Utility of Catheter-Free Ambulatory pH Testing on PPI Therapy

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Purpose: To determine the utility of performing ambulatory pH testing on proton pump inhibitor (PPI) therapy using a catheter-free system (BRavo).

Methods: All patients referred to our laboratory over a 24-month period for an ambulatory 48-hour pH test and who were on a PPI at least once daily were included. Patients were referred by a combination of gastroenterologists, other subspecialists or primary care providers. The pH capsule was placed during endoscopy, six centimeters above the squamo-columnar junction. Patients were excluded if incomplete data were available or if the patient inadvertently discontinued their PPI before or during the study. Percent acid exposure for each day and for the total study was the primary endpoint. We evaluated both the standard normal cutoff value for percent time pH < 4.0 (5.5%) and a commonly accepted normal value for BID PPI (1.6%). The percentages of patients with abnormal acid exposure on day 1, day 2 and for the total 2-day study period were calculated.

Results: 122 of 259 consecutive pH studies (47%) were performed on PPI therapy. 12 patients were excluded from analysis (2 due to probe dislodgement early in the study, 5 due to discontinuation of PPI during the study and 5 because time recorded on one of the two days was less than 12 hours). Of the 110 remaining studies, 71 (65%) were on BID PPI and 39 (35%) on QD. The percentages of patients with excessive acid reflux are presented in the tables.

Conclusion: Catheter-free esophageal pH testing in patients on PPI therapy provides complete data in the majority of patients. In this group of patients, 15.5% of studies on BID PPI show ongoing acid reflux (over 48 hours) using the common cutoff of 5.5% and 35.2% using the alternative cutoff of 1.6%. If abnormal reflux on either day is considered pathologic those percentages increase to 23.9 and 43.7% respectively. There was a paradoxical finding of fewer patients with a positive study on QD PPI possibly related to referral bias. Testing using this method provides useful information on the presence of ongoing acid reflux in patients on PPI therapy.

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Comparison of Serum Pepsinogens between Patients with and without Reflux Esophagitis

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Purpose: Reflux esophagitis (RE) has been considered as one of complications of peptic ulcers before H. pylori was discovered. Recently, peptic ulcers are reported to have a close association with H. pylori in spite of the fact that the prevalence of H. pylori infection is low in RE patients. Serum pepsinogen (PG) is a known marker of gastric mucosal status, including mucosal atrophy. The aim of this study is to evaluate the diagnostic potential of serum PGs in predicting the presence of RE in patients with and without H. pylori infection.

Methods: A total of 121 patients with RE in whom H. pylori infection was diagnosed by 13C-urea breath test (UBT) were recruited. The mean age was 58 years (33–85 years) and 64 were women. All patients underwent and a change of the delta 13C value over baseline of more than 2.5 per mil was considered positive. Serum PG concentrations were assayed using PG1 and PG2 Riehhead Kits. Age-, gender-, and H. pylori status- matched controls without RE were selected.

Results: Among 121 patients with RE, 78 had H. pylori infection. In H. pylori-negative patients, a serum PG1 level was significantly higher in those with RE than without RE (54 ± 20 vs 40 ± 12 ng/mL, P < 0.01). There was no significant difference in a serum PG1 level between H. pylori-positive patients with and without RE (67 ± 48 vs 60 ± 29 ng/mL). Significant differences in a serum PG2 level were not found between patients with and