Evaluation of Unexplained Chest Pain by the Gastroenterologist

A Continuing Dilemma

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Unexplained chest pain continues to be a common problem in clinical practice. When cardiac disease has been ruled out, the patient is often referred to the gastroenterologist for further testing, principally to rule in or rule out an esophageal etiology. The majority of investigators in this field believe that gastroesophageal reflux disease is the most common etiology that can be identified by esophageal testing in these patients. Motility abnormalities and provokable chest pain by agents such as edrophonium are seen in lower frequency. A response to empiric antisecretory therapy (proton pump inhibitor trial) has been the standard of practice in assessing and managing these patients. As esophagogastrroduodenoscopy has in general been of low yield, 24-hour ambulatory esophageal pH monitoring has been used as the “test of choice” when diagnostic evaluation is needed. Unfortunately, despite multiple attempts to do so, agreement as to the value of ambulatory pH monitoring and, in fact, the best way to use it has been lacking. Because of some inconsistencies in results, many have recommended the addition of a calculated symptom index, in which the number of chest pain episodes that occur in proximity to an esophageal pH drop to below 4, are divided by the total number of chest pain episodes. In perhaps the largest and most carefully performed study to date, Hewson et al,1 evaluated 100 consecutive patients referred by cardiologists to the esophageal laboratory for undiagnosed causes of chest pain. Patients received esophageal manometry, Bernstein testing, edrophonium provocation, and 24-hour esophageal pH monitoring for the presence of abnormal acid exposure and calculation of symptom index. In this study, ambulatory pH monitoring was abnormal in 48% with a positive symptom index in 60%. It must be noted, however, that the authors accepted any correlation of reflux with chest pain as a positive symptom index and, as such, probably inflated its value. When the original criteria of Weiner et al2 were used (positive symptom index defined as greater than 50%) 24 out of 100 (25%) had a positive symptom index. The pH study, with or without calculation of the symptom index, identified more patients with probable or so-called definite esophageal etiologies for chest pain than manometry and provocative tests. Therefore, the authors suggested that the pH study with symptom index was the most valuable. However, because response to any therapeutic intervention was not evaluated, the retrospective ultimate value of the pH study and symptom index cannot be ascertained. Several similar retrospective and prospective studies have evaluated pH monitoring in unexplained chest pain patients and have found similar results for the percentage of patients with a positive 24-hour study, but varying numbers of patients with a positive symptom index.

The present study by Dekel, et al3 has carefully evaluated 94 consecutive patients referred to their laboratory after a cardiac evaluation determined no etiology for the chest pain. All of these patients had chest pain greater than or equal to 3 times per week. Upper endoscopy and 24-hour esophageal pH monitoring with symptom index were performed in
all patients. Patients were divided into GERD positive or negative based on either a positive endoscopy or abnormal pH study (GERD positive) or the absence of both (GERD negative). The symptom index was calculated (greater than 50% SI was considered positive) for both the GERD positive and negative group and a 1-week PPI test (performed in similar fashion to the senior authors previously reported technique) was administered to those with a positive symptom index. Several important findings are worthy of note. A positive ambulatory pH monitoring study was seen in approximately 33% of the patients evaluated, slightly lower but not inconsistent with the general literature. As has been previously found in reports from this group, the percentage of abnormal endoscopy (30%) was somewhat higher than others have reported. Compared with the Hewson study, only 14 patients (16%) had a positive symptom index. Perhaps most importantly, in those patients who were GERD negative yet had a positive symptom index, only 2 out of 5 had a positive response (greater than 50% improvement in their chest pain) to the PPI test. Based on the low frequency of a positive symptom index, regardless of the presence or absence of GERD, and the minimal PPI response in those who were pH negative, the authors were forced to conclude that the addition of symptom index offered little improvement over 24-hour pH monitoring in diagnosing GERD related unexplained chest pain.

When one looks further, several important features emerge. As is the case in our practice, a minority of the patients studied had any chest pain during the 24-hour study. In fact, less than half reported any chest pain during the 24-hour pH test. Of those that had chest pain, only 89 total episodes were reported, suggesting that many patients had only 1 episode during the entire 24-hour study. This is not surprising when one considers that unexplained chest pain is rarely a daily event. As such, the single 24-hour study may, in fact, not be long enough to even detect a single chest pain episode in these patients. Perhaps the availability of prolonged pH monitoring using the BRAVO capsule will add diagnostic yield to these patients. One must also remember that the PPI test, so well studied by this group, is a 1-week therapeutic and diagnostic trial that uses a cut-off of greater than 50% improvement for a response. The final manuscript does not tell us if the 3 patients in the GERD negative group who had a negative PPI test had a partial response. If this were the case, and a longer treatment trial would identify additional patients, then the relative simplicity with which the symptom index is calculated would clearly be worthwhile. One can also not ignore the finding that 8 of 9 GERD positive patients with a positive symptom index responded to a 1-week PPI test, suggesting there may well be prognostic value to calculation of the symptom index.

Overall, the patient with unexplained chest pain continues to be a diagnostic and therapeutic dilemma for the gastroenterologist. At present, we have no gold standard for diagnosis or therapy. The utility of technologies such as prolonged ambulatory pH monitoring, multichannel intraluminal impedance for esophageal function testing, and combined multichannel intraluminal impedance with pH to assess the role of non-acid reflux in these patients is being evaluated. Therefore, we suggest that all diagnostic and therapeutic modalities be used to enhance our ability to help the individual patient. It is our opinion that the symptom index continue to be calculated, and believe that it provides value to the individual patient with unexplained chest pain both diagnostic and, perhaps, prognostic.

REFERENCES