SPECIAL ARTICLE

The Best of the Best—1999

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JUST AS we did last year, we present those articles published in 1999 that, with the help of our Editorial Board, were deemed to contribute significantly to a better understanding of the practice of clinical surgery. Each of these publications presents information that informs and, perhaps, modifies current practice conceptions for the betterment of our patients.

For future annual updating of this list, we invite your suggestions addressed to the Editor of the *Archives of Surgery* at the office listed in the journal. Articles may originate in any publication.

Our continuing hope is that this list will be helpful to you in staying abreast of significant practice-related innovations.

Here are our choices for 1999 (in random order):

Kruerer HM, Sahin AA, Hunt KK, et al. Incidence and Impact of Documented Eradication of Breast Cancer Axillary Node Metastases Before Surgery in Patients Treated With Neoadjuvant Chemotherapy. *Ann Surg*. 1999;230:72-78.

Studying 191 patients with locally advanced breast cancer, this group from the M. D. Anderson Cancer Center noted conversion of cytologically positive axillary lymph nodes to negative nodal status in 43 patients (23%) after 2 cycles of doxorubicin-based neoadjuvant chemotherapy. The Kaplan-Meier 5-year survival rate of this select group was 87%. This represents the first report to document the eradication of cytologically proven axillary lymph node metastases by neoadjuvant chemotherapy and further speculates on the potential implications of sentinel node biopsy as an alternative to full axillary dissection in patients treated with neoadjuvant chemotherapy.

Bonenkamp JJ, Hermans J, Sasako M, et al. Extended Lymph-Node Dissection for Gastric Cancer. *N Engl J Med*. 1999;340:908-914.

The long-awaited Dutch trial comparing limited (D_1) and extended (D_2) lymph node dissection for gastric cancer has now been published. In this randomized trial at 80 Dutch hospitals involving 711 patients, curative intent included resection of stomach and either a D_1 or D_2 node removal. The procedures for quality control included instruction and supervision in the operating room and monitoring of the pathological results. Overall, patients with a D_2 node dissection had a significantly higher rate of complications, more postoperative deaths, and longer hospital stays than the D_1 group. The survival rate of the 2 groups was similar at 5 years. Thus, the results of this study do not support the routine use of D_2 lymph node dissection in patients with gastric cancer as recommended by the Japanese medical community.

From the Department of Surgery, University of California, Davis–East Bay, Oakland.

Ponec RJ, Saunders MD, Kimmey MB. Neostigmine for the Treatment of Acute Colonic Pseudo-obstruction. *N Engl J Med*. 1999;341:137-141.

Acute colonic pseudo-obstruction, that is, massive dilation of the colon without mechanical obstruction, can be observed after operation or in severe illness. Although it can resolve with conservative therapy, colonoscopic decompression and more invasive interventions are sometimes needed to prevent ischemia and perforation of the bowel. In this study of 21 patients with acute colonic pseudo-obstruction (cecum at least 10 cm in diameter on radiograph and no response to at least 24 hours of conservative management), 11 received 2 µg of neostigmine intravenously, and 10 were administered intravenous saline. As a result, 10 of the 11 patients who received neostigmine had prompt colonic decompression compared with none of the 10 patients who received placebo. The median time to response was 4 minutes. Side effects of neostigmine included abdominal pain (mild cramping), excessive salivation, and vomiting (in 2 patients), with 2 patients developing symptomatic bradycardia treated with atropine. The use of neostigmine should be considered before any but the most conservative treatment is used to treat colonic pseudo-obstruction.

Povoski SP, Karpeh MS Jr, Conlon KC, et al. Association of Preoperative Biliary Drainage With Postoperative Outcome Following Pancreaticoduodenectomy. *Ann Surg*. 1999;230:131-142.

In an attempt to determine whether preoperative biliary instrumentation and preoperative biliary drainage are associated with increased morbidity and mortality after pancreaticoduodenectomy, 240 consecutive patients undergoing this operation were analyzed. One hundred seventy-five patients (73%) underwent preoperative biliary instrumentation, and 126 (53%) had preoperative biliary drainage. The overall postoperative morbidity rate was 48% (114/240), including predominantly infectious complications. The mortality rate was 5% (12/240). Preoperative biliary drainage was determined to be the only statistically significant variable associated with the overall complication and mortality rates. Preoperative biliary instrumentation alone was not at fault. This sug-

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gests that one should avoid preoperative biliary drainage whenever possible in patients with potentially resectable pancreatic and peripancreatic lesions.

Silverstein MJ, Lagios MD, Groshen S, et al. The Influence of Margin Width on Local Control of Ductal Carcinoma In Situ of the Breast. *N Engl J Med.* 1999;340: 1455-1461.
To determine if margin width (the distance between the boundary of the lesion and the edge of the excised specimen) is an important determinant of local recurrence in patients with carcinoma in situ of the breast, 469 specimens from patients treated with a breast-conserving operation with or without postoperative radiation therapy were measured and analyzed for nuclear grade and comedonecrosis. It was found that postoperative radiation did not lower the recurrence rate among patients with lesions excised with a margin of at least 10 mm in every direction. There was also no statistically significant benefit from postoperative radiation therapy among patients with margin widths of 1 to 10 mm (224 patients), although there was a trend in this direction. In contrast, there was a real benefit from radiation among patients in whom margin widths were less than 1 mm (112 patients) (8-year follow-up).

Moore WS, Kashyap VS, Vescera CL, et al. Abdominal Aortic Aneurysm: A 6-Year Comparison of Endovascular Versus Transabdominal Repair. *Ann Surg.* 1999; 230:298-308.
To compare endovascular repair of abdominal aortic aneurysm (AAA) with conventional transabdominal reconstruction in terms of mortality, resource utilization, cost, and long-term survival, the first 100 consecutive patients undergoing endovascular repair (mean age, 74.7 years; AAA size, 5.6 cm) were contrasted with 100 patients undergoing transabdominal repair (mean age, 72.9 years; AAA size, 5.9 cm). The device used was manufactured by Endovascular Technologies, Inc (Menlo Park, Calif). Follow-up was prospective. Although the 2 groups were similar, surgical time, blood loss, median intensive care unit stay, and hospital stay were all significantly reduced in the endovascular group. The surgical mortality (2%) and 5-year survival rate (65%) were equivalent in the 2 cohorts. Thus, it was concluded that in suitable candidates endovascular repair of AAAs can be successfully accomplished using fewer resources and at a lower cost than open repair while maintaining equivalent mortality and long-term (6-year) survival results.

Hebert PC, Wells G, Blajchman MA, et al. A Multicenter, Randomized, Controlled Clinical Trial of Transfusion Requirements in Critical Care. *N Engl J Med.* 1999;340:409-417.
To determine whether a restrictive strategy in critically ill patients rendered euvolemic after initial treatment (red blood cell transfusion was given if hemoglobin concentration dropped below 7.0 g/dL, and hemoglobin concentrations were maintained at 7.0 to 9.0 g/dL thereafter) was equivalent to results achieved in a similar group of patients treated with a liberal strategy (transfusion given when hemoglobin concentration fell below 10.0 g/dL, and levels were maintained at 10.0 to 12.0 g/dL). Eight hundred thirty-eight patients were entered in the study, evenly divided between the 2 groups, and end points were death from all causes at 30 days and the severity of organ dysfunction. Although the overall 30-day mortality was similar in the 2 groups, an advantage in mortality was noted among patients who were younger than 55 years (noncardiac patients) and those who were less acutely ill (Acute Physiology and Chronic Health Evaluation score $\leq$20) when the restrictive strategy was used. Further, the mortality for the entire period of hospitalization was significantly lower (22% vs 28%) in the restrictive-strategy group. Thus, it was concluded that the use of a restrictive strategy is at least as effective and possibly superior to the liberal use of transfusion in critically ill patients, with the possible exception of those with acute myocardial infarction and unstable angina.

Sheridan RL, Zapol WM, Ritz RH, et al. Low-Dose Inhaled Nitric Oxide in Acutely Burned Children With Profound Respiratory Failure. *Surgery.* 1999;126: 856-862.
Acute respiratory distress syndrome (ARDS) is a principal cause of death in children with inhalation injury and burns. At present, management of ARDS is supportive. Since the pathophysiology of ARDS includes both pulmonary hypertension and intrapulmonary shunting, inhaled nitric oxide (NO), a selective pulmonary vasodilator that partially reverses these pathophysiologic factors, was administered to 11 burned children with severe ARDS (average burn size, 64% ± 22%). The treatments were begun approximately 6 days after injury and continued for about 8 days at an average dose of 6.7 ± 2.4 ppm. The ratio of Pa_{O_2} to fraction of inspired oxygen (Fi_{O_2}) improved 162% ± 214%, and 8 of the 11 children survived. Those who did not survive had a significantly less favorable initial response to the inhaled NO. There were no complications related to the NO administration. Thus, it was demonstrated that inhaled NO can be safely administered to treat ARDS in children with acute burns and that this appears to improve their ventilatory management. An immediate improvement in the Pa_{O_2}/Fi_{O_2} ratio following inhalation of NO may correlate with survival.

Mort TC, Yeston NS. The Relationship of Pre Mortem Diagnoses and Post Mortem Findings in a Surgical Intensive Care Unit. *Crit Care Med.* 1999;27:288-303.
During a 6-year period, 149 patients from the surgical intensive care unit underwent a postmortem examination and thus could be evaluated to determine the relationship of the premortem to postmortem diagnoses and the discrepancy rate. Using the Goldman classification for autopsy discrepancies (major and minor), it was found that 41% of patients had discrepancies (23% major, 18% minor). Overall, 85% of the major errors were undiagnosed infectious processes. Complete agreement of premortem to postmortem examinations was most apparent in the trauma group (86%) and least in the transplantation group (17%). Patients with longer lengths of stay in the intensive care unit were more likely to have a major error uncovered at autopsy. The overall mortality rate was higher in the surgical intensive care unit (5.7%)

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compared with a hospital-wide population (2%). The substantially higher rate of major uncovered infectious findings should encourage an emphasis on vigilant surveillance of the high-risk patients in the surgical intensive care unit. Further, these findings provide continuing support for the postmortem examination as a valuable and essential part of medical care.

Gentilello LM, Rivara FP, Donovan DM, et al. Alcohol Interventions in a Trauma Center as a Means of Reducing the Risk of Injury Recurrence. *Ann Surg*. 1999;230: 473-483.

Alcoholism is the leading risk factor for injury. Thus, it was hypothesized that providing a brief (30-minute) alcohol intervention as a routine component of trauma care would significantly reduce alcohol consumption and the rate of trauma recidivism. In a randomized, prospective, controlled trial, patients at a level I trauma center who screened positively for alcoholism and otherwise qualified were studied, with follow-up interviews at 6 months and 1 year and the detection of reinjury (3-year analysis). Three hundred sixty-six patients were part of the intervention group and 396 were controls. At 12 months, the intervention group decreased alcohol consumption by 21.8 ± 3.7 drinks per week, most apparent in patients with mild to moderate alcohol problems. Further, there was a 47% reduction in injuries (3 years). Thus, alcohol interventions are associated with a reduction in alcohol intake and a reduced risk of trauma recidivism. Given the prevalence of excessive alcohol ingestion in trauma patients, screening, intervention, and counseling for alcohol problems should be routine.

Obviously, many other important articles are present in the literature of 1999. Our hope is that this selection will stimulate our readers to enhance their clinical skills by studying the articles listed and read further.

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IN OTHER AMA JOURNALS

ARCHIVES OF INTERNAL MEDICINE

Cigarette Smoking and Risk of Clinically Overt Thyroid Disease: A Population-Based Twin Case-Control Study

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Background: The effects of cigarette smoking on the thyroid gland have been studied for years. However, the effect of smoking on thyroid function and size is still controversial.
Objective: To determine the impact of cigarette smoking on the development of clinically overt thyroid disease.
Methods: Matched case-control study of 132 same-sex twin pairs (264 individuals) discordant for clinically overt thyroid disease, ascertained from a population-based nationwide twin register. Information on thyroid disease and smoking habits was gathered by questionnaire, and the patients' endocrinologist or general practitioner verified the diagnosis.
Results: Overall, smoking was associated with an increased risk of developing clinically overt thyroid disease (odds ratio, 3.0; 95% confidence interval, 1.4-6.6; $P = .003$). This association remained statistically significant in monozygotic and dizygotic disease-discordant pairs. The effect of smoking was more pronounced in monozygotic vs dizygotic pairs (odds ratio, 5.0 vs 2.5; $P = .04$ for both). Essentially similar results were obtained after subdividing the twin pairs into groups discordant for clinically overt autoimmune (49 pairs) and nonautoimmune (83 pairs) thyroid disease. Among twin pairs concordant for smoking, probands with clinically overt autoimmune thyroid disease smoked significantly more than did their healthy co-twins (17 pairs; $P = .03$), whereas no difference was found between probands with nonautoimmune thyroid disease and their healthy co-twins (34 pairs; $P = .20$).
Conclusions: Smoking is associated with an increased risk of developing clinically overt thyroid disease. Furthermore, our data suggest that cumulative cigarette consumption is a risk factor, most pronounced in autoimmune thyroid disease. (*2000; 160:661-666*)

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