Veldhuyzen van Zanten (17). However, studies of OAM show less or no effect of MR on overall efficacy making it impossible to determine the exact effect MR has on this regimen (18, 19).

Given these data and the well-documented prevalence of metronidazole resistance in the United States, how should a clinician choose an appropriate \( H. \) pylori regimen given that metronidazole (or other nitrimidazoles in European studies) has been a cornerstone of many \( H. \) pylori treatment regimens? The high level of metronidazole resistance seen in the United States and Europe would suggest that past success rates observed with some metronidazole-containing regimens may no longer be achievable. An individual perhaps should pick a regimen unaffected by metronidazole resistance to achieve the 90% efficacy that is seen with many current therapies. Thus, metronidazole-containing regimens such as BMT and possibly OAM should be avoided unless metronidazole resistance is shown not to be an issue based on proven efficacy in a community setting. Instead, regimens such as LAC, OAC, and RAC that do not contain metronidazole or other regimens containing metronidazole that are less likely to be affected by metronidazole resistance such as MOC would appear to be better choices in most clinical situations where metronidazole resistance rates are unknown or presumed high. This approach should maximize clinical efficacy and successful clinical outcome. In addition, efficacy has also been shown to be the single most important determinant of cost-effectiveness (20). Thus, in most clinical situations, adopting these criteria should maximize not only clinical effectiveness of treating \( H. \) pylori but cost effectiveness as well.

M. B. Fennerty, M.D.
Oregon Health Sciences University
Division of Gastroenterology and Hepatology
Portland, Oregon

REFERENCES


GASTROESOPHAGEAL REFLUX AFTER PARTIAL GASTRECTOMY

Gastroesophageal reflux as a consequence of partial gastrectomy is now rarely discussed, partly because gastrectomy for benign disease has become something of a rarity in modern surgical practice, and also because of the rather pessimistic outlook which until recently attended partial gastrectomy for cancer in most Western countries. In this issue, Fujiwara et al. (1) report that symptoms of reflux were present in 24 of 38 patients after subtotal gastrectomy for gastric cancer despite being free of reflux symptoms preoperatively. The tendency to reflux, as determined by scintigraphic detection of activity in the lower third of the esophagus after a radiolabeled meal, was found to be higher in symptomatic patients than in those without symptoms. The asymptomatic patients had a statistically insignificant in-

Received Aug. 11, 1997; accepted Aug. 18, 1997.
crease in the reflux index compared to normal controls. The angle of His was measured radiographically and compared between control subjects, patients with symptoms of reflux, and asymptomatic patients. It was found to be more obtuse in all patient groups than in controls, with a tendency for symptomatic patients to demonstrate a more obtuse angle than the asymptomatic patients. It appears that in patients after Billroth II (gastrojejunostomy) operations, an obtuse angle of His was strongly related to reflux symptoms. The number of patients after Billroth I procedures is too small to draw any meaningful conclusions, and in any case, the typical habitus of Western patients generally precludes the use of the Billroth I reconstruction after subtotal gastrectomy. Nevertheless, this report affords the opportunity to revisit the concept of the angle of His and its contribution to reflux protection.

In the years before the static and dynamic properties of the lower esophageal sphincter (LES) were appreciated, the angle of His was often regarded as an important component of antireflux mechanism. The problem is that an obtuse angle of His is often associated with other anatomical aberrations known to be important in gastroesophageal reflux, such as hiatal herniation. Further, the angle of His appears to be maintained by the contractile activity of the sling fibers on the left side of the cardia, structures which on microdissection studies have been found to correspond to the manometrically measured LES (2). Hence, a blunt angle of His may simply be a marker for LES dysfunction rather than an independent cause of excessive reflux. Although restoration of the angle of His is a component of many successful antireflux operations, it is only one of several alterations potentially responsible for abolition of reflux. Surgical repairs in which restoration of the angle of His was the principal feature (such as the Lortat-Jacob) generally fail to control reflux long term (3). The status of the angle of His as an independent factor is, therefore, rather speculative. In support of the authors’ concept, it might be argued that acuity of the angle tends to produce a kind of flap valve arrangement at the cardia, a concept championed by Hill and an integral component of the Hill antireflux repair (4). Further, there is evidence in the pediatric literature that creation of a feeding gastrostomy tends to promote gastroesophageal reflux and is associated with blunting of the angle of His (5, 6).

Whatever the mechanism of reflux in typical reflux patients, Fujiwara et al. (1) have drawn attention to an important clinical problem in patients after partial gastrectomy likely to survive long term. If the anatomic alterations produced by the operation increase the tendency to gastroesophageal reflux, and the gastric reconstruction permits reflux of large quantities of duodenal contents into the stomach, the likelihood of serious esophagitis is substantial because the potential for injury is higher when both acid and duodenal juices reflux into the esophagus. It would be of interest to know of the presence or absence of esophagitis or even Barrett’s esophagus in these patients. Will the authors now routinely restore the angle of His by suturing the fundus to the esophagus? After a very extensive resection, this will be difficult to do without creating tension on the sutures, a situation certain to lead to long-term failure. In such circumstances, perhaps a primary Roux-en-Y reconstruction is a better alternative.

Peter F. Crookes, M.D.
Assistant Professor of Surgery
Department of Surgery
USC Healthcare Consultation Center
Los Angeles, California

REFERENCES


Reprint requests and correspondence: Peter F. Crookes, M.D., Department of Surgery, USC Healthcare Consultation Center, 1510 San Pablo Street, Suite 314, Los Angeles, CA 90033-4612.