Genetic risk factors for breast cancer have little benefit over clinical risk factors.

**Background:** Risk assessment for breast cancer continues to evolve. Breast screening programs use age as one risk factor, although age was recently the center of controversy for screening recommendations. Nongenetic factors have been used to assess risk, but as more genetic information regarding breast cancer becomes available, could genetic variants improve our risk assessment?

**Objective:** To determine if adding genetic information to nongenetic factors could improve our ability to predict which patients will develop breast cancer.

**Design:** Retrospective review of prospectively collected data from longitudinal studies including the Women’s Health Initiative Observational Study and the Nurses’ Health Study.

**Participants:** 11,588 patients were assessed. Of these, 5998 women did not develop breast cancer and 5590 women did.

**Methods:** Only patients who had complete genotype data were included. The nongenetic risk assessment used the Gail model, which was not adjusted for mammographic density or a diagnosis of atypical hyperplasia. Ten single nucleotide polymorphisms (SNPs) were assessed. The primary outcome was to model how well the various factors or combination of factors discriminated between patients with and without breast cancer.

Receiver operator curves (ROC) were constructed and used to calculate the ability of the model to differentiate between these 2 populations.

**Interventions:** Numerous models were tested using the Gail model with and without SNP data. An ROC with an area under the curve (AUC) of 50% shows no discriminating ability, while an AUC of 100% would be perfect discrimination.

**Results:** Among the nongenetic factors, a history of a breast biopsy had the greatest AUC of 56%. All components of the Gail model had an AUC of 58%. All 10 SNPs had an AUC of 60%. When the Gail model and all 10 SNPs were combined, the AUC increased to 62%.

**Conclusions:** The addition of genetic factors added very little to a patient's risk assessment for breast cancer over more easily available clinical factors.

**Reviewer's Comments:** This paper starts with a discussion of personalized medicine. A genetic profile of an individual might help define the risk of disease before it occurs. Such information could be used to institute preventive measures, medical or surgical. The addition of 10 SNPs with a known association to breast cancer ranging from 22% to 87% did not enhance the ability to discriminate between women who developed breast cancer and those who did not. While there was a small increase, it is questionable if the increase could be justified when the nongenetic factors are available at minimal cost compared to the cost of the genetic profile. The idea is great, but our knowledge base may be inadequate. As we learn more about the genetics of cancer, new determinants may be found that would fulfill this promise of personalized medicine. (Reviewer—John A. Weigelt, MD).
Can the Case Be Made to Use High PEEP Levels for Acute Lung Injury?

Higher vs Lower Positive End-Expiratory Pressure in Patients With Acute Lung Injury and Acute Respiratory Distress Syndrome: Systematic Review and Meta-Analysis.

Briel M, Meade M, et al:

JAMA 2010; 303 (March 3): 865-873

High PEEP levels lower hospital mortality for patients with acute respiratory distress syndrome.

Background: Lower tidal volumes for patients with acute respiratory distress syndrome (ARDS) improve outcomes. However, the ideal positive end-expiratory pressure (PEEP) levels remain disputed. Should the PEEP levels be adjusted to achieve an oxygenation level, or should the PEEP levels be increased to try to enhance alveoli recruitment?

Objective: To determine whether PEEP levels make a difference in outcome for patients with acute lung injury.

Design: Meta-analysis of studies using various PEEP levels to treat acute lung injury patients.

Participants: 3 trials with 2299 patients met the following inclusion criteria: low tidal volume strategies, standard definition for acute lung injury and ARDS, and patient follow-up for at least 20 days.

Methods: The outcomes were predetermined by the investigators. The primary outcome was hospital mortality. Other secondary outcomes included ICU survival, pneumothorax rate, time to unassisted breathing, use of rescue therapy, and use of vasopressors.

Interventions: PEEP levels were approximately 5 cm of water higher in the high PEEP patients.

Results: The mean PEEP levels on day 1 through 3 were statistically higher for high PEEP versus low PEEP patients. Tidal volumes were similar. Overall mortality was not significantly different at 33% for high PEEP and 35% for low PEEP patients. In ARDS patients, mortality was 34% for high PEEP and 39% for low PEEP, which was a statistically significant result. In patients without ARDS, mortality was 27% for high PEEP and 19% for low PEEP patients, which was not significant. Pneumothorax rates were slightly increased with high PEEP. Other secondary outcome measures were also not significantly different between groups.

Conclusions: Higher PEEP levels in all patients with acute lung injury did not improve hospital survival, although ARDS patients did show a statistically improved hospital survival rate.

Reviewer’s Comments: This nicely done study points out the benefits and hazards of PEEP. No real value is provided for high PEEP, but the mean value varied from 11 to 15 cm of water for the first week of the study, while the low PEEP patients received a mean of 8 to 9 cm of water. This PEEP difference is suggested as being the intervention that improved the survival in the ARDS patients. This is a meta-analysis, and the authors tried very hard to make the data as similar as possible. One bothersome finding is that 2 of the studies were stopped for futility. Barotrauma was measured as pneumothorax rates, which were higher with higher PEEP but did not reach statistical significance. Finally, higher PEEP was not applied in a similar fashion in the 3 studies. We primarily use it when we cannot achieve oxygenation any other way. So when all is said and done, what do we have—a suggestion that ARDS patients may be helped by higher PEEP levels and non-ARDS patients may be harmed. Good luck! (Reviewer-John A. Weigelt, MD).

© 2010, Oakstone Medical Publishing

Keywords: ARDS, PEEP Levels, Outcome

Print Tag: Refer to original journal article
A transition zone identified on CT scan does not reliably indicate a complete small bowel obstruction.

**Background:** The management of a patient with signs and symptoms of a small bowel obstruction (SBO) commonly involves a CT scan. The CT scan is often used to identify a transition zone between distended and collapsed bowel. This is suggested as the point of obstruction. What this actually means from a clinical decision making standpoint is not clear.

**Objective:** To determine the clinical importance of a transition zone seen on CT scans performed to evaluate patients with suspected SBO.

**Design:** A retrospective review of the records of patients with SBO.

**Participants:** 200 patients were identified; 150 patients had a transition zone on CT scan, while 50 did not.

**Methods:** A record review gathered demographic information as well as the treatment results. A complete SBO had a transition zone that did not allow contrast to pass, while a partial SBO allowed contrast to pass. Operative findings were correlated with any transition zones. The primary end point was to determine if a transition zone predicted the need for operative intervention.

**Interventions:** Operative or nonoperative management of SBO.

**Results:** Overall, 75 patients required operative intervention. The mean time to operation was 3.6 days. Sixty patients with transition zones had complete SBO, and 90 had partial. Thirty-four of the 60 complete SBO patients required operative intervention; 10 of these had ischemia and required a bowel resection. Among the 50 patients with no transition zones, 17 had operative therapy, and no ischemic bowel was found. Operative intervention was performed in 39% of patients with a transition zone and in 34% of patients without. A transition zone had a positive predictive value of 38%, with a 77% sensitivity for operative therapy. A transition zone was correlated with operative findings in 63% of patients.

**Conclusions:** A transition zone on CT scan in a patient with a suspected SBO does not correlate with a need for operative intervention.

**Reviewer's Comments:** This is a very interesting and nicely done paper. A CT scan can certainly identify changes consistent with ischemia and help make the decision to explore a patient regardless of the physical findings. However, the attempt to define the point of obstruction, a transition zone, and suggest that it indicates an obstruction that should be operatively treated must be questioned based on these data. I am sure you have had this discussion with your radiologist. I suspect you have been influenced as we have been. Maybe we are trying too hard with our CT diagnosis. I still find that most adhesive small bowel patients can be safely watched and followed up clinically, perhaps with plain abdominal films. A decision is usually forthcoming, most commonly in 72 hours just as in this series. (Reviewer-John A. Weigelt, MD).

© 2010, Oakstone Medical Publishing

Keywords: Small Bowel Obstruction, Diagnosis, Transition Zone
Sodium abnormalities are usually subacute problems that may be avoidable.

**Background:** Management of fluids and electrolytes is a basic part of medical education. Abnormalities of electrolytes and fluid balance are potential complications.

**Objective:** To determine the rate and cause of hyponatremia and hypernatremia in a group of hospitalized surgical patients.

**Design:** Prospective assessment of electrolytes and fluid balance in patients with a serum sodium of either <130 or >150 mmol/L.

**Participants:** 55 patients (4%) were identified from 1383 surgical admissions over an 80-day period.

**Methods:** Patients were followed up until their sodium returned to normal or until they were discharged or died. Medical records were reviewed for the 5 days before the patient developed hyponatremia or hypernatremia. Data collected included electrolytes, type of fluid administration, fluid balance, and daily weights. Incorrect data were defined by arithmetic errors or lack of charting. The primary outcome was to determine factors associated with hyponatremia and hypernatremia.

**Interventions:** The most common intervention was administration of salt-containing solutions, free water, or water restriction.

**Results:** 40 patients were hyponatremic, and 15 patients were hypernatremic. Common diagnoses for these patients were colorectal cancer (12), peripheral vascular disease (5), small bowel obstruction (4), pancreatitis (4), and diverticular disease (4). Hypernatremia was more common in ICU patients. A normal sodium was present 5 days before patient identification in 58% of patients. Patients developing hypernatremia received a 3-fold higher amount of sodium than those developing hyponatremia. The median time to return to a normal sodium level was 4 days, with a range of 2 to 8 days. Hyponatremic patients returned to normal in a median of 3 days compared to 9.5 days for hypernatremic patients. Only 28% of the fluid balance charting was complete, and only 53% had an admission weight. In 42% of patients, no weight was recorded during admission.

**Conclusions:** 4% of surgical patients developed hyponatremia or hypernatremia, and overall fluid and electrolyte management was poorly documented.

**Reviewer's Comments:** Is this finding disease related or care related? This study calls for education and hospital guidelines to correct this problem. I wonder if this is the correct conclusion. Is fluid and electrolyte training a basic part of physician and nursing education? If so, then why is remedial education a solution? Maybe this is a problem with our current education system or with our delivery of health care. The lack of charting would appear to be a nursing problem. One could also ask who is in charge. I find that fluid and electrolyte knowledge is not great in our trainees. Fluid and electrolytes may be a dry topic, but one that is important to our patients. This paper should prompt all of us to do the same assessment in our hospital as a quality assessment of rudimentary patient care. (Reviewer-John A. Weigelt, MD).
**Background:** Complications involving the biliary tree from laparoscopic cholecystectomy and liver-donor liver transplantation are common.

**Objective:** To investigate whether a bioabsorbable polymer (BAP) patch could be used to repair a narrowed bile duct and serve as an operative treatment for benign biliary stenosis.

**Methods:** The BAP is composed of a 50:50 copolymer of polylactic acid and polycaprolactone reinforced with polyglycolic acid fibers. It degrades in approximately 6 to 8 weeks, with an air porosity of >95% to allow cells to easily penetrate. Twelve hybrid pigs 1 to 2 years old and 15 to 30 kg were used. A 20 x 6 mm region of bile duct was removed and replaced with a 20 x 10 mm BAP patch. The animals were relaparotomized at 5 weeks (n=6) and 4 months (n=6). Cholangiography was performed at 4 months. The patched common bile duct, second portion of the duodenum, and pancreatic head were excised en bloc. Liver functions tests (LFTs) were performed before implantation and before killing.

**Results:** 5 weeks after implantation, the patch could not be found on macroscopy. Fibrous adhesions occurred around the graft site, but the duct remained patent without obstruction. LFTs were almost normal with no significant changes after implantation. The polymer was not found on histology. Epithelial regeneration was absent, but inflammatory cell infiltration and fibrous connective tissue were both present. The new connective tissue contained accessory glandular structures. After 4 months, the graft was indistinguishable from the native duct. Cholangiography showed dilatation of the patched site but no dilatation of intrahepatic bile ducts. LFTs were similar pre- and post-implantation. The patched site had cuboidal epithelium similar to that of the native duct. The subepithelial layer was richer in connective tissue than the native duct. **Discussion:** Implantation of a BAP patch at a bile duct defect promotes duct regeneration without stricture at 4 months. It repairs the narrowed segment and leaves the papilla intact, lessening the risk of malignancy from an incompetent sphincter (7.6%) and without any of the problems related to T-tube use. The patch degrades and clears in 5 weeks, while tissue regeneration outside the patch grows into a neo-bile duct. It can be trimmed to any shape and is readily available in emergencies. It is more resistant to rupture, easy to manipulate, and has no zoonotic potential.

**Conclusions:** This newly designed substitute has potential for application as a novel treatment for biliary injury and stenosis.

**Reviewer's Comments:** The BAP patch is an exciting, innovative approach to treat bile duct injuries/stenosis. The experiments were small but were well planned and backed by histology. There needs to be longer follow-up in regard to bile flow through the neo-bile duct. Unknowns include whether this neo-bile duct can be secondarily manipulated or stented for late strictures and whether this can be extrapolated to human use. (Reviewer-Kathleen Christians, MD).

© 2010, Oakstone Medical Publishing

Keywords: Bile Duct Injury, Laparoscopic Cholecystectomy, Bioabsorbable Patch

Print Tag: Refer to original journal article
The presence of a soft pancreas correlates with development of a type C pancreatic fistula and is associated with significantly increased mortality.

**Background:** The International Study Group of Pancreatic Fistula (ISGPF) classification allows comparison of incidence and severity of postoperative pancreatic fistula (POPF) but does not provide treatment guidelines.

**Objective:** To study the association of POPF type A-C on morbidity and mortality in patients undergoing pancreatic resection.

**Participants/Methods:** 483 patients who underwent pancreatic resection between March 2001 and December 2007 were included. Complications were graded by ISGPF definitions. Pancreatico-intestinal anastomoses (PIA) and handling of the pancreatic duct in distal pancreatectomies were standardized, and pancreatic consistency was assessed. Drains placed behind the PIA were removed on postoperative day (POD) 5 if no elevated drain lipase was detected. Type A POPF patients received no extra medications, and had their drains removed as outpatients. Type B POPF patients required partial or total parenteral nutrition (TPN), and all were given antibiotics (ABX) and somatostatin analogues (SA). Discharge was delayed or patients required readmission, and all were discharged with drains. Type C patients usually needed TPN, ABX, and SAs. CT-guided percutaneous drainage was done if possible. All had extended stays. Reoperations were for clinical deterioration. Any pathway deviation was classified as a complication.

**Results:** Of the 483 patients, 379 resections were for tumors (273 malignant) versus 104 for chronic pancreatitis. A total of 338 patients underwent resection and PIA, and 218 had parenchymal consistency documented (38% soft, 35.8% hard). There were 139 (28.8%) POPFs; 79.1% were fistula type A and B and required no further treatment. Type C POPF occurred in 29 (6%). There were 237 surgical complications. Re-interventions were required in 11.6% (usually percutaneous). Twelve patients died (2.5%). A soft pancreas correlated with development of POPF type C (OR, 11.3), and on multivariate analysis, was the strongest risk factor for it (OR, 8.5). Type C was associated with significantly increased mortality (17.2%). Patients with drain lipase >5000 U/L who developed further surgical complications had a mortality of 33.3%. This was not true with a low drain lipase or high drain lipase without further surgical complications. In the subset of 19 patients with vascular complications (VC), 89.5% had proven fistula before onset of VC, and 11 required re-operations. Patients with POPF C 21/29 developed other surgical complications (VC in 17/21; 81.0%) leading to 5/29 deaths. **Discussion:** POPF type C and VC plus infections significantly increased morbidity and mortality. Type C POPF developed predominantly in soft pancreases and was preceded by a high drain lipase on POD 3. A linear correlation of drain lipase activity with the grade of POPF was noted.

**Conclusions:** The association of a soft pancreas and development of POPF type C, together with association of high drain lipase and type C fistula, might guide postoperative surveillance resources.

**Reviewer’s Comments:** Callery (2009) published a review on pancreatic fistula delineating technical, patient, and disease-related causes as well as management schemes. While this study’s outcomes correlated with the ISGPF classification, the data cannot be extrapolated to management details other than an increased index of suspicion based on various clinical parameters. (Reviewer-Kathleen Christians, MD).

© 2010, Oakstone Medical Publishing

Keywords: Pancreatic Fistula, ISGPF Classification, Outcomes

Print Tag: Refer to original journal article
HR is a high-risk procedure occurring in a relatively low percentage of patients after the HP. Laparoscopic reversal appears to compare favorably to the open approach.

**Background:** The Hartmann procedure (HP) is often used in emergency situations and to reduce morbidity and mortality. However, the Hartmann reversal (HR) procedure has a high morbidity and mortality. Patient characteristics, percentage of patients undergoing reversal, and relative differences in the laparoscopic approach and the conventional approach are largely unknown.

**Objective:** To provide an overview of laparoscopic and conventional HR based on the published literature.

**Design:** Literature review.

**Methods:** The Medline, Ovid, EMBASE, and Cochrane databases were searched for studies reporting on outcomes after HR published between October 1987 and May 2009.

**Results:** 35 studies met inclusion criteria (30 retrospective and 5 prospective). A total of 6,249 patients underwent HR. Study size varied from 12 to 3,051 patients (mean, n=179). Mean age was 60 years (range, 38 to 71 years). Indications for HP were complicated diverticulitis (67%), colorectal malignancy complications (17%), and other (ischemia, inflammatory bowel disease, volvulus, trauma, perforation, anastomosis leakage) in 16%. American Society of Anesthesiologists (ASA) classification was reported in 646 patients who underwent HR; 67% (n=433) were classified as ASA I to II, 31% (n=200) as ASA III, and 2% (n=13) as ASA IV. As determined from 19 studies, the mean reversal rate after Hartmann procedure was 44% (range, 19% to 71%), and mean interval between HP and HR was 7.5 months (range, <3 to 13.5 months). Fourteen studies addressed reasons for not performing HR; most frequent were high ASA score (12 studies), patients’ refusal (9 studies), metastatic disease (7 studies), and high patient age (5 studies). The mean overall morbidity rate was 16.3% (range, 3.6% to 50%). Postoperative complications were wound infection (mean, 12.5%; range, 5% to 50%), cardiopulmonary (mean, 5.3%; range 1% to 14.6%), late anastomosis stricture (mean 5.8%; range 2% to 10%), anastomosis leakage (mean, 5.2%; range 0% to 16%), and postoperative bleeding (mean 3.2%; range 0% to 7%). The mortality rate was 1% (range, 0% to 7.1%). Five studies compared laparoscopic versus open HR, and 7 addressed laparoscopic HR only; 396 patients underwent laparoscopic HR and 5853 patients underwent open HR. Laparoscopic HR patients had a shorter hospital stay (6.9 vs 10.7 days). Morbidity was reduced in the laparoscopic HR patients (12.2% vs 20.3%) mainly related to differences in wound infection rates (10.8% vs 14.2%), anastomotic leakage (1.2% vs 5.1%), and pulmonary complications (3.6% vs 6.9%). Reoperations occurred with higher frequency in the open HR patients (3.6% vs 6.9%). There was no difference in mortality between laparoscopic and open HR (0.9% vs 1.1%).

**Conclusions:** HR is a high-risk procedure occurring in a relatively low percentage of patients after HP. Laparoscopic reversal appears to compare favorably to open HR.

**Reviewer’s Comments:** The strength of this literature review is its huge number of patients. However, it falls short as a useful meta-analysis; the studies are too dissimilar with simply too many uncontrolled variables to effectively compare and conclude with confidence even in a descriptive way. (Reviewer-Todd A. Kellogg, MD).

© 2010, Oakstone Medical Publishing

Keywords: Hartmann, Reversal, Morbidity, Mortality, Laparoscopic, Conventional

Print Tag: Refer to original journal article
Background: It is well known that obesity is a risk factor for surgical site infection (SSI). Although body mass index (BMI) is generally used to define obesity (BMI ≥30 kg/m²), it may not be an accurate indicator of body composition. Percent body fat (%BF) may better reflect body composition and may, therefore, be a superior predictor of SSI in obese patients.

Objective: To determine (1) the relationship between obesity and SSI using %BF and BMI, (2) the predictive value of %BF for SSI, and (3) the relationship between BMI and %BF.

Design: Prospective cohort study.

Participants: From 2008 to 2009, patients 18 to 64 years old and planning on undergoing elective general, orthopedic, cardiothoracic, gynecologic, plastic surgery, otolaryngology, or urology surgical procedures were included. Trauma patients, patients undergoing emergency procedures, and immune-compromised patients were excluded; 591 patients were included in the cohort.

Methods: Demographics, clinical characteristics, BMI, and %BF (calculated by bioelectrical impedance) were determined. Preoperative, operative, and 30-day postoperative data were determined through interviews and review of the medical record. The primary study outcome was SSI as defined by the Centers for Disease Control and Prevention (CDC). Secondary outcomes included other wound complications and nonwound-related morbidity and mortality.

Results: Follow-up was completed in 586 patients. Mean %BF was 34 ± 10 and mean BMI was 29 ± 8; more patients were obese as defined by %BF (n=409; 69%) compared to BMI (n=225; 38%). More than 90% of wounds were classified as clean or clean-contaminated and were similar for patients with and without SSI. SSI developed in 71 (12%) patients. Postoperative hyperglycemia occurred more often in patients who developed SSI (84% vs 69%; \( P = 0.03 \)). Using BMI as a definition of obesity, there was no difference in SSI for obese compared to nonobese patients (11.6% vs 12.3%; \( P = 0.8 \)). Using %BF (defined as >25%BF for men and >31%BF for women), SSI occurred in 5.0% of nonobese and 15.2% of obese patients (\( P < 0.001 \)). By univariate analyses, significant predictors of SSI were %BF (\( P = 0.005 \)), obesity by %BF (\( P < 0.001 \)), postoperative hyperglycemia (\( P = 0.03 \)), anemia (\( P = 0.02 \)), smoking (\( P = 0.002 \)), and National Nosocomial Infections Surveillance score (\( P < 0.001 \)). Multivariate analysis demonstrated that obese patients by %BF had a 5-fold higher risk for SSI than nonobese patients (OR, 5.3; 95% CI, 1.2 to 23.1; \( P = 0.03 \)). A positive, nonlinear relationship between %BF and BMI was shown using linear regression analysis.

Conclusions: Obesity as defined by %BF is associated with a 5-fold increased SSI risk; %BF is a more sensitive and precise measurement of SSI risk than BMI. Additional studies are needed.

Reviewer’s Comments: The authors attempt to find a more accurate predictor, in relation to obesity, of SSI in elective surgical patients. At least anecdotally, the depth of wound (ie, degree of subcutaneous fat) seems to correlate with SSI, which may then be an even more precise predictor of postoperative SSI. (Reviewer-Todd A. Kellogg, MD.)

© 2010, Oakstone Medical Publishing

Keywords: Surgical Site Infection, Percent Body Fat, BMI, Elective

Print Tag: Refer to original journal article
AD should not be performed without first examining the sentinel lymph node in patients with breast cancer.

**Objective:** The authors have followed their initial cohort of patients with breast cancer after sentinel node biopsy (SNB) for 10 years and report on the long-term results.

**Methods:** The initial trial randomized women with breast cancer ≤2 cm treated with breast conservation therapy to SNB followed by mandatory axillary node dissection (AD) or SNB followed by AD only if the sentinel node (SN) was positive. SNs were identified by technetium-labeled albumin with preoperative lymphoscintigraphy and intraoperative gamma ray-detecting probe. Sixty histopathologic sections per sentinel node were examined; 15 pairs of 4 µm-thick sections at 50 µm intervals. One section of each pair was stained with hematoxylin/eosin stain; if the results were ambiguous, the other was stained for cytokeratin. Patients undergoing AD had nodes from levels I to III removed. All patients received radiotherapy to the ipsilateral breast, avoiding the axilla. Adjuvant hormonal and chemotherapy was giving according to established protocols, with approximately 50% receiving hormonal treatment and 50% receiving hormonal treatment and chemotherapy. Primary study end points were overall survival, disease-free survival, and number of axillary metastases found during follow-up in patients who had not undergone AD.

**Results:** 532 patients were initially randomized, with 516 patients taking part in the trial. The most important predictor of a positive sentinel lymph node was perivascular invasion by tumor. Tumor size was also predictive of a positive SN. After a mean follow-up of 95 months (range, 1 to 120 months), 86 events had occurred; 49 breast cancer-associated events (26 in the AD group and 23 in the SN group) had occurred, which was not significantly different. Two patients in the SN group developed axillary metastases. Two patients in the axillary group developed supraclavicular nodes. Twenty patients in the axillary group and 17 in the SN group developed distant metastases. Contralateral breast cancer developed in 10 patients in the axillary group and 9 in the SN group. Ten-year breast cancer-related event-free survival was 88.8% in the AD group and 89.9% in the SN group.

**Conclusions:** AD should not be performed without first examining the sentinel lymph node in patients with breast cancer.

**Reviewer's Comments:** This study confirms the equivalence of SNB and AD in patients with early-stage breast cancer; SN is the optimal choice because of fewer side effects. (Reviewer-Karen J. Brasel, MD, MPH).

© 2010, Oakstone Medical Publishing

Keywords: Sentinel Lymph Node Biopsy, Long-Term Results

Print Tag: Refer to original journal article
The quality of life in survivors of surgical treatment of acute diverticulitis is negatively impacted by the presence of an ostomy.

**Objective:** To provide quality-of-life (QOL) information from the patient's perspective comparing primary anastomosis to a Hartmann's procedure for acute perforated diverticulitis.

**Methods:** Patients undergoing surgical treatment for acute diverticulitis were identified from the 4 major teaching hospitals in the Netherlands. Indications for surgery were diffuse peritonitis sepsis with acute abdominal pain, free air on plain radiography, or specific findings of perforated diverticulitis on computerized tomography (CT). Generic and disease-specific QOL questionnaires were mailed to 150 patients who remained alive as of July 2007. The study sample was divided into patients who had received a Hartmann's procedure and those who had primary anastomosis; QOL between the 2 groups was compared and was also compared to the Dutch general population. Those initially undergoing a Hartmann's procedure were further subdivided into those who had reversal of their colostomy and those in whom the colostomy remained.

**Results:** 131 patients completed the QOL questionnaires (76 Hartmann's, 53 primary anastomosis, 2 simple suture repair). The median time between initial operation and questionnaire response was 71 months (range, 23 to 205 months). Patients undergoing Hartmann's procedures had higher American Society of Anesthesiologists (ASA) scores and higher Hinchey scores than patients undergoing primary anastomosis. Thirty patients in the Hartmann's group had an end colostomy and 2 in the primary anastomosis had a protective ileostomy ($P < 0.05$) at the time they responded to the questionnaire. For the generic QOL measures, patients undergoing a Hartmann's procedure had significantly lower QOL than those undergoing primary anastomosis as well as lower scores than the general population. There was no significant difference in QOL for those undergoing primary anastomosis and the general population. Disease-specific QOL showed differences in the domains of physical functioning, global health status, body image, and dyspnea, with those undergoing Hartmann's procedure lower than those undergoing primary anastomosis. All differences in QOL between the 2 groups disappeared when only those who had undergone ostomy reversal in the Hartmann's group were considered. In multivariate analysis, only the presence of an ostomy was related to QOL.

**Conclusions:** QOL in survivors of surgical treatment of acute diverticulitis is negatively impacted by the presence of an ostomy.

**Reviewer's Comments:** These findings are not surprising; given all options equal, the vast majority of patients would prefer to live life without an ostomy than with an ostomy. There are several studies now that suggest treatment equivalence using standard short-term outcomes; it is not clear that this common-sense finding will change practice, but perhaps it should. It is important to remember that although we may tell patients that the ostomy is only temporary, in a sizable minority it is never reversed. (Reviewer-Karen J. Brasel, MD, MPH).
Predicting Perforation in Diverticular Disease

Indications for Elective Sigmoid Resection in Diverticular Disease.

Klarenbeek BR, Samuels M, et al:


The number of prior episodes is not associated with increased risk of diverticular perforation.

Objective: To investigate the indications for elective sigmoid resection in diverticular disease.

Methods: Patients with the diagnosis of diverticulitis treated between 1990 and 2000 were identified from the hospital administrative database. Medical records were reviewed for age, American Society of Anaesthesiology (ASA) grade class, comorbidities (cardiovascular disease, chronic renal failure, collagen-vascular disease, diabetes mellitus, immunosuppressive therapy, congestive heart failure, pulmonary disease, smoking), Hinchey class, type of operation, need for percutaneous intervention, complications, and length of stay. The patients were divided into 3 groups: (1) those undergoing conservative management; (2) those undergoing acute or emergent operation; and (3) those undergoing elective operation. Follow-up was done retrospectively through chart review through 2009.

Results: 291 patients were identified (42% male, 58% female); the average age was 66 years (range, 27 to 93 years). A total of 111 patients were treated conservatively, 72 electively, and 108 underwent acute operation. Indications for elective resection were recurrent attacks with persistent complaints (26 patients), stenosis (29 patients), colovaginal or colovesical fistulas (11 patients), persistent abscesses (2 patients), and recurrent diverticular bleeding (5 patients). Indications for emergent operation were peritonitis (62 patients), abscesses (24 patients), obstruction or stenosis (12 patients), failure of conservative treatment (6 patients), or diverticular bleeding (4 patients). The majority of patients undergoing emergent surgery had no history of prior episodes (80%). There was no mortality in the elective group compared to 13% mortality in the emergent group. Morbidity was 22% in the elective group and 56% in the emergent group. There was no difference in leak rate (6% in the elective group and 8% in the emergent group). Univariate analysis revealed that ASA class >2, collagen-vascular disease, chronic renal failure, and immunosuppressive therapy were associated with perforation. Multivariate analysis revealed that only immunosuppressive therapy (OR, 2.934; 95% CI, 1.136 to 7.576) and chronic renal failure (OR, 16.161; 95% CI, 4.490 to 58.164) were associated with perforation. A second analysis investigated risk factors for perforation in the 88 patients with recurrent disease. Collagen-vascular disease, chronic renal failure, and age >70 were associated with perforation in univariate analysis in these 88 patients. Patients with collagen-vascular disease, chronic renal failure, or immunosuppression had a 5-fold greater risk of perforation with recurrent episodes. The number of prior episodes was not associated with perforation in either analysis.

Conclusions: The indication for elective resection in patients with diverticulitis should not be based on the number of prior episodes alone.

Reviewer’s Comments: This analysis supports prior work suggesting that diverticulitis is not a progressive disease. The majority of patients with complicated disease present with that complication initially. Previous episodes are likely important in high-risk patients (with renal failure, collagen-vascular disease, or on immunosuppression) and may contribute to patient desire to opt for surgical management after multiple episodes managed nonoperatively. (Reviewer-Karen J. Brasel, MD, MPH).

© 2010, Oakstone Medical Publishing

Keywords: Diverticular Disease, Sigmoid Resection, Elective

Print Tag: Refer to original journal article
Age and severity of illness are the risk factors of *C. difficile* colitis in surgical patients.

**Background:** *Clostridium difficile*-associated diarrhea (CDAD) and *C. difficile* colitis are nosocomial infections that have increased in frequency throughout the world. A virulent strain is often cited as a reason for the increase in morbidity and mortality associated with this infection. Some believe certain antibiotics increase the risk of *C. difficile* disease.

**Objective:** To identify risk factors for *C. difficile* disease among surgical patients.

**Design:** A prospective collection of data on surgical patients with an infection during hospitalization.

**Participants:** 4,178 patients were included during an 11 year period from 1998 to 2007.

**Methods:** Demographic data was collected as well as the source of the infection. Antibiotic treatments were known and tabulated. Patients with and without *C. difficile* disease were compared. The primary outcome was to determine with univariate and multivariate analysis risk factors for *C. difficile* disease.

**Interventions:** *C. difficile* was confirmed by culture or toxin assay.

**Results:** 98 episodes (2.3%) of *C. difficile* associated diarrhea were documented. The mean age was older for patients with *C. difficile* disease. Comorbidities were similar except for a higher incidence of pulmonary disease and transfusion therapy among patients with *C. difficile* disease. The infection occurred in the hospital 56% of the time. Mean APACHE II score was higher among *C. difficile* patients. Mortality was similar between the two groups. The only antibiotic class that was used more frequently to treat the index infection in *C. diff* patients was the carbapenems. Patients receiving metronidazole to treat the index infection were not protected from *C. difficile* disease. Multivariate regression analysis revealed only age and severity of illness to predict *C. difficile* disease.

**Conclusions:** Older age and severity of illness were the only two risk factors for *C. difficile* disease in a large cohort of surgical patients who were treated for an infection.

**Reviewer's Comments:** A very large study that casts some concern on the statement that *C. difficile* disease is more common when some antibiotic classes are used. Fluoroquinolones are commonly cited and clindamycin as an individual antibiotic is also blamed. They also found that metronidazole use was not protective. Age and severity of illness are the two risk factors that survived in the logistic regression although their odds ratio was not huge. I am not sure this study clarifies much. We do not know how the patients were selected for *C. difficile* analysis. The paper speaks to *C. difficile* diarrhea and not colitis. The mortality with *C. diff* disease was no different than without it making one think that the spectrum of disease was not totally represented. Duration of antibiotics was not reported. Their conclusions are pretty safe but not very helpful. (Reviewer-John A. Weigelt, MD).

© 2010, Oakstone Medical Publishing

**Keywords:** Diarrhea, Polymicrobial Surgical Infections, *C. difficile* Colitis

**Print Tag:** Refer to original journal article
A Case for ERCP Use for Pancreatic Trauma

Endoscopic Retrograde Cholangiopancreatography in Patients With Pancreatic Trauma.

Rogers SJ, Cello JP:

J Trauma 2010; 68 (March): 538-544

ERCP may be useful to define unsuspected ductal injury after blunt abdominal trauma.

**Background:** Pancreatic injury is not common after blunt abdominal injury, occuring in about 3% to 12% of all patients with blunt or penetrating abdominal trauma. Morbidity and mortality can follow these injuries, especially if a main ductal injury is missed. While most penetrating injuries are explored, the patient with blunt abdominal injury is commonly managed nonoperatively. How endoscopic retrograde cholangiopancreatography (ERCP) is used to evaluate patients with a possible pancreatic duct injury is poorly defined.

**Objective:** To determine the value of ERCP in evaluating patients with pancreatic injury.

**Design:** Prospective evaluation of patients who had an ERCP for pancreatic trauma.

**Participants:** 26 patients were evaluated over a 13-year period.

**Methods:** Demographic, laboratory, imaging, and operative data were collected. ERCP findings and final patient outcomes were recorded. The primary outcome was the ERCP findings.

**Interventions:** ERCP was done pre-, intra-, or postoperatively. Sphincterotomy and stent placement was performed.

**Results:** 16 patients had a blunt mechanism injury, 9 patients had a penetrating injury, and 1 patient had an injury during a total colectomy. Eighteen patients had a CT scan, and 14 had some type of pancreatic finding. Fourteen patients had an exploratory laparotomy on the day of admission, and 8 were taken immediately to the OR after initial assessment. ERCP was performed at a mean of 19 days after admission (range, 0 to 300 days). Eight of the 26 patients had a normal pancreatic duct. Eighteen patients had a partial or complete transection of the main pancreatic duct or secondary ducts with contrast extravasation. Sphincterotomy was done in 5 patients and stenting in 7 patients. No treatment was given to the remaining 14 patients. Four patients had a distal pancreatectomy. All patients survived, and all stents were removed successfully 4 to 8 weeks later.

**Conclusions:** ERCP can be safely used to define ductal injuries in patients with blunt and penetrating injury.

**Reviewer's Comments:** This paper depicts an intervention looking for a new home. ERCP was used safely and successfully in 26 patients over a 13-year period. The authors suggest that 70% of the patients had findings unsuspected before the ERCP. However, they never tell us why the ERCP was done in these 26 patients. Only 8 of the patients had their ERCP on admission, and 50% had an abnormal finding. Eighteen patients had a delayed ERCP, and 7 of these had an ERCP intervention. I am not sure these findings suggest a method to apply ERCP in patients with a possible pancreatic duct injury. We use ERCP uncommonly, as we find pancreatic exploration for penetrating wounds and CT scanning for blunt abdominal trauma adequate in the majority of cases to define a pancreatic injury. We would not agree with the authors conclusions that it is helpful in many patients. (Reviewer-John A. Weigelt, MD).

© 2010, Oakstone Medical Publishing

Keywords: Pancreatic Trauma, ERCP

Print Tag: Refer to original journal article
Treatment Data Lacking for Skin, Soft Tissue Infections

Meta-Analysis of Trials Evaluating Parenteral Antimicrobial Therapy for Skin and Soft Tissue Infections.

McClaine RJ, Husted TL, et al:

Clin Infect Dis 2010; 50 (April 15): 1120-1126

Antibiotic studies for complicated skin and soft tissue infections are lacking in rigor.

**Background:** Complicated skin and soft tissue infections are common, and many studies are done to compare treatment regimens. Most studies compare antibiotic agents. The rigor of these studies is often questioned.

**Objective:** To evaluate current clinical trials of complicated skin and soft tissue infections.

**Design:** Meta-analysis of published studies from the last 10 years. **Materials:** A total of 17 studies met inclusion criteria representing 13,146 patients.

**Methods:** 2 searches were conducted using different key words. The 2 searches were then compared and duplicates were excluded. Studies were sought that conformed to the 1998 Food and Drug Administration (FDA) guidelines for antibiotic treatment of complicated skin and soft tissue infection. Specific study characteristics sought included location of study, types of infection, microbiologic data, outcome, and compliance with the FDA guidelines.

**Interventions:** All patients were hospitalized and received parenteral antibiotics.

**Results:** 94% of the studies were multicenter, and blinding was used in 59%. Fifteen of the studies showed noninferiority between control and study drugs. One study showed the study drug to be superior and another revealed the control drug to be superior. Cellulitis was the most common type of infection, occurring in 34%, and abscess was next at 30%. Twelve of the 17 studies reported percentages of Gram-negative organisms and 88% reported methicillin-resistant *Staphylococcus aureus* (MRSA) cultures. Cure rates were reported in 47% of studies for Gram-negative organisms and 59% for MRSA. Compliance with FDA guidelines was poor, ranging from 6% to 59% (the 6% was from the 1 study that stratified results by operative intervention).

**Conclusions:** Current clinical trials of complicated skin and soft tissue infection treatment leave much to be desired by clinicians.

**Reviewer's Comments:** Complicated skin and soft tissue infection is a common patient profile for most general surgeons. While some are related to operative procedures, most occur as de novo problems. Surgeons are commonly called to treat or evaluate these patients especially if a necrotizing component is thought to be present. This article illustrates that current data exist in studies used to gain FDA approval of an antibiotic, but they often do not help the clinician with treatment choices. Equal efficacy of study drugs to controls is usually documented, suggesting that antibiotic choice is not a critical component at least in the cases included. Surgical intervention is poorly controlled. Even compliance with FDA guidelines is poor. While the authors suggest better study design, it is doubtful this will occur. The best we can say is that we have many equal antibiotic treatments for complicated skin and soft tissue infections and surgical intervention is a variable that is best handled by the surgical consultant. (Reviewer-John A. Weigelt, MD).

© 2010, Oakstone Medical Publishing

Keywords: Skin/Soft Tissue Infection, Parenteral Antimicrobial Therapy

Print Tag: Refer to original journal article
Laparoscopic Cardiomyotomy with Anterior Partial Fundoplication — A Crowd Pleaser

Laparoscopic Cardiomyotomy for Achalasia: Clinical Outcomes Beyond 5 Years.
Chen Z, Bessell JR, et al:

J Gastrointest Surg 2010; 14 (April): 594-600

Laparoscopic cardiomyotomy with anterior partial fundoplication for achalasia yields effective, durable symptom relief.

Background: Laparoscopic cardiomyotomy (LC) is the most common surgical procedure for achalasia, but little data exist on long-term outcomes.

Objective: To evaluate long-term outcomes following LC and anterior partial fundoplication (APF) in prospectively followed patients for >5 years.

Methods: Clinical outcomes after primary LC and APF for achalasia were assessed. Diagnosis was based on history, barium swallow, and esophageal manometry. Surgery was standardized. Questionnaires assessing dysphagia, reflux, side-effects, and satisfaction were administered at 3 and 12 months and annually thereafter.

Results: From July 1992 to April 2004, 155 patients met criteria. The length of hospital stay was a median of 3 days (range, 1 to 40 days). Complications included 1 spleen injury, 1 subphrenic abscess, 1 myotomy leak requiring open repair, and 1 death (subdural bleed). Seven patients required conversion to open (4.5%). Another 12 patients had mucosal perforations laparoscopically repaired at the initial operation. Clinical outcomes were available for 143 patients (92.3%), but scores were available for 125 of the 155 patients at >5 years. Dysphagia scores were significantly improved and similar at all time points. Frequency of dysphagia, odynophagia, and chest pain was significantly reduced and also similar at all points. There was a significant reduction in heartburn. Seventy-nine patients (63.2%) could eat an unrestricted diet at late follow-up. Most patients (113; 90.4%) were satisfied with the decision to undergo surgery. A good or excellent result was achieved in 73% to 77% at >5 years. Subjective dysphagia for solids in those with intraoperative mucosal perforations was worse than in other patients (P = 0.035). Twenty patients underwent pneumatic dilatation (PD) or reoperation, or both, for recurrent/persistent dysphagia. Fourteen underwent revision. Three patients had scarring, 8 had incomplete myotomies, 1 had an esophageal diverticulum, and 2 underwent esophagectomy for end-stage achalasia. Six refused treatment. Overall, symptoms improved in 95%. At late follow-up, patients requiring re-intervention for dysphagia had higher dysphagia for liquids, and the proportion reporting good or excellent late outcomes was less (50% vs 77%). Discussion: The frequency of symptoms of dysphagia for liquids, odynophagia, and chest pain were similar at early and late follow-up, although dysphagia for solids and heartburn became more frequent at later follow-up. Most patients (73%) were highly satisfied at >5 years, and 90% considered the operation worthwhile. Symptomatic failures occurred early. Extending the myotomy below the gastroesophageal junction onto the cardia is crucial. Complete fundoplication should be avoided, but some type of partial is preferred.

Conclusions: LC with APF for achalasia achieves effective and durable symptom relief and most patients are satisfied with the outcome.

Reviewer's Comments: The authors evaluated clinical outcomes thoroughly, but objective evaluation was not routine. More detailed, objective data of the 26 failures would have been helpful, but the procedure done in a standardized manner appears to yield acceptable clinical results at late follow-up. (Reviewer-Kathleen Christians, MD).

© 2010, Oakstone Medical Publishing

Keywords: Achalasia, Cardiomyotomy, Anterior Fundoplication

Print Tag: Refer to original journal article
**Necessity of Contrast Use in CT Imaging -- Fact or Fallacy?**

*CT Scan for Suspected Acute Abdominal Process: Impact of Combinations of IV, Oral, and Rectal Contrast.*

Hill BC, Johnson SC, et al:


---

CT contrast is not always necessary to diagnose an acute abdominal process

**Background:** Few reports describe interpretation of CTs in critically ill patients in the absence of the use of contrast.

**Objective:** To retrospectively evaluate the diagnostic accuracy of abdominal/pelvic CT (A/P CT) with varying use of contrast agents on a surgical service.

**Methods:** A retrospective review of all inpatients undergoing urgent or emergent A/P CT with any combination of contrast (unenhanced, IV, oral, or rectal) for suspected acute abdominal process from March 1, 2007 to May 31, 2007 was conducted. Those undergoing kidney protocol CT or with suspected appendicitis or diverticulitis were excluded.

**Results:** Of the 1457 CTs performed, 661 fit study criteria. IV contrast alone was the most common mode of imaging (54.2%). CT diagnoses were no acute pathology, inflammatory, and infectious. Procedures were done in 32.7% (216/667), and 18 of these had CT diagnosis of no acute pathology. Average time to intervention post-CT was 44.9 hours, and CT accuracy was 93% overall. When IV and oral contrast was used, an accurate diagnosis was made 94.6% of the time. **Discussion:** CT may be an over utilized resource as 34.9% (231/661) of the CTs revealed no pathology. When an acute process was discovered, only 46% (198/430) led to procedural interventions. Administration of oral and rectal contrast increases patient discomfort and delays imaging. Use of IV contrast is limited by renal function and contrast allergies, and all versions of contrast increase cost. The authors conclude that use of any contrast agent is not necessary to diagnose pathology and although oral and IV contrast can improve diagnostic capabilities, these were not statistically significant.

**Conclusions:** CT contrast in the critically ill is not necessary to diagnose an acute abdominal process. Eliminating its use may improve patient comfort, decrease risk, and minimize cost.

**Reviewer’s Comments:** Sample sizes of the non-IV contrast groups were small compared to that of the IV contrast group. The study was not powered to assess differences between the contrast groups in regards to specific CT pathology and need for intervention. While the premise that contrast enhanced CT is over utilized may be true, the authors really need to compare accuracy of the varying types of CT with contrast to unenhanced CT by individual clinical diagnosis. (Reviewer-Kathleen Christians, MD).

© 2010, Oakstone Medical Publishing

Keywords: CT Scan, Acute Abdomen, Contrast

Print Tag: Refer to original journal article
Laparoscopic inguinal hernia repair results in less chronic pain than open repair. The incidence of chronic pain after inguinal hernia repair decreases over time.

**Background:** Although recent studies have demonstrated similar recurrence rates between laparoscopic repair (totally extraperitoneal [TEP]) and open mesh repair (Lichtenstein), differences in chronic postoperative pain are less clear.

**Objective:** To compare the frequency of chronic pain after laparoscopic and open inguinal hernia repairs.

**Design:** Randomized, multicenter study.

**Methods:** Between 1996 and 2000, 1512 men aged 30 to 70 years with primary unilateral inguinal hernias were randomized to either TEP or Lichtenstein repair. Functional status was determined preoperatively and at 1 week postoperatively. Postoperatively, patients reported pain using a visual analogue scale. Follow-up was by questionnaire annually at 1, 2, 3, and 5 years and by clinical examination at 1 and 5 years. Chronic pain was classified as mild, moderate, or severe by independent blinded observers.

**Results:** Of the 1370 randomized patients who underwent hernia repair, 665 were TEP repairs and 705 were Lichtenstein repairs. There was no significant difference in patient demographics between groups. Median follow-up was 5.1 years (range, 4.4 to 9.1 years); the percentage of patients following-up ranged from 81.8% to 94.3%. When considering the TEP group compared with the Lichtenstein group, the overall incidence of chronic pain was 11.0% (n=60) versus 21.7% (n=125) at 1 year, 11.0% (n=60) versus 24.8% (n=144) at 2 years, 9.9% (n=55) versus 20.2% (n=119) at 3 years, and 9.4% (n=58) versus 18.8% (n=124) at 5 years, respectively ($P < 0.001$). Compared to the TEP group, mild chronic pain was more than twice as common in the Lichtenstein group throughout the 5-year follow-up interval; 8.2% versus 14.6% at 1 year, 7.0% versus 18.4% at 2 years, 8.1% versus 16.3% at 3 years, and 7.5% versus 15.3% at 5 years. Fewer patients in the TEP group had moderate or severe chronic pain throughout the 5-year follow-up interval; 2.7% versus 7.1% at 1 year, 4.0% versus 6.4% at 2 years, 1.8% versus 3.9% at 3 years, and 1.9% versus 3.5% at 5 years. The difference reached statistical significance at years 1 and 3. Pain decreased significantly over time in the Lichtenstein group ($P < 0.001$). No referral to a pain specialist was needed for any patient.

**Conclusions:** Laparoscopic inguinal hernia repair results in less chronic pain than open repair. The incidence of chronic pain after inguinal hernia repair decreases over time, and at 5 years after surgery, only a small proportion of patients still report moderate-to-severe chronic pain.

**Reviewer's Comments:** This study is a derivative of a randomized study originally designed to evaluate recurrence rates (Ann Surg 2009; 249: 33-38). Strengths are its size and percentage and length of follow-up, which enables this study to demonstrate a convincing difference between open and laparoscopic inguinal hernia repair. Future studies designed specifically to examine and compare pain will be better able to determine etiology and prevention. (Reviewer-Todd A. Kellogg, MD).

© 2010, Oakstone Medical Publishing

Keywords: Inguinal Hernia, Repair, Chronic Pain, Lichtenstein, Laparoscopic

Print Tag: Refer to original journal article
Trends in Acute SMA Occlusion

Epidemiology and Prognostic Factors in Acute Superior Mesenteric Artery Occlusion.

Acosta S, Wadman M, et al:

J Gastrointest Surg 2010; 14 (April): 628-635

The use of MDCTiv and collaboration between general and vascular surgeons appear to be important factors that lower the mortality in patients with acute SMA occlusion.

Background: Previous reports have suggested that the incidence of acute superior mesenteric artery (SMA) occlusion is largely underestimated. Recent reports on the trends of SMA occlusion in terms of its incidence and mortality and evaluation of prognostic factors are lacking.

Objective: To assess the incidence and mortality rates and to evaluate prognostic factors for mortality in patients with acute SMA occlusion.

Design: Population-based retrospective review.

Methods: Patients with acute SMA occlusion were identified through the inpatient and autopsy registry from 1970-1982 (n=270), 1987-1996 (n=135), and 2000-2006 (n=100). Trends of incidence and mortality were compared to previous population-based studies. Data from 2000-2006 were retrieved through ICD identification of in-hospital patients, 1987-1996 from a consecutive clinical series of acute mesenteric ischemia, and 1970-1982 from both autopsy registries and a 3-year clinical sample. The SMA occlusions were classified as embolic (n=37), thrombotic (n=35), or indeterminate (n=28).

Results: From 1970-1982, the overall incidence of acute SMA occlusion was 8.6 per 100,000 person-years; 65% were diagnosed at autopsy (autopsy rate, 87%). There was a significant decrease in autopsy rate over the each time period (85% to 25%). The method of diagnosis changed from autopsy or laparotomy (1970-1982) to laparotomy (42%) or CT scan (27%) (2000-2006). Multi-detector row CT scan with IV contrast (MDCTiv) was the dominant mode of diagnosis from 2004-2006. The overall cause-specific mortality estimate was 6.0 per 1,000 deaths in 1970-1982 (in-hospital mortality rate of 93%). From 2004-2006, the in-hospital mortality rate was 58% (32/55). The subset of patients undergoing MDCTiv had an in-hospital mortality rate of 36% (9/25; P =0.002). Not performing MDCTiv was an independent risk factor for in-hospital mortality (OR, 4.0; 95% CI, 1.0 to 16.0). Of the 61 patients who underwent operative intervention, a survival benefit was seen when vascular and general surgeons collaborated; 21 of 25 (84%) patients survived (P <0.001) compared to 14 of 36 patients (39%) managed by general surgeons alone (P <0.001). In-hospital survival rate was 90% (18/20) for those who underwent an intestinal revascularization. Endovascular intestinal revascularization (n=14) was associated with increased survival (P <0.001). Neither open vascular surgery (n=8; P =0.45) nor bowel resection (n=35; P =0.63) was associated with any survival benefit.

Conclusions: Use of MDCTiv as well as collaboration between general and vascular surgeons appears to be important factors that lower the mortality in patients with acute SMA occlusion.

Reviewer’s Comments: This study helps validate the usefulness of prompt MDCTiv in the diagnosis and management of acute SMA occlusion. MDCTiv is the test of choice when acute SMA occlusion is suspected as it evaluates for the pathology in question, helps rule out other abdominal etiologies, and can provide information for planning vascular intervention. Its usefulness in this setting suggests that it should be used even when renal function is decreased. (Reviewer-Todd A. Kellogg, MD).

© 2010, Oakstone Medical Publishing

Keywords: Thromboembolic Occlusion, Superior Mesenteric Artery, Epidemiology, Prognostic Factors

Print Tag: Refer to original journal article
Both margin width and volume of disease near the margin impacts the effect of RT on risk of ipsilateral breast tumor recurrence in patients with DCIS.

**Background:** Opinions and practice patterns of breast physicians regarding the management of ductal carcinoma in situ (DCIS) vary considerably, particularly with the use of radiation therapy (RT) to prevent ipsilateral breast tumor recurrence (IBTR).

**Objective:** To examine the influence of margin width and volume of disease near the margin on IBTR and on the benefit of RT.

**Design:** Retrospective review.

**Methods:** Patients with DCIS treated with breast-conserving therapy (BCT) between 1991 and 1995 were identified. Data, including patient age and the presence of a palpable mass, were collected. Multiple histologic characteristics were recorded including nuclear grade, necrosis, and the presence of lobular neoplasia. Margin width was defined as: close or positive (<1 mm), intermediate (1 to 9 mm), and wide (≥10 mm). To determine the influence of volume of disease near the margin on IBTR risk and RT benefit, margin width and number of ducts at closest margin were combined. Data were analyzed using univariate and multivariate analysis for association with risk of IBTR and added value of RT.

**Results:** 294 patients were included, with a median follow-up of 11 years; recurrence occurred in 21% (n=63). The actuarial 10- and 15-year overall IBTR rates were 22% and 29%, respectively; for wide excision alone (n=200), the rates were 28% and 36%, respectively, compared to 12% and 17%, respectively, for the 91 patients undergoing wide excision and RT (P =0.002). Considering the impact of margins on IBTR rates, lesions excised with margins of <1 mm, 1 to 9 mm, and ≥10 mm had actuarial 10-year IBTR rates of 28%, 21%, and 19%, respectively. Overall, RT reduced IBTR rates by 62% (P =0.002). Regarding the impact of RT by margin size, IBTR rates were reduced 83% (CI, 0.05 to 0.58) for lesions with <1 mm margins (P =0.002), 70% (CI, 0.09 to 1.05) for 1 to 9 mm (P =0.05), and 24% (CI, 0.30 to 1.91) for ≥10 mm (P =0.55). Multivariate analysis demonstrated that increased volume of disease near the margin (≥2 involved ducts, <10 mm margin width) was associated with a 3-fold IBTR risk (HR, 3.37; CI, 1.57 to 7.24; P =0.002) and greater benefit from RT (HR, 0.14; P =0.004).

**Conclusions:** Both margin width and volume of disease near the margin impacts the effect of RT on risk of IBTR. Patients with a greater number of involved ducts at the nearest margin (higher volume) benefit the most from the addition of RT.

**Reviewer's Comments:** Despite 4 prospective randomized trials validating (in no uncertain terms including 2 with 10+ year follow-up) the benefit of RT in reducing the risk of ipsilateral breast tumor recurrence, it is remarkable that practice patterns still vary widely in this respect. Although retrospective, this study serves to add valuable support to the use of RT in DCIS by way of meticulous histologic analysis. (Reviewer-Todd A. Kellogg, MD).

© 2010, Oakstone Medical Publishing

Keywords: DCIS, Margin Width, Volume of Disease, Radiation, Breast-Conserving Tx

Print Tag: Refer to original journal article
Impact of Oral Carbohydrate Loading Immediately Preoperatively

Randomized Controlled Trial of Preoperative Oral Carbohydrate Treatment in Major Abdominal Surgery.

Mathur S, Plank LD, et al:


Preoperative carbohydrate loading is of no significant benefit in patients undergoing major abdominal surgery.

**Background:** The impact of preoperative nutritional status has been well established. Patients with severe malnutrition identified preoperatively benefit from nutritional repletion before elective surgery. Less well studied is the impact of a single carbohydrate load with the intent of ameliorating postoperative insulin resistance.

**Objective:** To investigate the effect of an oral carbohydrate load on postoperative outcomes after major abdominal surgery.

**Participants/Methods:** Patients undergoing elective liver or colorectal operations were randomized to receive either 800 cc of a carbohydrate-rich solution or 800 cc of flavored water between 1900 and 2400 hours prior to an estimated 0800 start time of surgery. The day of surgery, the intervention group received 400 cc of a carbohydrate-rich solution 2 hours prior to the estimated start time, and the control group received an equal amount of flavored water. Fatigue, general discomfort, grip strength, triceps skinfold thickness, and mid-arm muscle circumference (MAMC) were measured in the preadmission clinic approximately 1 hour before initiation of anaesthesia, on days 1 to 7 after surgery, and on day 28. Primary outcomes were postoperative length of hospital stay and fatigue as measured by visual analogue scale.

**Results:** 162 patients were entered during the 18-month study period of 209 patients screened; 142 patients completed the study. All exclusions occurred during the in-hospital phase, and no patients were lost to follow-up. There were no differences in glucose, insulin, or C-reactive protein between groups on any day. Cortisol levels were significantly lower in the carbohydrate group on postoperative day 1 only. There were no differences in baseline fatigue scores or overall length of stay between groups.

**Conclusions:** In patients undergoing major abdominal surgery, preoperative carbohydrate loading has no significant benefit and is not associated with any significant adverse events.

**Reviewer’s Comments:** The benefit of tight postoperative glucose control has renewed interest in manipulation of the perioperative hormonal environment. The benefit of tight glucose control has been shown in a very small subset of patients, which has increased the interest in determining the underlying mechanisms. In a group of relatively well-nourished patients who would not normally be considered candidates for preoperative nutritional supplementation, the authors fail to identify a significant alteration in biochemical or hormonal milieu with short-term perioperative carbohydrate load. This lack of a short-term difference correlated with a lack of patient-perceived outcome (fatigue) or resource consumption (length of stay). Of interest is the safety of carbohydrate loading within 2 hours of surgical incision. (Reviewer-Karen J. Brasel, MD, MPH).

© 2010, Oakstone Medical Publishing

Keywords: Abdominal Surgery, Nutrition, Preoperative Oral Carbohydrates

Print Tag: Refer to original journal article
To Screen or Not to Screen -- That Is the Question

Breast Cancer Mortality in Organised Mammography Screening in Denmark: Comparative Study.
Jørgensen KJ, Zahl PH, Gøtzsche PC:

Br Med J 2010; March 23 (): epub ahead of print

Mammography screening has no effect on breast cancer-related mortality in Denmark.

Background/Objective: The impact of screening on breast cancer mortality has been hotly debated, influencing the age at which initial screening should begin. Jørgensen et al compare breast cancer mortality rates in areas of Denmark where screening programs were begun at different times in an attempt to determine the benefit of screening mammography.

Methods: Screening for female breast cancer began in 1991 in Copenhagen municipality and in 1993 in Funen county. These regions were considered as the screened population, comprising approximately 20% of the Danish population, while the remainder of Denmark was considered non-screened. Data on breast cancer mortality from 1971 to 2006 were obtained from the Cause of Death Register through the National Board of Health. The date at which screening would have had an effect on mortality was assumed to be 5 years after the initiation of a screening program; 1997 was used as a compromise date for the 2 screening areas. The year 1991 was used as the date prior to initiation of screening to provide baseline data for both the screened and non-screened groups. Mortality risk was analyzed by age, with the age group from 55 to 74 years expected to benefit the most by screening during the study period, and the groups 35 to 54 years of age and 75 to 84 years of age thought not to benefit.

Results: In the 10-year period when screening could have had an effect, breast cancer mortality among women who could benefit from screening (ages, 55 to 74 years) declined by 1% a year in the screened areas (relative risk [RR], 0.99; 95% CI, 0.96 to 1.01) and by 2% in the non-screened areas (RR, 0.98; 95% CI, 0.97 to 0.99). Before screening was introduced, breast cancer mortality rates increased by 1% per year in the screened areas (RR, 1.01; 95% CI, 0.99 to 1.03) and by 2% per year in the non-screened areas (RR, 1.02; 95% CI, 1.01 to 1.03). In the 35- to 54-year-old group, breast cancer-related mortality decreased 5% per year in the screened areas and 6% per year in the non-screened areas. In the oldest group, there was no difference in the incidence of breast cancer-related mortality by screening area.

Conclusions: The authors conclude that screening mammography has had little impact on breast cancer-related mortality in Denmark.

Reviewer's Comments: The impact of screening mammography on breast cancer-related mortality will continue to be debated. Previous studies have made arguments based primarily on historical controls; the strength of the Danish study is the initiation of screening in relatively stable populations via a national health system allowing a concurrent cohort study. The lack of benefit of screening suggests that other advances in the treatment of breast cancer have been responsible for the major survival benefits that have been realized in this disease. (Reviewer-Karen J. Brasel, MD, MPH).

© 2010, Oakstone Medical Publishing

Keywords: Mortality, Screening, Mammography

Print Tag: Refer to original journal article