 hr) failures.

Conclusion: Patients older than 55 and those with ISS scores >25 have a significant risk of late failure of nonoperative management of splenic injuries. Gender, GCS and presenting hemodynamics were not predictive of failure in this large retrospective review.

NOTES

FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

**Local Anesthesia With Monitored Anesthesia Care
Versus General Anesthesia in Thyroidectomy: A
Randomized Study**

*Samuel K. Snyder**, C. Richard Roberson, Christie Cummings,
Hasan Rajab.
Scott and White Memorial Hospital, Temple, TX

Background: Early in the 20th Century thyroid surgery was performed using local anesthetic techniques. When general anesthesia became safer, surgeons started performing thyroidectomy exclusively under general anesthesia. However, recent reports of thyroidectomy under local anesthesia claim similar results to general anesthesia. Surgery conducted under local anesthesia can result in early discharge, i.e., hospital stay of less than 8 hours.

Hypothesis: Thyroidectomy can be performed under local anesthesia with monitored anesthesia care with similar results to general anesthesia, in an outpatient or inpatient surgery setting.

Design: A prospective randomized study comparing local anesthesia with monitored anesthesia care versus general anesthesia in adult patients undergoing thyroidectomy in a potential outpatient setting. Patients were excluded if they were not able to receive local or general anesthesia. In addition, we performed an outcome evaluation of the use of local anesthesia with monitored anesthesia care for thyroidectomy and the use of outpatient surgery for thyroidectomy. We compared 58 consecutive thyroidectomies performed prior to the study with 58 consecutive thyroidectomies performed after the study.

Setting: 350-bed university-affiliated hospital.

Results: Fifty-eight patients undergoing thyroidectomy received random assignment; 29 to local anesthesia with monitored anesthesia care and 29 to general anesthesia under study protocol. Fifty-one (88%) operations were completed as outpatient surgery. No significant differences were found between the two study groups in demographics, postoperative adverse symptoms, complications, hospital admission, or patient satisfaction. Patients in the general anesthesia group spent, on average, more time postoperatively in the outpatient surgery center until same day dismissal ($p=0.023$). When

compared before the study, we found a significant increase after the randomized study in the use of local anesthesia with monitored anesthesia care ($p < 0.001$) and outpatient thyroidectomies ($p < 0.0001$).

Conclusion: Thyroidectomy can be performed in the studied patient population under either general anesthesia or local anesthesia with monitored anesthesia care expecting similar operative results, clinical results, and patient satisfaction. In addition, local anesthesia with monitored anesthesia care can reduce the postoperative time spent in an outpatient surgery setting with potential healthcare cost savings.

NOTES

FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

Do Overall Inpatient Admissions Decrease After Bariatric Surgery? A Population-Based Analysis

Marcia McGory, Clifford Y. Ko, David Zingmond.
UCLA Department of Surgery, Los Angeles, CA

Sponsor: Ronald K. Tompkins

Background: Obesity is an epidemic in the U.S. In this regard, the incidence of bariatric surgery (i.e. gastric bypass) has rapidly increased. While weight loss and the correction of certain comorbidities have been reported, it remains unknown whether the performance of this procedure decreases the overall rate of hospitalizations for this cohort.

Hypothesis: Following gastric bypass surgery for obesity, patients will require less inpatient care than prior to the surgery.

Design: Longitudinal population-based study

Setting: All bariatric procedures performed in California from 1995-2002

Patients and Methods: All patients undergoing roux-en-y gastric bypass (open and lap) from 1995-2002 were identified. For this cohort, all inpatient admissions in the three years prior to operation as well as in the three years following operation were identified. Reasons for admissions and lengths of stay before and after operation are reported.

Results: In California from 1995-2002, 39,238 patients underwent gastric bypass surgery for obesity. The procedure increased from 1300 performed in 1995 to 11,000 performed in 2002. Average age was 41 years, most were female (84%). 1 year mortality was 0.6%. For this cohort, in the 3 years prior to surgery, the proportion of patients who had an inpatient admission (per year) was 7.4%, 7.5%, and 6.7%, with cholelithiasis, leg cellulitis, and chest pain being the most common diagnoses. The average length of stay was 5 days. Following gastric bypass surgery, the proportion of the cohort readmitted in the 1st, 2nd, and 3rd follow-up years were 17.4%, 11.6%, and 6.6%. Incisional hernia, intestinal complications, and infection were the most common reasons for readmission. The average length of stay was 6 days.

Conclusion: Gastric bypass surgery for obesity does not decrease the use of inpatient care in the first 3 years following

surgery. The reasons for admission were different before versus after surgery. While the admissions prior to surgery were related to obesity, the admissions after surgery appear related to the surgical procedure itself.

NOTES

FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

Survival Following Pediatric Liver Transplantation: Does Living-Donor Transplantation Offer An Advantage?

Mary T. Austin, Irene D. Feurer, Ravi S. Chari, D. Lee Gorden, J. Kelly Wright, *C. Wright Pinson*. Vanderbilt University Medical Center, Nashville, TN

Objective: To evaluate the impact of living-donor transplants on graft and patient survival in pediatric liver transplantation. Background: A critical organ shortage still exists, and approximately 1,600 adults and 100 children die each year on the waiting list. Living-donor liver transplantation (LDLT) has helped alleviate the organ shortage but with documented worse outcomes in adults.

Hypothesis: There is improved graft and patient survival with LDLT compared to whole and split cadaveric transplantation in the pediatric population.

Design: Retrospective cohort.

Methods: Data included all transplant recipients (<18 years old) between November 1986 and May 2004 having complete data for multivariate analyses registered in the Organ Procurement and Transplantation Network database as of May 25, 2004 (n=5,775 grafts in 4,916 patients). Covariates predictive of survival by univariate analysis were included in Cox proportional hazards regression models in a block-wise fashion.

Results: Kaplan-Meier graft and patient survival rates were improved in LDLT recipients compared to recipients of both split and whole cadaveric organs ($p < 0.01$). Three- and 5-year survival rates for recipients of LDLT were 75% and 71% (graft) and 85% and 84% (patient), respectively. The Cox blockwise models demonstrate that graft and recipient negative prognostic variables include ICU admission, elevated creatinine and total bilirubin, black race, younger age group, diagnosis of fulminant hepatitis, hepatic tumor, or liver failure secondary to total parenteral nutrition, as well as prolonged warm and cold ischemia times, retransplantation and multi-organ transplantation (all $p < 0.05$, model $p < 0.001$).

Conclusion: As opposed to adults, pediatric graft and patient survival is better with LDLT than with cadaveric whole or split transplantation. Factors that contribute to this difference are less ill recipients, shorter cold ischemia times, and less

retransplantation using LDLT. LDLT should be further advocated in the pediatric population with end-stage liver disease.

NOTES

FIRST SCIENTIFIC SESSION

Monday, November 8, 2004
8:00 a.m. to 12:00 Noon

A 10-Year Prospective Study of Postinjury Multiple Organ Failure: Has Anything Changed?

David J. Ciesla, Ernest E. Moore, Jeffrey L. Johnson, Jon M. Burch, Clay Cothren, Angela Sauaia.
Denver Health Medical Center, Denver, CO

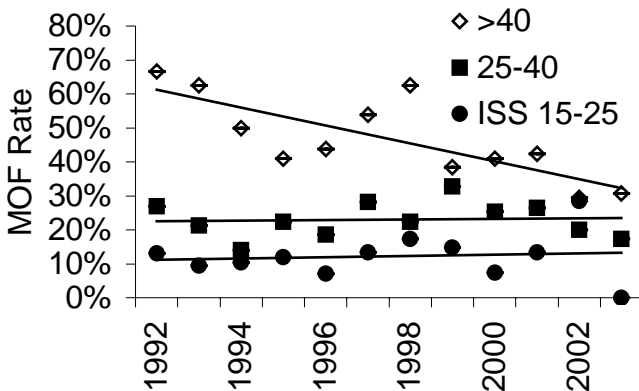
Background: Recent reports fail to show a decrease in the incidence of multiple organ failure (MOF) despite advances in critical care. This study was designed to examine the trends of MOF risk factors, incidence and outcome over the last decade in a homogenous trauma population evaluated prospectively.

Hypothesis: We hypothesized that the incidence and attendant mortality rate of MOF has decreased relative to injury severity over the last decade.

Design: Prospective observational study.

Setting: Academic Level I Trauma Center

Patients and Methods: Data were prospectively collected on trauma patients at risk for postinjury MOF. Study criteria were age >16yrs, admission to the trauma ICU, ISS>15 and survival >48hrs. Isolated head injuries were excluded. MOF was defined as a Denver MOF score ≥ 4 at any time after 48 hours from injury.



Results: Data were collected on 1277 consecutive patients; MOF was diagnosed in 300 (23%). The mean age and ISS scores increased over time. The more severely injured (ISS>40) had significantly lower MOF rates (67% in 1993 vs. 30% in

2003). There was also less difference in injury severity over time between patients who developed MOF and those who did not ($p > .05$ in 1999 and 2002). The MOF related mortality rate also decreased during the study period (67% in 1992 vs. 25% in 2003).

Conclusion: The risk of postinjury MOF and MOF related mortality has decreased relative to injury severity over the last decade. Changes in MOF presentation over time have decreased the value of injury severity in predicting MOF. As a result, previously developed predictive models should be reevaluated in the context of current SICU care.

NOTES

SECOND SCIENTIFIC SESSION

Tuesday, November 9, 2004
8:00 a.m. to 12:00 Noon

The Spectrum of Primary Esophageal Motility Disorders. Implications for Diagnosis and Treatment

Maria V. Gorodner, C. Galvani, P. Fisichella, L. Fogato, P. Tedesco, *Lawrence Way, Marco Patti*. University of California, San Francisco.

Background: The named primary esophageal motility disorders (PEMD) are achalasia, diffuse esophageal spasm (DES), nutcracker esophagus (NE), and the hypertensive lower esophageal sphincter (HTN-LES). While the diagnosis and treatment of achalasia are well defined, confusion about the other disorders is still present.

Hypothesis: (a) esophageal function tests (EFT's) are essential to distinguish PEMD from GERD, and to identify the type of PEMD; (b) the laparoscopic approach outperforms the thoracoscopic approach.

Design: University hospital tertiary care center.

Setting: Retrospective study from a prospectively collected database.

Patients and Methods: Between January 1990 and September 2003, a diagnosis of PEMD was established in 397 patients by esophagogram, upper endoscopy, and esophageal manometry. In all patients abnormal reflux was excluded by pH monitoring. There were 305 (77%) patients with achalasia, 49 (12%) with DES, 41 with NE (10%) and 2 (1%) with HTN-LES. Two hundred and eight patients (52%) underwent a myotomy (achalasia, 176 pts; DES, 19 pts; NE, 12 pts; HTN-LES 1 pt). Average follow-up was 59±42 months.

Results: Sixty-one (15%) of the 397 patients had the diagnosis of GERD at the time of referral (based on symptoms and endoscopy) and had been treated with PPI's.

	Symptoms		Excellent/Good results			
	Preop. Dy*	Preop. CP**	Thoracoscopic Dy* CP**		Laparoscopic Dy* CP**	
Achalasia	91%	50%	88%	75%	91%	91%
DES	80%	47%	80%	75%	86%	83%
NE	58%	80%	60%	40%	86%	60%
HTN-LES	100%	100%	-	-	100%	100%

*Dy: Dysphagia

**CP: Chest Pain

Conclusion: The results of this study show that: (a) symptoms were unreliable in distinguishing PEMD from GERD; (b) EFT's were essential to define the type of PEMD; (c) with the exception of NE, surgery was equally effective for dysphagia and chest pain; and (d) the laparoscopic approach was more effective than the thoracoscopic.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004

8:00 a.m. to 12:00 Noon

Critical Appraisal of the Clinical and Pathologic Predictors of Survival After Resection of Large Hepatocellular Carcinoma

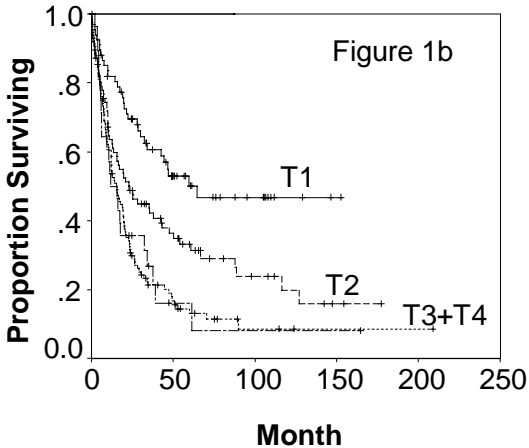
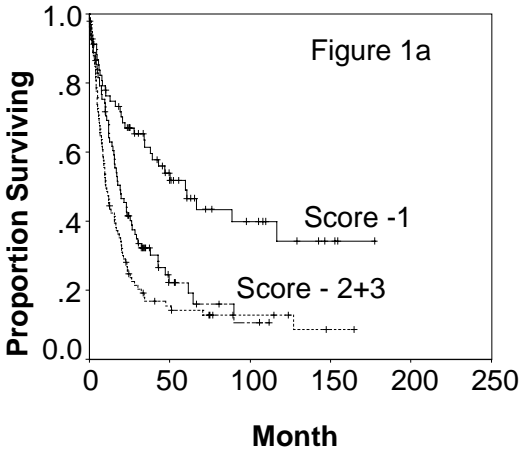
Timothy M. Pawlik, Ronnie Poon, Eddie Abdalla, Daria Zorzi, Iwao Ikai, Steven Curley, *David Nagorney*, Jacques Belghiti, Gregory Lauwers, *Jean-Nicolas Vauthey*. University of Texas MD Anderson Cancer Center, Houston, TX

Purpose: The role of resection for hepatocellular carcinoma (HCC) with a diameter of 10 cm or larger remains controversial. The objective of this study was to identify and compare the clinical and pathologic factors that affect long-term survival after resection of such disease.

Methods: Between April 1981 and September 2000, 300 patients with HCC 10 cm or larger underwent resection at five major hepatobiliary centers. Clinical and pathologic data were collected, and prognostic factors were evaluated by univariate and multivariate analyses. Patient survival was stratified according to a clinical scoring system and pathologic T classification.

Results: The study included 222 men and 78 women. The median age was 55 yr. The perioperative mortality rate was 5%. At a median follow-up of 32 mo, the median survival was 20.3 mo, and the 5-yr actuarial survival rate was 27%. Four clinical factors—alpha-fetoprotein level \geq 1000 ng/mL, multiple tumor nodules, the presence of major vascular invasion, and the presence of severe fibrosis—were significant predictors of poor survival (all $P < .05$). Patients were assigned a clinical score according to these risk factors as follows: 1, no factors; 2, one or two factors; 3, three or four factors. On the basis of the clinical score, patients could be stratified into only two distinct prognostic groups: no factors (score of 1) vs. one or more factors (score of 2 or 3) ($P < .001$) (Fig. 1a). In contrast, when patients were stratified according to pathologic T classification, three distinct groups were identified: T1 vs. T2 vs. T3 and T4 ($P < .001$) (Fig. 1b). Fifty-six percent of patients with a clinical score of 2 and 20% of patients with a clinical score of 3 actually had T1 or T2 disease on pathologic examination.

Conclusions: Patients with large HCC should be considered for liver resection as this treatment may be associated with a low perioperative mortality rate and a 5-year survival rate exceeding 25%. Clinical predictors should not be used to exclude patients from surgical resection because these factors do not reliably predict outcome.



NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004

8:00 a.m. to 12:00 Noon

Carotid Artery Stents for Blunt Cerebrovascular Injury: Risks Exceed Benefits

C. Clay Cothren, *Ernest E. Moore*, C. E. Ray, D. J. Ciesla, J. L. Johnson, J. B. Moore, *Jon M. Burch*. Denver Health Medical Center and University of Colorado, Denver, CO

Background: Carotid stenting has been advocated in patients with grade III blunt carotid artery injuries (CAI) because of the persistence of the pseudoaneurysm and fear of subsequent embolization or rupture.

Hypothesis: Carotid stenting is safe and effective for blunt CAI.

Design: Analysis of a prospective database.

Setting: A state-designated, level I urban trauma center.

Patients and Methods: In January 1996 we began comprehensive screening for blunt CAI with angiography based on injury patterns; patients without contraindications are anticoagulated immediately for documented lesions. Patients with persistent pseudoaneurysms on repeat angiography at 7-10 days postinjury were candidates for stent placement.

Results: During the study period, 46 patients sustained blunt carotid pseudoaneurysms; 23 underwent carotid stent placement while 23 did not. There were 4 peri- or post-procedure stent complications: 3 strokes and 1 subclavian dissection. Follow-up angiography was performed in 38 patients (18 stent, 20 no stent); 8 patients had post-stent carotid occlusion despite concurrent intravenous heparin. Documented patency rates were significantly different. In the patients not undergoing carotid stenting, the only complication was a MCA stroke in a patient not on anticoagulation.

	Sx Prior to Angio?	Anticoagulation	Complications	Patency
Stent (N=23)	19 asx, 4 sx	18H, 2A, 3∅	3 CVA, 1 dissect	10Y, 8N (55%)
No stent (N=23)	19 asx, 4 sx	14H, 2A, 2L, 5∅	1 CVA (∅ tx)	19Y, 1N (95%)*

Anticoag: heparin (H), ASA (A), LMWH (L), none (∅) Patency: yes (Y), no (N) * $p < 0.05$

Conclusion: Carotid stents placed for blunt cerebrovascular pseudoaneurysms have a 21% complication rate and a documented occlusion rate of 45%. In contrast, patients treated with anticoagulation alone had a documented occlusion rate of 5%, and no asymptomatic patient treated with anticoagulation for their injury suffered stroke. Anticoagulation remains the recommended therapy for blunt carotid artery injuries, but the role of intraluminal stents remains to be defined.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004

8:00 a.m. to 12:00 Noon

Gum Chewing and Postoperative Ileus After Elective Open Sigmoid Colectomy

Rob Schuster, Nina Grewal, *Gregory C. Greaney.*

Santa Barbara Cottage Hospital, Santa Barbara, CA

Sponsor: Kenneth Waxman

Background: Postoperative ileus is common after colon resection, leading to prolonged hospital stay, hospital-acquired infections or complications, and pulmonary compromise. Gum chewing has been hypothesized to stimulate bowel motility and decrease duration of postoperative ileus.

Hypothesis: The purpose of this study is to compare patients who chew gum after an elective sigmoid (left) colon resection to a control group and measure return of bowel function, appetite, length of hospital stay, and complications.

Design: Prospective, randomized trial.

Setting: A community-based teaching hospital.

Patients and Methods: A total of 34 patients who underwent an elective open sigmoid resection for recurrent diverticular disease or cancer participated in the study. Each patient was randomly assigned to one of two groups: a gum-chewing group ($n = 17$) or a control group ($n = 17$). The patients in the gum-chewing group chewed sugarless gum three times a day for an hour each time until discharge. The times of first flatus, bowel movement, and feelings of hunger were recorded. In addition, complications and duration of hospital stay were measured.

Results: All gum-chewing patients tolerated the gum. The first passage of flatus was seen on postoperative hour 65.4 in the gum-chewing group and on hour 80.2 in the control group ($p = 0.049$). First bowel movement was on postoperative hour 63.2 in the gum-chewing group and hour 89.4 in the control group ($p = 0.041$). First feelings of hunger were felt on postoperative hour 63.5 in the gum-chewing group and hour 72.8 in the control group ($p = 0.267$). There were no major complications in either group. Total length of hospital stay was shorter in the gum-chewing group (day 4.30), than the control group (day 6.80), ($p = 0.011$).

Conclusion: Gum chewing helps with recovery after elective open sigmoid resection by stimulating bowel motility. It offers

an inexpensive and easily tolerated adjunct to postoperative care in these patients and may contribute to shorter hospital stays.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004

8:00 a.m. to 12:00 Noon

Are Young Surgeons Competent to Perform Alimentary Tract Surgery?

Jay B. Prystowsky. Northwestern University Feinberg School of Medicine, Chicago, IL

Background: There has been increased attention recently to the assessment of "competency" during residency training.

Purpose: To determine if patient outcomes for alimentary tract surgery (ATS) were worse for surgeons who recently completed their training.

Design: Retrospective review of a statewide administrative database.

Setting: All non-federal hospitals in the state of Illinois.

Patients and Methods: Patient records (n=120,160) from 1996-1999 were reviewed. Patient variables included age, gender, emergency admission, and co-morbid illnesses.

Surgeon variables were years since American Board of Surgery (ABS) certification and volume. Outcomes were mortality, morbidity, and length of stay (LOS). Regression analyses were performed separately for appendectomy and cholecystectomy (low-complexity) and all other operations (high-complexity).

Results: Low-Complexity Operations

Years since ABS Cert	Mortality	Morbidity	LOS (days)
0-5 yrs	0.5%	12.8%	4.1+4.3
6-20 yrs	0.6%	13.4%	4.2+4.3
21-30 yrs	0.6%	12.6%	4.4+4.9 *
>30 yrs	0.6%	13.6%	4.6+4.3 *

High-Complexity Operations			
Years since ABS Cert	Mortality	Morbidity	LOS (days)
0-5 yrs	7.0%	34.0%	10.4+9.2
6-20 yrs	5.2% *	30.4% *	10.3+8.7
21-30 yrs	5.1% *	30.0% *	10.6+8.4
>30 yrs	5.8% *	30.4% *	11.0+9.0 *

p<0.05 using regression analyses compared to 0-5 yrs group

Conclusion: Surgeon experience is an important determinant of surgical outcomes. However, training programs declare that their graduates are ready to practice in the community. For high-complexity ATS, there is disparity in outcomes between

young and more experienced surgeons. Although there may be “no substitute for experience”, surgical educators should be aware of this gap. Attention to competency during residency training is warranted especially as it relates to high-complexity ATS.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004
8:00 a.m. to 12:00 Noon

Liver Transplantation for Hepatocellular Carcinoma: Expanding Special Priority to Include Stage III Disease

Jeremy Goodman, Mark Schnitzler, Jeffrey A. Lowell, Surendra Shenoy, Martin D. Jendrisak, Niraj Desai, Jeffrey Crippen, Mauricio Lisker-Melman, *William C. Chapman*. Washington University School of Medicine, St. Louis, MO.

Background: UNOS allocation priority for liver transplantation in the setting of hepatocellular carcinoma (HCC) remains an area of continued controversy. Exception points are granted for early stage disease, and the majority of patients are transplanted within 3-6 months of listing. Patients with stages III and IV disease are currently excluded.

Hypothesis: Following liver transplantation, patients with stage III HCC experience similar survivals to those patients with less advanced disease as well as to matched controls.

Patients and Methods: We performed a case-controlled analysis with a 3 to 1 matching scheme using our prospective database. Tumor staging was based on TNM classification. Patients undergoing transplantation with HCC were matched with non-HCC transplant recipients based on age, sex, date of transplant, and underlying liver disease.

Results: From August 1985 to March 2002, we performed 635 adult liver transplants. Fifty-one patients were transplanted with HCC (8%). Patient demographic features were similar between case-controlled groups. Overall 5-year survival was worse for patients with HCC versus their matched controls (40.9 vs. 64.0%, $p=0.04$), however, this survival disadvantage was eliminated when patients with stages I-III HCC were combined and compared with their matches (55.5% vs. 62.9%, $p=0.77$). Survival of stage III patients was comparable to matched controls (51.9% vs. 53.3%, $p=0.68$).

Conclusion: For patients with stages I-III disease, long-term survival is comparable to matched controls, and only stage IV patients experience poorer survival. Consideration should be given to granting exception points to patients with stage III disease.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004
8:00 a.m. to 12:00 Noon

Short Term Outcomes Following SIS Mesh for Complicated Ventral Abdominal Hernia Repair (VH) in 51 Consecutive Patients

*W. Scott Helton**, Marco Fisichella, Robert Berger, Santiago Horgan, Joseph Espat, *Herand Abcarian*. University of Illinois, Chicago, IL

Background: Little clinical information exists on the utility of absorbable biomaterials for the repair of complex VH, especially in the setting of gross contamination.

Purpose: To evaluate the short term outcome of pts following VH with an absorbable bioprosthesis made from porcine small intestinal submucosa (SIS).

Design: Retrospective review of 51 consecutive pts undergoing VH with SIS.

Setting: University teaching hospital

Patients and Methods: 51 pts had VH with SIS mesh: 14 laparoscopic, 38 open. Wound class was clean (n=23), clean-contaminated (n=11), and dirty (n=18). Mean BMI, hernia size, and follow up were 31 and 198 cm², and 10 months respectively. 12 operations were emergent. 8 pts had peritonitis, 5 necrotizing fasciitis, 13 had bowel resection and/or perforation, 2 had solid organ transplant. SIS was placed as an inlay in 8 pts, an underlay in 41 and as an onlay in 3. Avg mesh size was 351 cm². An attempt was made to cover the SIS with overlying fascia whenever possible. Dirty wounds were left open in 16/18 pts. The percentage of pts in each wound class having complications, need for re-operation, or recurrent hernia were compared between wound classes by Chi Square.

Results: There were 2 deaths from organ failure, 19 complications, 16 re-operations, and 10 partial skin and/or fascial dehiscences exposing the SIS mesh: all treated with wet-dry dressings and/or wound vac. There were 9 recurrent VH (19%): 7 occurred in pts who had SIS completely removed: 2 transplant pts, 1 post op bleeding, 1 re op for bowel resection, 3 severe infection. Partial debridement of SIS was done in 5 pts due to infection and/or mesh reaction: 1 of these developed recurrent VH. 4 pts had split thickness skin grafts directly onto the granulated SIS> There was 1 recurrent

VH (2%) within 1 year of f/u among pts who did not have SIS completely removed.

Group	Re-Op	Partial Dehiscence	Complication
C	2/22 (9%)	2/22 (9%)	3/22 (13%)
CC	2/11 (18%)	2/11 (18%)	6/11 (54%)
D	12/18 (66%)*	6/18 (33%)*	10/18 (55%)+

C = clean; CC = clean contaminated; D = dirty.

* $p < 0.0001$

+ $p < 0.05$ for differences b/n all grps

Conclusion: Use of SIS in contaminated cases is associated with higher complications, need for reoperation and recurrent VH compared to non infected pts. In the absence of mesh removal, even with wound infection, short term recurrent VH is low with SIS suggesting an advantage of this material over absorbable non biologic meshes in select pts. The problem of persistent wound infection in some pts resulting in repeat operation warrants cautious use of SIS in grossly contaminated hernia defects.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004
8:00 a.m. to 12:00 Noon

Surgical Management of Primary Hyperparathyroidism Since the Introduction of Minimally Invasive Parathyroidectomy

Clive S. Grant, Geoffrey Thompson, Jon van Heerden, David Farley. Mayo Clinic, Rochester, MN

Background: Minimally invasive parathyroidectomy (MIP) has prompted many changes since the 1991 NIH Consensus Conference on primary hyperparathyroidism (PHPT).

Objectives: To assess the evolution and results in the surgical management of PHPT since the introduction of MIP.

Design: Retrospective analysis at a single institution

Setting: Academic medical center

Patients and Methods: PHPT patients operated June 1998-July 2003

Results: Of 1,329 patients (IRB approved) undergoing 1,341 operations for PHPT, 653 (49%) underwent conventional cervical exploration, 513 (38%) had MIP, 22 (1.6%) were converted from MIP to conventional, and 153 (11.4%) were reoperated for persistent/recurrent PHPT. Age ranged from 11-89 years (mean, 61); gender was 74% female, 26% male. Sestamibi was used in 1,070 (80%) patients: sensitivity, 87%; positive predictive value, 94%. Similarly, ultrasound was used in 452 (34%): sensitivity 62%, PPV 87%. Of MIP patients, general and local anesthesia were utilized in 54% and 46%; 48% were outpatients. Reasons not to perform MIP: reoperation, 220; localization problems, 181; thyroidectomy, 94; combined operations, 51; question familial HPT/MEN syndrome, 36; patient preference, 27; miscellaneous, 14. Intraoperative parathyroid hormone (IOPTH) monitoring was utilized in 662 patients: true positive, false negative, false positive, and true negative: 90%, 1.5%, 0.8%, and 8%, respectively. Cure was achieved in 96% of initial conventional operations, 98% of MIP, and 88% of reoperations; ultimately 97% were cured. Multiple gland disease (MGD) was encountered in 11% of patients.

Conclusion: Sestamibi scan has become the predominant localization method. Identifiable causes necessitating standard cervical exploration limit the number of patients eligible for MIP to 55%. IOPTH monitoring is extremely accurate. Conventional and MIP operations have similar cure rates.

NOTES

SECOND SCIENTIFIC SESSION

TUESDAY, November 9, 2004
8:00 a.m. to 12:00 Noon

Gastrointestinal Stromal Tumors Express RAS

Oncogene; A Potential Role for Diagnosis & Treatment

Waddah B. Al-Refaie, J. Wong-Rodriguez, W. Ali, J. Kum, J. Hulst, L. Hall, M. Hallock, C. Behling, A. *Rahim Moossa*, S. L. Blair
Department of Surgery, University of California, San Diego, CA

Background: Gastrointestinal stromal tumors (GIST) constitute the largest category of non-epithelial neoplasms of the gastrointestinal tract. Primary treatment is surgical resection but they have a high propensity to recur.

Hypothesis: Histologically, Gastrointestinal stromal tumors (GIST) have a spindle cell appearance but stain by immunohistochemistry for the proto-oncogene, c-KIT, a tyrosine kinase receptor. Phosphorylation of these receptors may leads to a cascade that may activate the ras/MAP kinase pathway, which may in turn allow other oncogenes to become active. Controversy exists whether the staining of a tumor for CD117 translates into a malignant phenotype or whether there exists benign CD117 tumors that clinically behave like leiomyomas with no propensity for recurrence.

Design: Retrospective study of all patients with spindle cell tumors at our institutions over the past 10 years.

Setting: Tertiary-care university medical center.

Patients and Methods: 65 patients with spindle cell tumors of the gastrointestinal tract. Tumors that were diagnosed by their morphology as leiomyomas, leiomyoblastomas or leiomyosarcomas were included in this study. CD117 and ras p21 were stained by immunohistochemistry on formalin fixed, paraffin embedded sections of normal and tumor tissues. Groups were compared using Chi Square test.

Results: Of the 65 patients, there were 23 patients diagnosed with GIST as confirmed by CD117 expression, and 42 non-GIST patients. Seventeen of the 23 patients with GIST (74%) stained for ras protein compared to 0/27 patients with leiomyomas or 0/8 with sarcomas ($p < 0.001$).

Conclusion: This study is the first to demonstrate that GIST tumors stain positive for ras p21. This molecular trait may be a useful diagnostic tool in addition to c-Kit to separate GIST tumors from leiomyomas or leiomyosarcomas. Thus far, Imatinib mesylate (Gleevec), a c-Kit receptor blocker is utilized to treat GIST tumors; however ras inhibitors may potentially be a therapeutic target for GIST tumors.

NOTES

THIRD SCIENTIFIC SESSION

TUESDAY, November 9, 2004
1:30 p.m. to 4:00 p.m.

Surgical Sphincteroplasty in 446 Patients

James A. Madura, James A. Madura, II, Stuart Sherman, Glen A. Lehman. Indiana University Medical Center, Indianapolis, IN

Hypothesis: Pancreatico-biliary sphincter disease may be reliably diagnosed by endoscopic or intraoperative manometry.

Setting: Urban university teaching hospital

Design: Retrospective review of prospectively collected data.

Patients and Methods: Between 1978 & 2002, 446 patients were treated surgically for stenosis of the main & accessory pancreaticobiliary sphincters. There were 376 females and 70 males with a mean age of 41.6 ± 12.2 years. There were 372 pts with sphincter of Oddi disease (SSO) and 74 with pancreas divisum (PD). With time, more patients underwent endoscopic sphincterotomy, but patients with recurrent stenosis were usually operated upon. Symptoms included abd pain (100%), back pain (55%), nausea/vomiting (82%), and pancreatitis (25%). Earlier investigation included the Nardi test and Caroli manometry, but sphincteric manometry has evolved as the gold standard for diagnosis. Intraoperative manometry was done in 140 patients. Pancreatic duct and pancreatic sphincter manometry was improved in 74% and 89.5% of patients respectively. Biopsies of the main and accessory sphincters demonstrated inflammation and/or fibrosis in 39% of patients but this did not correlate with outcome. There was a single death (0.2%) from a duodenal leak and sepsis. Complications occurred in 29% of pts with pancreatitis, asymptomatic hyperamylasemia and wound/abdominal infection most common.

Results: Excellent to good results were seen in 85% of pts with SSO, and 68% with PD. No ampullary sphincteroplasties restenosed. Predictive factors for good outcome were reduction in pancreatic duct and pancreatic sphincter pressure following sphincteroplasty.

Conclusions Good to excellent results may be achieved by surgical sphincteroplasty when careful selection by pre- and intraoperative manometry is utilized. Perioperative pancreatitis is a risk, but not severe.

NOTES

Outcome of Coronary Artery Bypass Operations in Patients with Renal Insufficiency With and Without Transplantation

*Malek G. Massad**, Jacques Kpodonu, John Lee, Sanjay Ghandi, Alexander Geha. University of Illinois, Chicago, IL

Renal insufficiency (RI) is a significant factor for increased morbidity and mortality in patients undergoing coronary artery bypass graft operations (CABG). This study investigates the results of CABG in patients with RI and evaluates the impact of dialysis and renal transplantation on outcome. Between 1992-2003, CABG was performed on 184 patients with RI. These consisted of 152 patients with serum creatinine ≥ 1.7 mg/dl (Group I) and 32 kidney transplant recipients (Group II). Of Group I, 90 were dialysis-free (Group IA) and 62 were dialysis-dependent (Group IB). Demographics, perioperative findings and outcome were evaluated and compared. Group IA patients were older (mean age 62 years versus 58 years for Groups IB and II). Men constituted 63%, 92% were hypertensive and 66% diabetic. Half the patients were in NYHA Classes III & IV, 36% had unstable angina and 21% had left main coronary disease. Balloon angioplasty/stenting and previous CABG preceded the present operation in 12% and 6% respectively. Mean LVEF was 38%. Mean number of grafts was 3; 76% received at least one IMA, and 16% had concomitant valve operations. Perioperatively, inotropes were required in 36% and an intra-aortic balloon pump in 11%. Median postoperative stay was 6 days. Of Group IB, 8% required re-exploration for bleeding compared to 3% in Groups IA and II. Stroke rate was 8% for all patients. Dialysis was needed postoperatively in 6% of Group IA patients. Operative mortality was 8%; higher in Group IB (10%) compared to Groups IA and II (7% and 6%) respectively. The actuarial 5-year survival was higher in Group II compared to Group I (74% versus 52%, $P < 0.05$). Survival difference was more apparent between Groups II and IB (74% versus 44%, $P < 0.005$). A survival advantage was demonstrated among patients with previous kidney transplants who underwent CABG compared to those who were dialysis-dependent. Accelerated coronary artery disease due to immunosuppressive therapy in transplant recipients did not seem to adversely impact the short and intermediate-term outcomes.

NOTES

THIRD SCIENTIFIC SESSION

TUESDAY, November 9, 2004
1:30 p.m. to 4:00 p.m.

Treatment of Chronic Anal Fissures: Is It Worth the Headache?

*Raymond Staniunas**, M. Hasan Rajab, Tricia A. Meyer, Bonnie R. Hodges, Christie Cummings. Scott and White Memorial Hospital, Temple, TX.

Background: The most common non-surgical treatment of chronic anal fissures is the use of topical nitrates (NTG). This treatment, however, is associated with poor patient compliance due to the side effect of headache.

Hypothesis: The use of diltiazem, a calcium channel blocker, will reduce the occurrence of headache, while maintaining similar healing capabilities.

Design: A prospective randomized double-blinded study comparing topical nitroglycerin with diltiazem for the treatment of chronic anal fissures.

Setting: 350-bed university-affiliated hospital.

Patients and Methods: A prospective randomized double-blinded study was conducted in adult patients, 18 years and over, diagnosed with chronic anal fissures. Glyceryl trinitrate (2%) and diltiazem (2%) were each compounded with petroleum jelly. The study drugs were applied topically, two times daily for 6 weeks. Patients were called once a week for 6 weeks and asked for their weekly average visual analog scale (VAS) pain rating, the amount of pain medication taken for the week, any side effects from the study medication and if they were compliant in applying the study medication. At the 6-week follow-up examination, patients were either healed, received a Botox injection, or were told to continue with the study medication and to return if needed.

Results: A total of 43 adult patients participated in the study. Mean age was 53 ± 14 and 25 (58%) patients were males. Twenty-two patients were treated with diltiazem and 21 were treated with NTG. The NTG group reported lower mean pain scores ($p < 0.03$) and higher over the counter pain medication use ($p < 0.02$) than the diltiazem group for first week only. We found no statistically significant differences in number of fissures healed or compliance with therapy between the two groups. The NTG group reported more headaches for all 6 weeks; with the first three weeks being statistically significant. Three patients (14%) in the NTG group did not finish the 6-

week therapy, while all patients finished in the diltiazem group.

Conclusion: Use of diltiazem for treatment of chronic anal fissures reduces the occurrence of headache while maintaining healing effectiveness similar to NTG and potentially improving compliance with treatment.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Ileal Pouch Anal Anastomosis: Evaluation of Outcomes Between Different Age Groups

J. R. Chapman, David W. Larson, Robert R. Cima, Eric J. Dozois, John H. Pemberton, *Bruce G. Wolff*. Mayo Clinic, Rochester, MN

Objective: Functional outcome and quality of life (QOL) in older patients undergoing ileal pouch anal anastomosis (IPAA) for ulcerative colitis (UC) or familial adenomatous polyposis (FAP) has been incompletely studied. Our aim was to update our understanding about age related functional outcome and QOL after IPAA.

Methods: From 1981 to 2000, 2, 002 patients underwent IPAA. Patients were grouped by age at operation: < 45 (n=1688), 46-55 (n=249), and > 55 (n=65). Mean age was 33.5 yrs. Function and quality of life was assessed with a validated questionnaire.

Results: Patients were followed for a median of 7.5 ± 3.0 years. Pouch failure occurred in 7.3% at 10 yrs. There was no significant difference in pouch failure between age groups. Overall, frequent daytime and nighttime incontinence occurred in 5.0 % and 12.5 % of patients at 10 years. Incontinence was more common in older patients ($p < .0.001$ at 3 yrs). Quality of life as assessed by social activities, work, travel, sexual activity, family relationships, and sports/recreation were not significantly different among age groups. The majority of patients felt improved or had no restrictions after IPAA.

Conclusion: Although incontinence may occur more frequently in older patients, IPAA does not affect QOL in patients > 55 yrs. With appropriate case selection, IPAA offers acceptable functional and quality of life to patients of all ages.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Magnetic Resonance Angiography As a Primary Imaging Study for Infrageniculate Arterial Reconstruction

Sachinder S. Hans, M. Uzieblo, B. Hans, O. Jareunpoon, B. Fry. Department of Surgery, St. John Macomb Hospital, Warren, MI

PURPOSE: Prospective evaluation of magnetic resonance angiography (MRA) as a primary imaging study in patients with critical limb ischemia to facilitate target vessel selection for infrageniculate arterial reconstruction.

METHODS: After implementation of a protocol in December of 2000, contrast enhanced MRA of the abdominal Aorta, iliac arteries and run off vessels using a 3D fast field echo-technique in three overlapping steps was performed in patients with critical lower limb ischemia. Findings of MRA were compared to intraoperative completion arteriography performed in all patients following arterial bypass grafting.

RESULTS: Twenty-seven patients undergoing MRA of the lower extremities presented with ischemic rest pain (7), nonhealing ulceration (7), and tissue loss (13). In 25 patients (92.5%) MRA was satisfactory and these patients underwent infrageniculate arterial reconstruction without pre-bypass contrast arteriography. Concordance between MRA and completion arteriography was present in 24 patients. One patient had visualization of a patent posterior tibial artery by completion arteriography while MRA showed patency of only proximal segment of the posterior tibial artery. In two patients (8.2%), MRA was inadequate (poor bolus timing in one and diminished distal flow in the second patient), and these two patients underwent conventional contrast arteriography. Distal target arteries for infrageniculate bypass graft included: the below knee popliteal artery (3), the posterior tibial artery (11), peroneal artery (4), the dorsalis pedis (8), and the medial plantar artery (1). In no patient did the post reconstruction angiogram reveal a better or a more suitable distal target artery. One patient died following arterial grafting (3.7%). Two reconstructions (7.4%) failed in early post op period with resultant above knee amputations in both.

CONCLUSION: MRA provides accurate and complete enough visualization of the lower extremity arterial system to allow planning for infra inguinal arterial reconstruction and can replace the need for contrast arteriography in most patients with critical limb ischemia.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Increasing Virulence of Pediatric Perforated Appendicitis

Thomas R. Weber, Martin S. Keller, Richard Bower. St. Louis University, St. Louis, MO

Background: Fifty percent or more of pediatric appendicitis is already perforated at presentation. Although it is well known that perforation increases postoperative complication rates, changes in bacterial virulence may also affect such rates. To assess this, the outcome of perforated appendicitis in two time periods was evaluated.

Patients and Methods: One hundred consecutive children with perforated appendicitis who underwent immediate operation from 1992-1994 (Group 1) were compared to 100 similar patients managed from 2002-2004 (Group 2). Data evaluated included age, duration of symptoms, operative findings, culture and antibiotic sensitivity results, and postoperative complications of wound infection, abdominal abscess, and need for reoperation. ANOVA and chi square tests were used to compare groups.

Results: The mean age of Group 1 patients was 9+/-2.5yrs, and Group 2 10+/-1.8yrs ($p=ns$). Group 1 patients had symptoms for 44+/-6.5 hrs before presentation, and Group 2 30+/-4.8hrs ($p<.01$). Twenty percent of Group 1 patients had diffuse peritonitis and 80% had localized abscess at the first operation, while Group2 patients had 50% of each ($p<.05$). Both Group1 and Group2 patients cultured combinations of *E. coli*, *Klebsiella*, *Bacteroides*, *Pseudomonas*, and *Staphylococcus*, with no difference in antibiotic sensitivity. However, postoperative complication rates were significantly different: wound infection- Group1 12%, Group2 24% ($p<.05$); abdominal abscess- Group1 24%, Group2 78% ($p<.001$); reoperation- Group1 28%, Group2 82% ($p<.001$). Group1 had no deaths or enterocutaneous fistula, while Group2 had 1 death and 3 fistulae.

Conclusion: These data suggest a changing virulence of perforated appendicitis in children, unrelated to antibiotic sensitivity. Appendicitis in children is apparently perforating earlier, causing more diffuse peritonitis and resulting in significantly increased rates of postoperative complications. Public education and new operative strategies must be pursued to improve outcomes in these patients.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Pancreaticoduodenectomy is Curative in the Majority of Patients With Node-Negative Ampullary Carcinoma

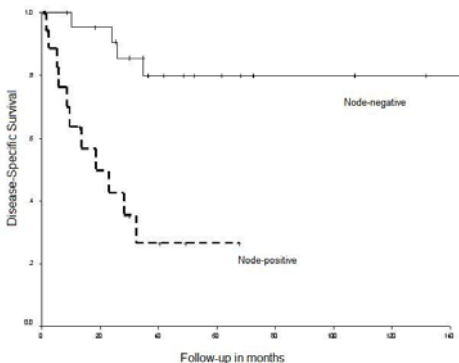
Kimberly Brown, Andrew Tompkins, Margo Shoup, *Gerard Aranha*. Loyola University Medical Center, Maywood, IL

Background: Ampullary carcinoma (AC) is the second most common periampullary cancer. The purpose of our study was to determine the cure rate for AC following pancreaticoduodenectomy (PD) and the factors that influence long-term survival.

Patients and Methods: From 1991-2004, 72 patients (31 male, 41 female), were treated for AC at our institution. Of these, 44 patients who underwent potentially curative PD were studied. Survival was analyzed using Kaplan-Meier method with Cox regression model.

Results: Of the 44 patients (21 male and 23 female), the median age was 69 (range 38-90). Median operative time was 6 hours (range 4-12), and median estimated blood loss was 800 ml (range 100-7500 cc). Thirty-day mortality was 2% (1/44). Twenty-five had node-negative disease, 31 had T1/T2, and 19 were well-differentiated. Median follow-up for patients still alive was 29 months (range 1-147) and overall 5-year survival was 58%. Five-year survival was 80% in node-negative patients, 75% for T1/T2 patients, and 82% for well-differentiated tumors, compared to 25% for node-positive, 10% for T3/T4, and 37% for poor or moderately differentiated (p<0.01 for all). On multivariate analysis, only node-negative disease maintained significance. There were no deaths due to

disease after 3 years of survival was reached.



Conclusion: PD is curative in 80% of patients with node-negative AC. Once 3-year survival is reached, long-term survival can be expected.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Feasibility of Randomized Trials of Extended Lymphadenectomy for Pancreatic Adenocarcinoma: Important Clinical and Pathologic Variables

Peter W. T. Pisters, Timothy M. Pawlik, Carlton C. Barnett, Jeffrey E. Lee, Nicolas-Jean Vauthey, Eddie K. Abdalla, Douglas B. Evans. The University of Texas MD Anderson Cancer Center, Houston, TX

Background: The value of extended lymphadenectomy (ELD) in treating patients with pancreatic adenocarcinoma remains unproven. Some investigators have proposed additional phase III trials to definitively address this question. Using surgical pathology and outcomes data from a large cohort of patients treated at a single institution, we estimated the required sample size and feasibility of a randomized prospective trial comparing standard pancreaticoduodenectomy (PD) with PD + ELD.

Methods: Between 1989 and 2002, 304 patients underwent PD for pancreatic adenocarcinoma. Of these, 158 underwent PD + ELD with separate pathologic analysis of second-echelon (N2) lymph nodes, defined as lymph nodes along the proximal hepatic artery or the great vessels. To estimate the required sample size for a randomized trial, we assumed that ELD can benefit only patients who (1) actually have disease removed from N2 nodes, (2) have microscopically negative (R0) resection margins, and (3) do not have visceral metastatic disease (M0).

Results: Of the 158 patients who underwent PD + ELD, 76 (48%) had negative regional peripancreatic (N1) and N2 nodes, 65 (41%) had positive N1 nodes and negative N2 nodes, and 17 (11%) had positive N1 and N2 nodes. Node status predicted R0 resection (N1- and N2-, 89%; N1+ and N2-, 84%; N1+ and N2+, 47%; $p < .001$). At a median follow-up of 65 mo, the median actuarial survival for the entire cohort was 26.5 mo, and the 5-year survival rate was 27%. Lymph node status was the sole predictor of long-term outcome ($p = .04$). Patients with N1+ or N2+ disease had a median survival of 23 mo, compared with 35 mo for patients with negative nodes. Survival was similar for N1+ and N2+ patients ($p = .57$). At last follow-up, 4 N2+ patients (24%) were alive,

but 3 had recurrent disease. This implies that only 1 N2+ patient (6%) had true M0 disease at PD. These data indicate that only 0.3% of patients (11% N2+ x 47% R0 resection x 6% M0 disease) may achieve a survival benefit from ELD. Even assuming 100% long-term survival of every N2+, M0 patient who underwent PD + ELD, the improvement in survival for the entire population would be only 0.24%. To detect such a difference between PD and PD + ELD with a 2-sided significance level of .09 and 80% power would require 202,000 patients in each study arm.

Conclusion: Given the very small percentage of patients with pancreatic cancer who may benefit from ELD, definitive evaluation of the potential benefits of ELD would require a prohibitively large sample size. Adequately powered randomized trials to address the value of ELD are thus not feasible. Resources should instead be directed to improving systemic therapies.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

IGA Protease Activity is Variable Among Gram-Negative Respiratory Pathogens

Lawrence N. Diebel, David M. Liberati, Michael White. Wayne State University, Detroit, MI

Background: A diagnostic threshold of $\geq 10^5$ colony-forming units (cfu) /ml on quantitative culture of the bronchoalveolar lavage (BAL) effluent has been advocated for the diagnosis of ventilator associated pneumonia (VAP). VAP due to *Pseudomonas* or *Acinetobacter* have a significantly higher mortality rate than VAP due to other microbes and may merit a lower diagnostic threshold for VAP by BAL. Secretory IgA (SIgA) is the principal humoral immune defense at respiratory and other mucosal surfaces and may be degraded into immunologically inactive fragments by bacterial proteases.

Hypothesis: There is variable IgA protease activity among respiratory pathogens and the greatest activity is associated with *Pseudomonas* and *Acinetobacter* isolates.

Methods: Gram-negative bacterial isolates from surgical patients with VAP were obtained from the clinical microbiology laboratory. Bacteria (10^4 cfu/ml) were incubated for 12 hours with SIgA *in vitro*. SIgA degradation was determined by the concentration of the secretory component (SC) fragment of SIgA by size exclusion ultrafiltration.

Results (mean \pm SD ng/ml, n = 5 for each)

	Intact IgA	SC fragment
<i>Pseudomonas</i> (sp)	10.4 \pm 1.3	477.1 \pm 4.5
<i>Acinetobacter</i> (sp)	83.5 \pm 3.2 *	421.4 \pm 4.6
<i>E. coli</i>	380.4 \pm 12.1*#	4.9 \pm 2.8
<i>Enterobacter</i> (sp)	111.7 \pm 3.1*#	328.1 \pm 5.5
<i>Klebsiella</i> (sp)	108.0 \pm 1.7*#	402.9 \pm 4.3

p < 0.001 vs. *Pseudomonas*, # p < 0.001 vs. *Acinetobacter* by ANOVA

CONCLUSION: The greater IgA protease activity noted with *Pseudomonas* and *Acinetobacter* may account for the greater virulence with these organisms. Our data supports the clinical recommendation of using a lower diagnostic threshold ($\geq 10^4$ cfu/ml) on BAL for VAP with these organisms.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Aortic Valve Replacement in Patients With Aortic Stenosis and Severe Left Ventricular Dysfunction: A Suitable Alternative to Transplantation

Harmik J. Soukiasian, Lawrence S. C. Czer, Alan T. Lefor, Daniel R. Margulies, Gregg K. Nishi, David Feldmar, Alfredo Trento. Department of Surgery Cedars-Sinai Medical Center, Los Angeles, CA

Background: Aortic stenosis (AS) left untreated carries a high mortality. Previous studies suggest that in patients with severe left ventricular dysfunction (LVD), prior myocardial infarction (MI) increases mortality after aortic valve replacement (AVR), but the early and late results of AVR in the setting of severe LVD are poorly defined. Whether all patients with AS and severe LVD require heart transplantation (HTX) is controversial.

Hypothesis: AVR is an alternative to HTX for patients with heart failure and AS. Our aim was to assess operative mortality, late survival and predictors of outcome after AVR in patients with severe AS and LVD, and to compare their outcome with those who underwent HTX.

Design: Retrospective review case series.

Setting: Large private urban teaching hospital.

Patients and Methods: Thirteen year review of all patients from 1988-2001 undergoing AVR at our institution with left ventricular ejection fraction (EF) < 30% and severe AS (aortic valve area < 1.0cm²) and comparison to outcomes of transplanted patients.

Results: 51 patients had AVR for severe AS with an EF of < 30%. The patients had similar age, gender, EF, aortic valve area, etiology of valvular disease, and ischemic times. 15/51(29%) had a previous MI, 42/51(82%) had concomitant or prior CABG, and 43/51(84%) had coronary artery disease (CAD). One patient had unbypassed CAD. CAD and the number of CABG anastomoses were significant in survival outcome; 3 year actuarial survival was 100% ± 0% with no CAD, vs. 47% ± 15% with CAD ($P < 0.05$ using Log-Rank Statistics). Also, survival by the number of CABG anastomoses was different, with 3 year actuarial survival of 86% ± 27% with no CABG, 74% ± 24% with 1-2 grafts, and 21% ± 27% with 3 grafts ($P <$

0.01 using Log-Rank Statistics). During the same period, survival with HTX was 78% at 3 years.

Conclusion: In severe aortic stenosis with an EF of < 30% with no concomitant CAD, aortic valve replacement has a survival outcome equal to or exceeding that of heart transplantation. CAD or the requirement for CABG (≥ 3 grafts) results in a significantly reduced survival. Patients with poor left ventricular function and critical aortic stenosis with no concomitant CAD or with 0-2 grafts are good candidates for aortic valve replacement and do not require heart transplantation.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

Lower Extremity Polytetrafluoroethylene Bypass With Distal Vein Cuffs: A Contemporary Series

Stephen R. Lauterbach, Gustavo A. Torres, *George Andros*, Robert W. Oblath.
Section of Vascular Surgery, St. Joseph's Medical Center, Burbank, CA

Purpose: Despite an on-going commitment to all-autogenous leg revascularization, an aging patient population with multiple co-morbidities and decreased availability of autogenous conduits (both single length and composite) has necessitated the addition of the Polytetrafluoroethylene (PTFE)-venous cuff bypass graft to our bypass armamentarium. We reviewed our 39 month experience and analyzed for graft patency rates, limb salvage, and survival.

Methods: From October 1, 2000, to December 31, 2003, 85 lower extremity bypass grafts (11% of all lower extremity bypasses done during same interval) were performed in 82 patients and were retrospectively reviewed. Graft follow up ranged from 1 to 39 months with a mean of 9.8 months. Life-table methods were used to report primary graft patency, limb salvage, and survival.

Results: An equal number of males and females (41) with a mean age of 77 years were operated upon. 57 (67%) grafts were performed for tissue loss, 22 (26%) for rest pain, and 6 (7%) for severe claudication. 61% of patients with critical ischemia were diabetic. 40 (47%) patients had undergone previous leg bypass surgery. 81 (99%) patients had either absent or inadequate greater saphenous vein (GSV) and 60 (73%) had absent or inadequate arm vein by duplex imaging and/or exploration. Grafts originated from the common, superficial or deep femoral artery in 86% of cases. 57 (67%) venous cuffs were constructed from lesser saphenous vein (LSV); the remainder from GSV segment (13), basilic vein (6), previous vein graft (6), and other vein (3). Distal targets included infragenicular popliteal (37), posterior tibial (11), anterior tibial (27), and peroneal (10). There were 10 early (<30 d) graft failures that resulted in 6 leg amputations. Three-year primary patency and limb salvage rates were 71.0% ± 13.5% and 72.8% ± 12.7%. Perioperative mortality was 3.6% and 3 year survival was 60%.

Conclusion: For patients requiring arterial revascularization for limb salvage, distal venous cuff-PTFE bypasses provide an attractive alternative to primary amputation when autologous venous conduit is unavailable. Patency and limb salvage are acceptable for this surgical procedure especially when viewed in the context of short life expectancy for these elderly patients. The use of LSV for the venous cuff highlights the unavailability of autogenous conduit for the bypass in this series.

NOTES

FOURTH SCIENTIFIC SESSION

WEDNESDAY, November 10, 2004
8:00 a.m. to 12:00 noon

A Dramatic Shift in the Primary Management of Traumatic Thoracic Aortic Rupture

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Background: Traumatic thoracic aortic injury (TAI) is traditionally treated with immediate operation. Previously published studies have established the safety and efficacy of treating TAI with endovascular stents.

Hypothesis: Our hypothesis was that stents are supplanting operative repair as primary therapy for TAI.

Design: Retrospective cohort

Setting: Level I Trauma Center

Patients and Methods: Blunt trauma patients admitted to a Level I Trauma Center diagnosed with TAI between September 1997 and November 2003 were identified from an institutional trauma registry (n=25). Data was abstracted from medical records and analyzed. Three groups were defined: 1) surgical repair (cardiopulmonary bypass or clamp and sew) (n=10), 2) medical management (n=8), and 3) endovascular stent (n=7).

Results: Prior to 2002, nine patients were treated by surgical repair (75%), two by medical management (17%), and one by endovascular stent (8%). Since 2002, one patient was treated by surgical repair (8%), six by medical management (46%), and six by endovascular stent (46%). Injury Severity Scores (ISS) were comparable between the surgical cohort (34.9+3.4), stent placement (35.1+3.7), and medical management (29.9+2.8) (p=0.48). Overall survival was 80% with no differences in morbidity or mortality. The stented group had shorter hospital lengths of stay compared to surgical management (28 versus 46 days) (p<0.05). The one operative case since 2002 was a combined arch/innominate injury which anatomically precluded stent placement.

Conclusion: Initial reports suggested thoracic aortic stents as an alternative for injured patients with prohibitive operative risks. Our data suggest stent placement is quickly evolving into the primary therapy for TAI across all ISS profiles. Surgical repair is reserved for complex injuries not amenable to stenting or medical management.

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