

Stress Gastritis Prevention -- A Tale of Two Drugs

The Efficacy and Safety of Proton Pump Inhibitors vs Histamine-2 Receptor Antagonists for Stress Ulcer Bleeding Prophylaxis Among Critical Care Patients: A Meta-Analysis.

Lin P-C, Chang C-H, et al:

Crit Care Med 2010; 38 (April): 1197-1205

No difference exists between proton pump inhibitors and histamine 2-blockers as preventive agents for stress gastritis.

Background: Stress gastritis continues to occur in critically ill patients especially when prophylactic measures are not used. Even with prophylaxis, clinically important bleeding occurs in 2 to 4% of patients.

Objective: To compare effectiveness of histamine-2 (H2) blockers and proton pump inhibitors (PPIs) as prophylactic agents for stress gastritis.

Design: Meta-analysis of English articles where selection criteria initially identified 1213 studies.

Participants: 936 patients in 7 randomized controlled trials.

Methods: All studies compared PPIs to an H2 blocker. Efficacy was measured by incidence of stress gastritis bleeding. Safety outcome was measured by the rate of pneumonia and mortality. Quality of the study was ranked using Jadad criteria. Of trials, 3 reported on the use of enteral nutrition. A definition of upper gastrointestinal (UGI) bleeding was defined in 5 trials and 6 trials reported pneumonia rates. Sensitivity analysis was performed to help identify heterogeneity. Results were reported as pooled risk difference between the two different drug classes. Omeprazole was used in 6 studies and pantoprazole in one study. H2 blockers used included ranitidine, famotidine, and cimetidine. Most studies had 30 patients per study arm with only 1 study having >100 patients in each study group.

Results: Pooled risk difference for UGI bleeding was -0.04 favoring PPIs which was not statistically significant. However, there was significant heterogeneity among studies. Sensitivity analysis revealed little effect on results except when the largest study was removed, which reduced heterogeneity and shifted reduced the risk difference between the 2 drugs. Risk of pneumonia ranged from 3 to 18% and there was no difference in rates based on which drug was used. Mortality was also not different. Of studies, 3 were poor quality and 4 had a Jadad score consistent with good quality.

Conclusions: Current evidence does not support an effectiveness difference between H2 blockers and PPIs when used for stress gastritis prophylaxis.

Reviewer's Comments: H2 blockers and PPIs are equally as effective for preventing UGI bleeding from stress gastritis and neither is associated with an increased rate of pneumonia. I doubt this article will change a lot of minds on this topic. Current data are not great and the authors ask for the proverbial large randomized clinical trial. I doubt that will happen. Our approach is more pragmatic. A cost consideration drives our choice of agent. We use H2 blockers as the least costly drug in our pharmacy. If PPIs become the least costly agent, I suspect we will change. We use stress prophylaxis only for high-risk patients and stop the drug when risk characteristics of the patient change. Attention to these details will avoid drug cost and risk in many patients. (Reviewer-John A. Weigelt, MD).

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Keywords: Stress Gastritis, Histamine-2 Blockers, Proton Pump Inhibitors

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Water Soluble Contrast Agents Useful for Diagnosis, Prognosis in SBO

Systematic Review and Meta-Analysis of the Diagnostic and Therapeutic Role of Water-Soluble Contrast Agent in Adhesive Small Bowel Obstruction.

Branco BC, Bamparas G, et al:

Br J Surg 2010; 97 (April): 470-478

Transit time of water-soluble contrast agents predict small bowel obstruction resolution.

Background: Adhesive small bowel obstruction (SBO) is a cause for repeated hospitalizations and abdominal surgery. While most patients are managed medically, the constant worry is that an individual patient will progress to strangulation and perforation.

Objective: To determine the diagnostic and therapeutic role of water-soluble contrast agents in patients with SBO.

Design: Meta-analysis.

Participants: 12 73 patients in 14 studies.

Methods: Of studies, 7 met criteria evaluating a diagnostic role: 4 were observational and 3 randomized controlled trials (RCT). Of studies, 9 evaluated the therapeutic role: all were RCT although their randomization was always not clear. Patient characteristics, interventions, and outcomes were extracted. Timing of radiology studies in the diagnostic scheme was retrieved. In the therapeutic trials, blinding, and intent to treat analysis assessment were also retrieved. The quality of each study was assessed. Primary outcome was resolution of SBO and time it took to resolve without surgery. Gastrografin (50 to 100 ml) or Urografin (40 to 100 ml) were the agents used. Radiologic studies were performed at 4, 8, and 24 hours after contrast.

Results: Contrast in the colon at 24 hours had a 99% sensitivity, 97% specificity, 99% positive predictive value, and 97% negative predictive value for resolution of SBO. Contrast reduced the need for surgery by almost 10%; 21% with contrast and 30% without contrast. Duration of hospital stay was 2 days shorter when contrast was used. No complications were associated with contrast. Study quality was fair except for one study.

Conclusions: Water-soluble contrast agents can predict the need for surgery in patients with SBO.

Reviewer's Comments: While the quality of the studies is not great, this meta-analysis supports water-soluble contrast agents to evaluate patients with adhesive SBO. This approach has been around a time long with the oldest study included being published in 1992. Odds ratio for predicting surgery was 0.62 favoring the use of contrast. Given these findings, one must ask why we are not all using this approach. We just reviewed an article on CT scanning for SBO which was not as encouraging. Gastrografin is sometimes used by our group in this fashion although not commonly. Maybe the quality and volume of the data is one reason as the one study rated the best for therapeutic use only included 43 patients. However, the total patients examined in this meta-analysis are sizable. The authors recognized the quality issue in their discussion, but stopped short of the usual suggestion that more RCTs are needed. I applaud them for not making the obvious statement, but maybe it should be studied. Until then, we may all have to rethink what we believe about the use of contrast agents in patients with SBO. (Reviewer-John A. Weigelt, MD).

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Keywords: Small Intestine Obstruction, Water Soluble Contrast Agents

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Arterial Catheter Infection Risk Reassessed

Infectious Risk Associated With Arterial Catheters Compared With Central Venous Catheters.

Lucet J-C, Bouadma L, et al:

Crit Care Med 2010; 38 (April): 1030-1035

Infection risk for arterial and central venous catheters appears similar.

Background: In critically ill patients, central venous and arterial access is commonly used. While emphasis has been placed on catheter-related sepsis secondary to central venous catheters, arterial lines have not been scrutinized as closely.

Objective: To compare risk of infection for central venous and arterial lines.

Design: Retrospective review of prospective data collected for a study on prevention strategies.

Participants: 3532 catheters representing 1617 arterial and 1915 central venous lines.

Methods: Catheters represented 27,541 catheter days. Catheter colonization was defined as a quantitative catheter tip of at least $\geq 10^3$ colony-forming units/mL. Catheter-related infection required systemic signs and a positive catheter and catheter-related bacteremia required the same bacteria to be isolated from catheter and blood. Prevention protocol compared dressing changes at 3 or 7 days. Data were analyzed for the incidence of colonization and infection associated with each type of catheter. A daily hazard rate for each type of catheter was calculated for colonization and infection. Risk factors for colonization and infection were also sought. All lines were placed by a standard sterile protocol. Lines were removed when no longer needed.

Results: 116 arterial and 171 central venous catheters were colonized. Colonization rates were similar among both types of catheters: 7.9% for arterial and 9.6% for central venous catheters. Arterial lines were used a median of 5 days in colonized and non-colonized catheters. The daily hazard rate for both catheters were similar for the first 7 days of use, but after 7 days the rate was higher for arterial catheters than central venous catheters. Catheter-related infection was similar for both types of catheters. Multivariate analysis revealed femoral line placement, chronic respiratory failure, and chronic heart failure to be significant risk factors for arterial catheter colonization.

Conclusions: Risk factors and the daily risk of colonization are different for arterial catheters compared to central venous catheters.

Reviewer's Comments: Current guidelines for inserting and managing arterial catheters rely heavily on central venous catheter guidelines and data surrounding their use. The risk of arterial line colonization continued to increase with duration of use while central venous line colonization rates appeared to remain stable. There appeared to be a breakpoint at 8 days. This is postulated to be secondary to the constant access of arterial lines. I wonder about this finding and how it relates to our clinical scenarios. We find central venous lines being accessed more frequently for blood draws than in the past. It just may be that how either catheter is used is the deciding factor for colonization risk over the duration of the catheter. One conclusion is clear and simple: the risk is gone when the catheter is removed. (Reviewer-John A. Weigelt, MD).

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Keywords: Catheter Infection Risk, Central Venous Lines, Arterial Lines

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Serial Head CT in Anticoagulated Patients Not Necessary

The Value of Sequential Computed Tomography Scanning in Anticoagulated Patients Suffering From Minor Head Injury.

Kaen A, Jimenez-Roldan L, et al:

J Trauma 2010; 68 (April): 895-898

Less than 2% of trauma patients on anticoagulation with a normal neurologic exam will develop a delayed cerebral hemorrhage after an initially negative head CT.

Objective: To measure the incidence of delayed cerebral hemorrhage in anticoagulated patients sustaining a mechanism for traumatic brain injury to justify the routine practice of delayed CT scanning in this population.

Design: Prospective evaluation.

Participants: 137 adult, anticoagulated trauma patients with an initially negative admission head CT.

Methods/Results: Of patients, only 2 (1.4%) demonstrated hemorrhagic lesions on the 24-hour head CT that were not evident on the initial head CT. The group without any evidence of bleeding on follow-up head CT did not develop any neurologic deterioration. The 2 patients who developed a small intracranial hemorrhage on follow-up CT remained neurologically normal and anticoagulation was continued. Their 48-hour CT scans showed no change and they were subsequently discharged. Of note these 2 patients were receiving warfarin as well as an antiplatelet agent. Only 1 other patient in the series was receiving both an antiplatelet agent and anticoagulation.

Conclusions: The routine use of serial head CT in anticoagulated, neurologically normal patients at 24 hours post injury is not warranted. These findings support a cost-conscious approach that endorses a period of neurologic observation without pre-discharge repeat head CT in patients with a normal neurologic examination.

Reviewer's Comments: This is an important study as it demonstrates the safety of clinical observation after initial negative head CT for patients who are on anticoagulation. Routine repeat head CT in this group of patients and cessation of their anticoagulation in the setting of a normal neurologic examination is of low yield. These data will serve to support a cost-conscious approach to the evaluation of these patients which will allow for reduced resource utilization. Given the increasing size of the elderly population and the association between anticoagulation, falls, and traumatic brain injury, the economic impact of restricting serial CT scanning in this population will be profound. (Reviewer-Raminder Nirula, MD).

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Keywords: Traumatic Brain Injury, Hemorrhage, Anticoagulation, CT Scan

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Pancreatic Necrosis -- Interventional Radiology and Surgery?

Open Pancreatic Necrosectomy in the Multidisciplinary Management of Postinflammatory Necrosis.

Babu BI, Sheen AJ, et al:

Ann Surg 2010; 251 (May): 783-786

About 80% of patients undergoing pancreatic necrosectomy have an identified organism.

Objective: To determine outcomes related to a combined radiologic and surgical approach to patients with pancreatic necrosis.

Design/Methods: Retrospective review of patients admitted with severe pancreatitis to a single center with management directed via a standard protocol. Protocol included baseline CT scan assessment of necrosis, antibiotic prophylaxis, fine-needle aspiration (FNA) in those with stable organ dysfunction beyond the 10th day, repeat aspiration biweekly thereafter in those with continued organ dysfunction, aspiration of fluid collections present beyond the second week, percutaneous drainage if purulent aspirates were obtained, and recurrent fluid collections post necrosectomy managed radiologically.

Results: Bacterial and/or fungal organisms were isolated in >80% of patients undergoing necrosectomy with *Escherichia coli* being the most common isolate. In patients undergoing necrosectomy without FNA evidence of an organism, about half were performed secondary to the identification of gas within the lesser sac, most of which had undergone previously unsuccessful percutaneous drainage. The other half of these patients underwent exploration for involvement of extrapancreatic organs such as ischemic bowel, hemorrhage, and abdominal compartment syndrome. A little less than half of patients undergoing necrosectomy required a subsequent operation either for repeat necrosectomy or enteric fistulae. About half of patients developed postoperative fluid collections which underwent radiologic drainage. Organ dysfunction scores were not significantly worsened in the immediate postoperative period. Mortality was 7% at the 30-day mark, but total hospital-stay mortality was 22%.

Conclusions: Acceptable outcomes are obtained using a multidisciplinary approach that includes percutaneous and open procedures. Other approaches should be compared to these results and not older studies of open necrosectomy without the use of other minimally invasive approaches.

Reviewer's Comments: This study provides an evaluation of a multidisciplinary approach to pancreatic necrosis that employs use of radiologic drainage. This approach has not been universally accepted in the United States as many believe that percutaneous drainage is ineffective and serves to increase the likelihood of pancreatic contamination. Unfortunately, we cannot know to what extent this occurred from the current study, but a number of patients underwent necrosectomy because of gas within fluid collections after ineffective percutaneous drainage suggesting that this may be an issue. While this subject remains a topic of debate, this study provides important outcome data with an aggressive radiologic interventional approach in conjunction with open necrosectomy that should be used when investigating alternative approaches to this difficult clinical problem. (Reviewer-Raminder Nirula, MD).

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Keywords: Pancreatic Necrosis, Necrosectomy, Outcome, Percutaneous, Drainage

Print Tag: Refer to original journal article

MRI Fails to Diagnose PE Accurately

Gadolinium-Enhanced Magnetic Resonance Angiography for Pulmonary Embolism: A Multicenter Prospective Study (PIOPED III).

Stein PD, Chenevert TL, et al:

Ann Intern Med 2010; 152 (April): 434-443

Local expertise with MRI scanning is related to technical adequacy and diagnostic accuracy of MRI for pulmonary embolism diagnosis.

Objective: To determine the diagnostic accuracy of MRI for the diagnosis of pulmonary embolism (PE).

Design: Multicenter prospective trial.

Participants: 371 adults with diagnosed or excluded pulmonary embolism.

Methods: Patients were recruited from 10 centers over a 2-year period who had the diagnosis of PE made or ruled out by CT angiography with or without CT venography, ventilation-perfusion lung scan, D-dimer assay and/or clinical assessment. Patients underwent MRA and MR venography which were read in a blinded fashion. Scans were performed within 48 to 72 hours of the assessment for PE via standard methods.

Results: MRI was technically inadequate in 25% of patients. Among these patients, about a quarter of them actually had PE based upon their standard work up. The most common reasons for technically inadequate imaging were poor arterial opacification and motion artifact. MRI sensitivity when one included the technically inadequate images was 57% and specificity was 75%. Excluding technically inadequate images, sensitivity was 78% and specificity was 99%. MRI had poor sensitivity if the embolus was in segmental or sub-segmental vessels. Venous opacification was frequently inadequate in more than a third of patients. When considering only those with adequate images assessing MR venography with angiography, sensitivity improved to 92% and specificity was 96%.

Conclusions: MRI should only be performed at centers with expertise in its use for PE and only in patients with a contraindication to standard tests. The combination of MR pulmonary angiography and venography provides superior diagnostic accuracy to pulmonary angiography alone in patients with adequate images.

Reviewer's Comments: It is refreshing to see a negative study get published. These data indicate clearly that MR should not be the gold standard for diagnosing PE and only in specific instances should it be used for the diagnosis of PE given the technical inadequacy that is frequently associated with this type of imaging in this setting. (Reviewer-Raminder Nirula, MD).

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Keywords: Pulmonary, Embolus, MRI, Diagnosis, Sensitivity

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Morbidity, Mortality Improved With Less-Invasive Necrosectomy

Minimal Access Retroperitoneal Pancreatic Necrosectomy: Improvement in Morbidity and Mortality With a Less Invasive Approach.

Raraty MGT, Halloran CM, et al:

Ann Surg 2010; 251 (May): 787-793

Age, preoperative morbidity, and surgical procedure are independent predictors of mortality that favor the laparoscopic approach to pancreatic necrosectomy.

Background: Severe acute pancreatitis complicated by pancreatic necrosis is associated with significant morbidity and mortality. Many patients will develop superinfection of their pancreatic necrosis which can lead to multi-system organ failure and death. Historically, this has been felt to be an indication for surgical intervention. Minimal access techniques have been applied to patients with infected pancreatic necrosis in an attempt to decrease morbidity and mortality. Several techniques are available for pancreatic necrosectomy and include open debridement and packing, laparostomy with close packing with and without lavage, and minimally access techniques. The operative mortality of open necrosectomy remains high in most large series of patients with infected necrosis.

Objective: To review pancreatic necrosectomy both open and minimally invasive over an 11-year period at a tertiary referral center.

Design: Retrospective review.

Methods: Patient demographics, including degree of pancreatic necrosis and physiologic disturbance, were recorded. Outcomes (duration of intensive care unit and hospital stay, organ dysfunction, postoperative morbidity and mortality) were measured with an intention-to-treat analysis being performed. At the Royal Liverpool University Hospital, 189 patients underwent necrosectomy and were available for analysis.

Results: Of patients, 137 had a minimal access retroperitoneal pancreatic necrosectomy (MARPN) as compared to 52 undergoing open necrosectomy. The majority of cases (68%) were caused by alcohol or gallstones, as would be expected. Of patients in the MARPN group, 31% had postoperative organ failure as compared to 52% in the open group, which was statistically significant. The death rate between groups was 19% and 38% following the MARPN and open groups, respectively. Age, preoperative morbidity, and surgical procedure were independent predictors of mortality that favored the laparoscopic approach. While considered the gold standard for pancreatic necrosectomy for infected pancreatic necrosis, the open necrosectomy approach is associated with unacceptably high rates of postoperative morbidity and mortality. Several minimal access approaches have been reported in an attempt to improve outcomes following pancreatic necrosectomy.

Conclusions: This nonrandomized comparison of MARPN to open necrosectomy showed lower postoperative morbidity and mortality favoring the minimally invasive approach.

Reviewer's Comments: This study demonstrated significant benefits to minimal access approaches including fewer complications and death for patients with infected pancreatic necrosis. While not prospective and randomized, this study proves that tertiary referral and strategic uniform management with the application of minimal access techniques can improve outcomes associated with infected pancreatic necrosis. While well-designed prospective randomized trials are unlikely, more uniform definitions and management strategies like these will continue to refine the management of these challenging cases. (Reviewer-Sam G. Pappas, MD).

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Keywords: Minimal Access Retroperitoneal Pancreatic Necrosectomy, Open Necrosectomy

Print Tag: Refer to original journal article

Pancreatectomy Surgical Approach Does Not Affect Survival

A Multicenter Analysis of Distal Pancreatectomy for Adenocarcinoma: Is Laparoscopic Resection Appropriate?

Kooby DA, Hawkins WG, et al:

J Am Coll Surg 2010; 210 (May): 779-787

In patients undergoing laparoscopic pancreatectomy, perioperative outcomes were better in the laparoscopic compared to the open group, yet no difference was seen in long-term overall survival.

Background: Laparoscopic left pancreatic resection affords patients with improved perioperative outcomes after distal pancreatectomy.

Objective: To analyze distal pancreatectomy for pancreatic ductal adenocarcinoma (PDAC) comparing short-term perioperative and long-term oncologic outcomes between laparoscopic distal pancreatectomy (LDP) and open distal pancreatectomy (ODP).

Design: Multi-institutional retrospective review of records.

Participants: 1735 patients undergoing distal pancreatectomy (DP).

Methods: Review was undertaken in patients undergoing distal pancreatectomy at 9 institutions comprising the Central Pancreas Consortium. Tumor characteristics including tumor size, resected pancreas lengths, and lymph node counts were recorded. No standard techniques to pancreatic resection, either open or laparoscopic, were used, but in general were similar between hospitals. Clinical parameters were compared both matched for outcomes and unmatched to provide insights into how patients are being selected for each operative approach. A 3 to 1 matching was chosen so that larger groups of patients could be compared.

Results: 228 (12.9%) patients underwent PDAC. Of these, 212 had data available for analysis. Of available patients, 23 underwent LDP and 189 (89.2%) had ODP. Of patients, 26% had positive margins. Mean number of nodes examined was 12 and the majority of patients (54%) had ≥ 1 node that was positive for metastatic disease. Median overall survival in both groups was 16 months. Intraoperative blood loss and length of stay was shorter in the LDP group. Interestingly, on multivariate analysis, only intra-operative blood loss and not method of resection (open versus laparoscopic) had a negative impact on margin status.

Conclusions: There was no difference in overall survival between groups in this matched comparison and there were no differences in positive margin rate, number of nodes examined, or number of patients with nodal positivity.

Reviewer's Comments: This study demonstrated equivalent short- and long-term oncologic outcomes for PDAC patients undergoing laparoscopic versus open left pancreatectomy. The results of this study would suggest that either approach in appropriately selected patients would be acceptable. The manner of pancreatic resection mattered less long-term and more in the immediate postoperative period favoring the laparoscopic approach. As expected survival among patients with PDAC in particular with positive margins or with positive nodal metastases had worse outcomes. It is reasonable to assume that manner of pancreatic resection contributes little to the long-term outcome of patients undergoing distal pancreatectomy for PDAC. (Reviewer-Sam G. Pappas, MD).

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Keywords: Laparoscopic, Open Distal, Pancreatectomy, Pancreas Cancer

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CT Scan Delays Time to Operation in Patients With Appendicitis

Management of Acute Appendicitis: The Impact of CT Scanning on the Bottom Line.

Pritchett CV, Levinsky NC, et al:

J Am Coll Surg 2010; 210 (May): 699-707

The use of CT scan increases time to operation and may increase costs for patients with appendicitis.

Objective: To investigate the impact of increased CT scan use in the diagnosis of appendicitis to the financial bottom line.

Participants: 279 patients undergoing operation for acute appendicitis.

Methods: Records of patients with acute appendicitis diagnosed from June 2005 to May 2007 were reviewed. Patients were excluded if they underwent operation after a period of planned inpatient operation, if they underwent percutaneous drainage of an abscess, were admitted for planned interval appendectomy, or were transferred from another institution. Demographic information, use of CT, method of operation, complications, financial information, and length of stay were abstracted. Financial data were not adjusted for inflation due to the short study period. Efficiency measures were defined as time from admission to emergency department (ED) bed to operative incision time and length of operation. Contribution to margin for appendectomy was calculated as hospital collections minus direct costs. The study period was divided into 2 time periods based on the time of establishment of a new acute care surgery service.

Results: There were no differences in age, gender, time of presentation, comorbidities, or insurance status between groups. Use of preoperative CT increased from 77% in period 1 to 86% in period 2 ($P=0.057$). This did not change after adjustment for age, gender, or presence of insurance. Women were 3 times more likely to undergo CT scan than men. There was also an increase in use of laparoscopy, from 69% in period 1 to 79% in period 2. Overall mean time from ED admission to incision was 491 minutes. This increased from 465 minutes in period 1 to 521 minutes in period 2 ($P=0.032$). Controlling for gender, time period, and insurance status, obtaining a CT added 204 minutes to the time from admission to incision. Patients undergoing laparoscopic appendectomy had an average length of stay of 1.76 days, compared to 3.09 days for open appendectomy ($P=0.0002$). This remained significant when controlling for time period, gender, presence of complications, and appendiceal perforation or gangrene. Hospital charges increased from \$27,720 during period 1 to \$32,259 in period 2 ($P=0.042$). Collections and direct costs did not change. Contribution to margin decreased from \$6347 to \$4295 ($P=0.068$) in univariate analysis. Multivariate analysis suggested that only length of stay made a significant contribution to margin.

Conclusions: Use of CT scan in acute appendicitis increases costs of care, decreases contribution to margin, prolongs patients' stay in the ED and delays time to operation.

Reviewer's Comments: This analysis considers only those patients in whom appendicitis was confirmed; undoubtedly, some patients with abdominal pain underwent CT scanning and had an alternative diagnosis made. In the era prior to CT, many of these patients might have gone to operative exploration. (Reviewer-Karen J. Brasel, MD).

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Keywords: CT Scan, Cost, Revenue, Appendicitis

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Use of VAC Therapy for Vascular Groin Infections Is Safe, Effective

Management of Early (<30 Day) Vascular Groin Infections Using Vacuum-Assisted Closure Alone Without Muscle Flap Coverage in a Consecutive Patient Series.

Dosluoglu HH, Loghmanee C, et al:

J Vasc Surg 2010; 51 (May): 1160-1166

Management of early, deep groin wound infections with debridement, antibiotics, and vacuum-assisted closure is safe and enables graft preservation in most patients with minimal morbidity, limb loss, and mortality.

Objective: To report on the results of vacuum-assisted closure (VAC) without muscle flap closure for early vascular groin infections.

Participants: 22 patients with 26 infected groins.

Methods: Records of patients with deep groin infections requiring operative debridement from September 2003 to August 2008 were reviewed. Patients with superficial infections and those who presented >30 days after initial operation were excluded. Wounds were classified as Szilagyi II (no graft involvement) or Szilagyi III (graft exposed and involved). Patients were started on broad-spectrum antibiotics, underwent imaging to determine extent of infection, and were taken to the operating room for debridement. Daily dressing changes using silver-containing gel were done until there was no obviously infected tissue and the wound was hemostatic. At that point, a VAC dressing was applied using continuous negative pressure of 125 mm Hg. Patients with exposed grafts were kept in the hospital until there was granulation tissue over the graft; patients without exposed grafts were kept in the hospital until there was healthy granulation tissue at the wound base and no debridement between dressing changes was necessary.

Results: There were 14 Szilagyi II wounds and 12 Szilagyi III wounds. Mean time to VAC application was 3 days; mean duration of VAC use was 27 days (range 6 to 53 days). Patients with Szilagyi II wounds had a significantly shorter length of stay than those with Szilagyi III wounds (10.0 vs 20.5 days, respectively; $P = 0.04$). Wound healing was achieved in 49 days (range 7 to 100 days). There were 2 failures in the Szilagyi III group. One patient cultured *Enterococcus fecalis*, *Escherichia coli*, and *Pseudomonas*; 8 days after VAC placement, he had sudden bleeding and was taken to the operating room. The graft was removed and replaced with a cryopreserved vein graft. The wound healed in 55 days. The second wound also cultured *Pseudomonas*. The wound healed with VAC therapy in 30 days, but he presented on day 117 with a recurrent groin infection. Mean follow-up was 33 months with 100% healing in the Szilagyi II group, 83% success in the Szilagyi III group, and 100% limb salvage in both groups.

Conclusions: Management of early, deep groin wound infections with debridement, antibiotics, and VAC treatment is safe and enables graft preservation in most patients with minimal morbidity, limb loss, and mortality.

Reviewer's Comments: It is not clear whether this approach using VAC therapy is more effective than use of muscle flap coverage, or whether it results in use of greater resources. Clearly any effort that aids in graft preservation is an advancement over explantation, and use of VAC over exposed graft in a closely monitored setting is not as dangerous as once thought. (Reviewer-Karen J. Brasel, MD).

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Keywords: Vascular Groin Infections, Vacuum-Assisted Closure Dressing

Print Tag: Refer to original journal article

No Difference in Pneumonia Based on Timing of Tracheostomy

Early vs Late Tracheostomy for Prevention of Pneumonia in Mechanically Ventilated Adult ICU Patients: A Randomized Controlled Trial.

Terragni PP, Antonelli M, et al:

JAMA 2010; 303 (April 21): 1483-1489

Early tracheostomy decreases ventilator time but does not alter incidence of pneumonia in mechanically-ventilated adults.

Objective: To analyze early versus late tracheostomy and the impact on ventilator-associated pneumonia.

Design: Randomized controlled trial.

Participants: 419 randomized mechanically-ventilated adults in 1 of 12 Italian intensive care units (ICUs).

Methods: Eligible patients had an APACHE II score between 35 and 65, a sequential organ failure assessment (SOFA) score ≥ 5 , and had been mechanically ventilated for ≥ 24 hours. Presence of coagulopathy or intracranial hypertension was additional contraindications to performing tracheostomy. All tracheostomies were performed using the percutaneous technique. Ventilator-associated pneumonia was defined using a simplified version of the Clinical Pulmonary Infection Score (CPIS). CPIS was calculated at study entry, prior to randomization, and every 72 hours through day 28. A score of 6 was used to define ventilator-associated pneumonia. Primary outcome was ventilator-associated pneumonia, with secondary outcomes of ventilator-free days, ICU-free days, and survival. Due to the change in clinical condition possible from the time of randomization to time of tracheostomy, analysis was performed on an intent-to-treat basis.

Results: Of 209 patients randomized to early tracheostomy, 145 received a tracheostomy a mean of 7 days after intubation. Of 210 patients randomized to late tracheostomy, 119 patients received a tracheostomy a mean of 14 days after intubation. There were no differences in baseline characteristics between groups. Adverse events occurred in 39% of each group; the most common was inflammation of the stoma. Ventilator-associated pneumonia occurred in 14% of the early group and 21% of the late group ($P=0.07$; hazard ratio 0.66, 95% CI 0.42 to 1.04). Median ventilator-free days in the early group was 11, compared to 6 in the late group ($P=0.02$). Of patients, 68% in the late group and 77% in the early group were successfully weaned ($P=0.002$), and a greater percentage of patients in the early group were discharged from the ICU (48% vs 39%, $P=0.03$). There was no difference in 28-day survival (74% in early group, 68% in late group).

Conclusions: Early tracheostomy does not reduce incidence of ventilator-associated pneumonia.

Reviewer's Comments: Reduction in ventilator-associated pneumonia is based on 2 possible scenarios. The first is earlier liberation from the ventilator, and the second is reduction of the aspiration that occurs in all patients who are endotracheally intubated. The current study achieves a reduction in overall ventilator days without reducing ventilator-associated pneumonia. Given that ventilator-associated pneumonia can only occur in those patients remaining on mechanical ventilation, this suggests that the rate in patients on the ventilator was actually increased in the late group. (Reviewer-Karen J. Brasel, MD).

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Keywords: Tracheostomy, Timing, Pneumonia, Intensive Care Unit

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Another Way to Do Component Separation

Endoscopic Versus Open Component Separation in Complex Abdominal Wall Reconstruction.

Harth KC, Rosen MJ:

Am J Surg 2010; 199 (March): 342-347

Endoscopic component separation for hernia repair has less wound complications, but otherwise similar outcomes to the open technique.

Background: The large ventral hernia still represents a complex problem for the general surgeon. While mesh closure of these large defects is clearly better than primary closure based on simple feasibility and recurrence rates, the risk of mesh complications in some patients mandates a different approach. Component separation is suggested as an approach in these cases.

Objective: To compare outcomes of open versus endoscopic component separation hernia repair.

Design/Participants: Retrospective review of 22 endoscopic and 22 open approach patients.

Methods: Demographics, number of hernia repairs, presence of contamination, reason for surgery, surgical procedure, surgical times, and body mass index (BMI) were captured from the medical records. Primary outcomes sought were morbidity, mortality, and recurrence rate. Hernia recurrence was assessed by clinic visits, telephone contact, or CT scanning. The open technique used large skin flaps to approach the anterior fascia. Endoscopic technique used a balloon dissection to identify the fascia. Biomaterials were commonly used to reinforce the repair. The posterior rectus fascia was released in either approach when necessary.

Results: The most common reason for the procedure was infected mesh removal. Demographics including hernia size were similar between groups. Of repairs, 95% had some type of reinforcement. Surgical times were similar. Hospital stay was 11 days for open and 8 days for endoscopic repairs. Wound complications occurred in 52% of open and 27% of endoscopic repairs which was not statistically significant. Mean follow-up was 15 months. Recurrence occurred in 32% of open and 27% of endoscopic repair patients.

Conclusions: Endoscopic component separation had less wound complications but otherwise had outcomes similar to the open technique.

Reviewer's Comments: Endoscopic dissection is the next twist for the component separation technique. The dissection is done without raising the large skin flaps which occasionally present wound problems related to skin necrosis and seroma formation. Skin necrosis and seroma occurred in the open repair patients but not in the endoscopic repair patients. A concern with the endoscopic approach is that it may not allow as much movement of the abdominal wall as the open technique. We feel that primary closure can be obtained for a ≤ 10 cm defect without using the posterior rectus sheath. We also try to use a biologic prosthesis for reinforcement whenever possible since we commonly use component separation for infected mesh cases. We are just beginning to gain experience with the endoscopic approach. One must remember that the recurrence rate for this procedure is still very high regardless of your technique. (Reviewer-John A. Weigelt, MD).

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Keywords: Component Separation, Hernia Repair, Open Separation, Endoscopic Separation

Print Tag: Refer to original journal article

Occult Nodal Metastases in Colon Cancer -- Any Clinical Impact?

Predictors of Occult Nodal Metastasis in Colon Cancer: Results From a Prospective Multicenter Trial.

Wasif N, Faries MB, et al:

Surgery 2010; 147 (March): 352-357

Occult nodal metastases in colon cancer are associated with advanced tumor stage, high tumor grade, and lymphovascular invasion.

Background: Staging of colon cancer is important for treatment decisions and establishing a prognosis for a patient. Nodal disease increases the stage of disease and recently occult metastases were incorporated into the American Joint Committee on Cancer staging system. N1mi indicates micrometastases which are defined as deposits of cancer cells <2.0 mm and >0.2 mm. NOi+ indicates isolated tumor cells. The clinical significance of these micrometastases is disputed.

Objective: To determine predictors of micrometastases in patients with colon cancer.

Design: Prospective multicenter trial.

Participants: 107 patients with non-metastatic colon cancer.

Methods: Demographic and tumor characteristics were collected. Primary tumors and lymph nodes were sectioned and processed in standard fashion using hematoxylin and eosin (H&E) staining. Lymphovascular invasion was defined by finding tumor cells in endothelial lined structures. Lymph nodes were also subjected to immunohistochemical examination for cytokeratin (CK-IHC). Lymph nodes were graded based on the H&E and CK-IHC results. Primary outcome was to define tumor characteristics that would predict micrometastases. CK-IHC staining to determine the presence of occult metastases in patients with colon cancer. Micrometastases were defined as tumor cell deposits <2.0 mm and >0.2 mm. Isolated tumor cells defined as cell clusters up to 0.2 mm.

Results: Both H&E and CK-IHC nodal results were negative in 67 patients (node negative group). Both tests were positive for nodal disease in 15 patients (node positive group) and 25 patients (23%) had negative H&E staining but positive CK-IHC staining for nodal disease (occult micrometastases group). Demographic data did not predict occult metastatic disease. Location of tumor did not differentiate the groups. Lymphovascular invasion, a T3 or T4 stage and high tumor grade was associated with occult metastatic disease.

Conclusions: Colon cancer patients with T3 or T4 stage, or higher tumor grade or lymphovascular invasion might be candidates for CK-IHC staining of lymph nodes to detect micrometastases.

Reviewer's Comments: The implication in this study is that some patients who appear to be node negative by standard tissue examination could actually be node positive by special staining techniques. These patients would then become candidates for adjuvant chemotherapy. The authors are fair in admitting that this premise is controversial with data supporting and refuting any benefit. The fact that more advanced tumors would be more likely to have micro metastases should not be surprising. Whether this additional step in assessing these patients when H&E staining reveals no nodal disease is necessary will require further study. (Reviewer-John A. Weigelt, MD).

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Keywords: Colon Cancer, Metastases

Print Tag: Refer to original journal article

PPIs, Plavix Appear to Be Helpful Combination

Outcomes With Concurrent Use of Clopidogrel and Proton-Pump Inhibitors: A Cohort Study.

Ray WA, Murray KT, et al:

Ann Intern Med 2010; 152 (March 16): 337-345

Concurrent use of Plavix® and proton pump inhibitors does not appear to increase cardiac events, yet reduces gastrointestinal bleeding episodes.

Background: Clopidogrel (Plavix®) requires a biotransformation to the active drug in patients. This biotransformation is dependent upon the hepatic cytochrome P450 2C19 isoenzyme. Some patients with reduced CYP2C19 alleles can have an inadequate platelet inhibition from clopidogrel. Proton pump inhibitors (PPIs) are commonly used to reduce gastrointestinal (GI) bleeding secondary to the platelet inhibition associated with clopidogrel. Unfortunately, they can also inhibit CYP2C19 metabolism. Thus, the use of PPIs and clopidogrel could attenuate platelet inhibition in some patients.

Objective: To determine the risk of GI bleeding and cardiac events in patients using Plavix and PPIs.

Design: Retrospective cohort study.

Participants: 20,596 patients with 13,003 using Plavix and no PPIs and 7,593 using both drugs.

Methods: The study used data from the Tennessee Medicaid program. Drug use was monitored via prescription records. Compliance with medications was not measured. Primary outcome was hospitalization for GI bleeding or serious cardiovascular events. Statistical analysis evaluated multiple factors using regression analysis. An admission with a GI bleeding diagnostic code was used to capture this complication. Serious cardiac events included acute myocardial infarction (MI) or sudden cardiac death. Pantoprazole was the most commonly used PPI.

Results: PPIs reduced the need for hospitalization by 50% with a GI bleeding diagnosis. There was no reduction in GI bleeding risk for patients with no risk factors for bleeding, while patients with multiple risk factors for GI bleeding had the greatest risk reduction (28.5). No increase in serious cardiac events was observed in patients taking Plavix and PPIs. No difference was seen in the results based on the type of PPI.

Conclusions: Concurrent use of Plavix and PPI did not increase cardiac events and did reduce GI bleeding episodes especially in patients with risk factors for GI bleeding.

Reviewer's Comments: A retrospective analysis of a large data base with the usual flaws. However, the results are encouraging that the use of Plavix and PPIs appeared to benefit most patients and harm few patients. The benefit is greatest in patients with risk factors for GI bleeding which also makes sense. Whether the low-risk patients for GI bleeding should receive the drug is questionable based on these data. The lack of harm is based on the lack of cardiac events and is likely related to the use of pantoprazole as the predominant PPI. Pantoprazole does not inhibit CYP2C19. Drug-drug interactions are an increasing concern. Given the risk of a drug interaction, one question why the PPI is being used and if another class of drugs, such as the H2 blockers, would be just as beneficial in preventing GI bleeding without the risk of adverse cardiac events. However, cimetidine would not be the H2 blocker to use since it can interfere with clopidogrel metabolism. (Reviewer-John A. Weigelt, MD).

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Keywords: Drug Interaction, Gastrointestinal Bleeding, Cardiac Events, Plavix, Proton Pump Inhibitors

Print Tag: Refer to original journal article

Most Thyroid Operations Can Be Performed as Outpatient

Outpatient Thyroidectomy Is Safe and Reasonable: Experience With More Than 1,000 Planned Outpatient Procedures.

Snyder SK, Hamid KS, et al:

J Am Coll Surg 2010; 210 (May): 575-584

Preoperative teaching and postoperative follow-up allow over 93% of thyroidectomies to be done as outpatient.

Objective: To review a single institution experience with planned outpatient thyroidectomy.

Participants: 1223 patients with 1242 thyroidectomies performed.

Methods: The study period coincided with the opening of a free-standing surgery center at the authors' institution. Records of all patients undergoing thyroidectomy by a single surgeon between March 2003 and June 2009 were reviewed. The three groups compared were (1) outpatient thyroidectomy completed as planned, (2) inpatient thyroidectomy completed as planned, and (3) outpatient thyroidectomy converted to inpatient procedure. Postoperatively, an observation unit was available until 8 pm. Total thyroidectomy patients were discharged with a prescription for 500 mg of oral calcium with vitamin D, 3 times daily. All patients received a follow-up phone call from the day surgery nurse on postoperative day 1 and all were seen in the outpatient clinic 2 to 4 days postoperatively for flexible laryngoscopy and serum calcium level.

Results: Of thyroidectomies, 1136 were planned as outpatient procedures and 1063 were completed as outpatient procedures. Of these, 613 were total thyroidectomies. Conversion to an inpatient procedure occurred more frequently at the in-hospital center, 10.4% vs 1.7% of the time ($P < 0.0001$). Patients that underwent successful outpatient procedures were younger (age 53 vs 59 years), had a lower mean American Society of Anesthesiologists class (2.30 vs 2.45), were more likely to undergo unilateral thyroidectomy, and (if a total thyroidectomy was done) had less tissue removed, were less likely to have a central neck dissection, had less estimated blood loss, and had shorter operations. However, the percentage of patients with a postoperative emergency room visit was not different (7.8% outpatient vs 9.6% converted to inpatient group, $P = 0.14$). Complication rate for those converted to inpatient was higher in the converted to inpatient group than the outpatients (40% vs 26%, respectively; $P < 0.0001$). There were 2 hematomas in the outpatient group, both after total thyroidectomy for Graves' disease. These occurred 18 to 48 hours postoperatively and in both instances were precipitated by coughing. In one patient there was a concomitant transient laryngeal nerve injury. Symptomatic hypocalcemia occurred in 5.2% of outpatient and 8.2% of converted patients ($P = ns$). There were more cases of transient recurrent nerve injury in the converted group, but 4 cases of permanent injury in the outpatient group compared to none in the converted group. There were 4 deaths within 30 days; 3 were in the planned inpatient group. One death was in the planned outpatient group and occurred 2 days postoperatively in a nursing home resident who died of a presumed arrhythmia while asleep.

Conclusions: Outpatient thyroidectomy is safe.

Reviewer's Comments: The authors describe a large series documenting the safety of an outpatient approach to thyroidectomy. This has been done for a number of procedures that have traditionally required admission, included carotid endarterectomy. As with most operations, patient selection is key. Careful preoperative teaching and close postoperative follow-up, including by telephone, are system issues that contribute to the success of this program. (Reviewer-Karen J. Brasel, MD).

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Keywords: Outpatient, Safety, Thyroid, Thyroidectomy

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Questionable Reduction of Mortality With Hetastarch Resuscitation

First Report on Safety and Efficacy of Hetastarch Solution for Initial Fluid Resuscitation at a Level 1 Trauma Center.

Ogilvie MP, Pereira BMT, et al:

J Am Coll Surg 2010; 210 (May): 870-882

Hetastarch appears to be associated with reduced mortality and no obvious coagulopathy in the resuscitation of hemodynamically unstable trauma patients.

Objective: To describe the use of 6% hetastarch as a resuscitative fluid in trauma patients.

Participants: 2252 trauma patients admitted during the study period, with 2041 potentially eligible.

Methods: Records of all patients admitted to a level 1 trauma center between June 2008 and December 2008 were reviewed. This was the first period during which 6% hetastarch was available as a therapeutic option for resuscitation of trauma patients. Initial resuscitative fluid was at the discretion of the attending trauma surgeon; a maximum of 1000 cc of 6% hetastarch was given. All other care was similar. Hemodynamics, blood gases, coagulation status, 24-hour fluid balance, demographic, clinical, physiologic data, and mortality were abstracted from the trauma registry and record review.

Results: Of patients, 909 received standard resuscitation and 805 were resuscitated with 6% hetastarch. There were no differences in age, gender, hemodynamics, Glasgow Coma Scale, and Injury Severity Score between groups. In univariate analysis, mortality in the 6% hetastarch group was 5.2% compared to 8.9% in the standard resuscitation group ($P=0.0035$). The treatment effect was evident only within the first few hours; after this time, mortality curves were parallel. There were significantly more deaths within 30 minutes of arrival in the standard resuscitation group than in the 6% hetastarch group (28 vs 4, respectively; $P<0.0001$). If these patients were excluded, there was no difference in mortality between groups. More patients in the 6% hetastarch group were admitted to the ICU (41% vs 35%, $P=0.0034$), received blood transfusion (34% vs 20%, $P=0.0014$), and received plasma (21% vs 12%, $P=0.0251$). There were no differences in coagulation parameters between groups.

Conclusions: 6% hetastarch is associated with reduced mortality and no obvious coagulopathy in the resuscitation of hemodynamically unstable trauma patients.

Reviewer's Comments: The difference in early deaths is interesting, and somewhat difficult to explain as not all of these patients would have had the opportunity to have received hetastarch. One of the other significant problems with this study is that a single surgeon used 6% hetastarch for resuscitation, so other differences in practice that might have contributed to mortality differences are certainly possible. Differences in blood product usage as well as ICU care might have contributed to the differences in mortality. It is possible to say that 6% hetastarch appears to be safe, and certainly does not appear to have any deleterious effects on coagulation in this population, at least at the dosages used. (Reviewer-Karen J. Brasel, MD).

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Keywords: Hetastarch, Resuscitation, Safety, Trauma

Print Tag: Refer to original journal article

Antireflux Surgery -- A Cancer Panacea?

The Risk of Esophageal Adenocarcinoma After Antireflux Surgery.

Lagergren J, Ye W, et al:

Gastroenterology 2010; 138 (April): 1297-1301

The risk of esophageal and proximal gastric cancer is significantly increased in patients with antireflux surgery compared to the general population.

Objective: To determine if antireflux surgery is associated with a reduced risk of the subsequent development of esophageal and cardia adenocarcinoma.

Design: Population-based cohort study.

Participants: Approximately 14,000 Swedish patients who underwent antireflux surgery over a 40-year period.

Methods: Patients who had undergone antireflux surgery with a partial or complete fundoplication were included. Person-time risk was calculated from the date of antireflux surgery to the occurrence of cancer, death, emigration, or the end of the study observation period. Relative risk was determined by measuring the ratio of observed cancers to number of expected cancers. Cancers were identified through the Swedish Cancer Registry. Incidence of cancer among those with antireflux surgery was compared with incidence in the similarly-aged and gender-specific Swedish population.

Results: There was a 12-fold increased risk of developing esophageal adenocarcinoma in the cohort who had antireflux surgery compared to the general population. The risk did not decrease with time after surgery. There was a 4-fold increased risk of developing cardia adenocarcinoma in the antireflux surgery group and this risk did not decrease over time.

Conclusions: Antireflux surgery does not prevent the development of esophageal or cardia adenocarcinoma among persons with reflux.

Reviewer's Comments: This population-based study suggests that antireflux surgery does not reduce the risk of subsequent cancer through comparing the incidence of observed cancer in this cohort to the general population. The argument made in this article is that if antireflux surgery is protective then the risk of cancer development should drop over time given a long enough follow-up. While this is true, relative risk is a measurement that depends on the cancer incidence in the base population. If this baseline incidence increases while the incidence in the antireflux group remains constant then the relative risk ratio will drop. If the relative risk ratio remains constant then it could be because the incidence is increasing in both the study group and the baseline population. Therefore the fact that the relative risk did not change over time cannot absolutely be due to the lack of a protective effect of antireflux surgery. Furthermore, the population to which the incidence of cancer in the antireflux surgery group should be compared is to patients with reflux who did not undergo surgery, not the general population. This study may be correct in that antireflux surgery is not protective for cancer; however, some methodologic issues need to be addressed before I truly believe this to be true based upon their data. (Reviewer-Raminder Nirula, MD).

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Keywords: Esophageal, Adenocarcinoma, Fundoplication, Cancer

Print Tag: Refer to original journal article

Low Anti-Xa Levels Occur in Half of Surgical ICU Patients Receiving Enoxaparin

Standard Prophylactic Enoxaparin Dosing Leads to Inadequate Anti-Xa Levels and Increased Deep Venous Thrombosis Rates in Critically Ill Trauma and Surgical Patients.

Malinoski D, Jafari F, et al:

J Trauma 2010; 68 (April): 874-880

Low anti-Xa levels are associated with thromboembolic events in the surgical intensive care unit.

Objective: To measure anti-Xa levels in critically ill trauma and surgical patients receiving chemical prophylaxis and correlate these levels with incidence of venous thromboembolic events.

Participants: 892 patients in a surgical intensive care unit (ICU) receiving chemical prophylaxis with enoxaparin 30 mg BID.

Methods: Patients had plasma anti-Xa levels drawn 4 hours after the third dose (peak) and 1 hour before the fourth dose (trough). Prophylaxis was given to all patients without contraindications as soon as ongoing acute blood loss had stopped. Patients had mechanical prophylaxis in addition to chemical prophylaxis. Duplex ultrasound examinations of bilateral upper and lower extremities were performed 48 hours after admission and weekly thereafter. Pulmonary emboli were diagnosed by CT scan ordered for clinical suspicion. Trough levels <0.1 IU/mL were considered low. Demographic information, creatinine clearance, presence of systemic inflammatory response syndrome (SIRS) or sepsis, and presence of a venous thromboembolic event were recorded. Risk factors for thromboembolism were age, Injury Severity Score, intracranial injury, spine or spinal cord injury, pelvic or extremity fracture, and laparotomy.

Results: During the 18-month study period, 174 patients received prophylactic enoxaparin, and 54 had correctly time peak and trough levels. Mean age was 42 years and 85% were trauma patients. Mean Injury Severity Score was 25. There were 13 patients with proximal deep vein thromboses (DVT): 5 in the lower extremity, 10 in the upper extremity, and 3 in both. One patient had a pulmonary embolus. Thromboembolic events occurred an average of 15 days post-injury. Of patients, 27 had low trough anti-Xa levels. These patients had significantly more DVTs (37% vs 11%; $P=0.026$). Peak levels were not significantly different between those with and without a DVT. Demographics were also similar between groups, with the exception of closed head injury being more common in patients with normal anti-Xa levels.

Conclusions: Standard dosing of enoxaparin leads to low anti-Xa levels in half of surgical ICU patients. Furthermore, low levels are associated with a significant increase in the incidence of DVT.

Reviewer's Comments: Monitoring anti-Xa levels is not standard when low-molecular weight heparin is given as thromboembolic prophylaxis. This is because of the predictable anticoagulant response in the majority of patient populations. The authors have documented that the critically ill population does not have a predictable response; given altered pharmacokinetics for other drugs in this population it should not be a surprise. It is notable that the majority of these thromboembolic events was asymptomatic, picked up on screening, occurred in the upper extremity, and occurred >2 weeks after injury. It is also notable and perhaps concerning, that the vast majority of patients in the surgical ICU during the study period did not receive any thromboembolic prophylaxis. (Reviewer-Karen J. Brasel, MD).

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Keywords: Deep Vein Thromboses, Enoxaparin, Dosing

Print Tag: Refer to original journal article

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Keywords: Deep Vein Thromboses, Enoxaparin, Dosing

Print Tag: Refer to original journal article

Alternative to Surgery for Some Colorectal Liver Cancer Patients

Radiofrequency Ablation as First-Line Treatment in Patients With Early Colorectal Liver Metastases Amenable to Surgery.

Otto G, Düber C, et al:

Ann Surg 2010; 251 (May): 796-803

For patients with early colorectal liver metastases, early radiofrequency ablation may be a reasonable treatment option to help avoid futile surgery.

Background: Patients with early occurrence of liver metastases within the first year after resection of colorectal cancers are at particularly high risk for recurrent disease. In addition to surgical resection which remains the gold standard, ablative therapies have been broadly accepted into clinical practice. While largely used in poor-risk surgical patients, radiofrequency ablation (RFA) has not been compared head to head with surgery. The aim of such a study would be to avoiding futile surgery in patients who progress despite aggressive therapies.

Objective: To test whether or not RFA could be used as a reasonable treatment strategy in patients with colorectal liver metastases (CRLM) occurring within the first year after surgery for colon cancer.

Participants: 28 patients treated by RFA and 82 patients treated by surgical resection.

Methods: All patients admitted to this medical unit within the first year following resection were considered for the study. Patients with amenable lesions were preferentially treated with RFA. This is compared to patients who were not candidates for RFA based on number, size, and location of hepatic tumors and underwent surgical resection. The diameter of lesions as a result differed between groups. All other patient demographic and tumor characteristics were comparable. Recurrences were treated with either repeat RFA or surgical resection when possible.

Results: Patient demographics did not significantly differ between groups. Compared with surgical resection, local recurrence occurred more frequently and in shorter time intervals in the RFA group as compared to the surgery group. Site recurrences occurred in 32% and 4% of patients, respectively; new metastases separate from the previous surgical site 50% to 34%, respectively; and systemic recurrence between groups did not differ. Time to progression was shorter in patients primarily treated with RFA.

Conclusions: Disease-free and overall 3-year survival did not differ between the two groups.

Reviewer's Comments: This is the first study to compare RFA to surgery focusing on patients in the RFA arm that could have been treated with surgical resection. Time to progression and overall survival were not influenced by previous chemotherapy. Despite striking discordant local recurrence and shorter time to progression in the RFA group, this study would suggest that overall survival in patients with early CRLM does not depend on the mode of primary treatment. Further studies are needed to determine whether RFA is capable of avoiding necessary surgery in some patients with early CRLMs. (Reviewer-Sam G. Pappas, MD).

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Keywords: Early Colorectal Liver Metastases, Radiofrequency Ablation

Print Tag: Refer to original journal article

SILS Not for All Patients, Excellent Option for Some

Initial Experience With Single-Incision Laparoscopic Cholecystectomy.

Elsy JK, Feliciano DV:

J Am Coll Surg 2010; 210 (May): 620-626

Single incision laparoscopic cholecystectomy is technically feasible and safe for biliary colic and dyskinesia.

Background: Interest in single-incision laparoscopic cholecystectomy (SILC) is growing based mainly on reports of less pain and reduced need for postoperative hospital stay.

Objective: To review a report of a single surgeon's initial experience with single-incision laparoscopic cholecystectomy.

Methods: Data from 238 consecutive patients undergoing SILC by 1 surgeon were collected over a 12-month period and analyzed for standard outcomes. 3 slightly different SILC techniques were used with the last technique using the SILS Port (Covidien). Median age was 39 yrs old and 67.2% of patients were male.

Results/Conclusions: Only a small percentage (25%) of patients was operated on for acute cholecystitis; the remaining patients were operated on for either biliary colic or dyskinesia. Conversion to laparoscopic cholecystectomy was required in 4 patients and only 1 patient was converted to an open procedure. Median operative time was 40 minutes and 95% of patients were discharge home on the day of operation, with the remaining patient being discharged on the following day.

Reviewer's Comments: While it seems that less may be more with respect to incisions and laparoscopic cholecystectomy, this has not proven to be the case in the early reports of SILC. In fact, several recent studies have failed to demonstrate significant differences in operative times and length of stay in the single incisional approaches. It is safe to say that the actual benefits above fewer scars remained to be fully defined. Despite the low learning curves quoted in some circles, the success of this single surgeon's experiences was the result of careful patient screening, participation in tutorials, and establishing a team approach to this procedure. While not for everyone, rapid acquisition of the skills to perform SILS is very feasible. With the appropriate approach to this procedure, excellent clinical results in non-inflamed elective gallbladders can be obtained. (Reviewer-Sam G. Pappas, MD).

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Keywords: Single Incision Laparoscopic Cholecystectomy

Print Tag: Refer to original journal article