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Esophageal Motility Disorders

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Difficulty swallowing liquids or solids, heartburn, regurgitation, and atypical (or non-cardiac) chest pain may be symptoms of an esophageal motility disorder. These disorders are characterized by specific criteria based upon the pressures generated within the esophagus when swallowing occurs.

A basic knowledge of how a motility test is performed is helpful to understand esophageal motility disorders. This test is performed by either a gastroenterologist or assistant, usually takes 30 minutes, and involves placing a thin catheter with several pressure sensors (separated by 3-5cm) into the nostril and positioning the catheter into the stomach. Water (5cc) is given every 30 seconds to evaluate the amplitude (strength), duration (time), velocity (speed) and presence or absence of peristaltic contractions (wave-like movement that propels contents forward) and determine whether the measurements fall within a certain range, which is considered normal.

Peristaltic contractions begin in the upper esophagus and travel successively down toward the stomach at a constant speed. If contractions within the esophagus occur at the same time, they are said to occur simultaneously; this finding is abnormal. Interestingly, many patients who undergo esophageal motility tests do not have symptoms during the test period.

The following is a brief summary of four esophageal motility disorders.

Achalasia – This condition is diagnosed when there is a complete lack of peristalsis within the body of the esophagus. In addition, the lower esophageal sphincter (a valve between the esophagus and stomach) does not relax to allow food to enter the stomach. The resting tone of this sphincter is usually elevated.

Most patients with achalasia have symptoms of difficulty swallowing both liquids and solids for years prior to seeing a physician. Many patients have associated regurgitation, vomiting, weight loss, and atypical chest discomfort. Treatment is aimed at reducing the elevated pressure of the lower esophageal sphincter either by medications (nitrates, calcium blockers), botulism toxin injection, balloon dilation, or surgery (myotomy). The cause of achalasia is unclear, although pathologically, there is loss of the ganglion cells (nerve cells) within the lining of the esophagus.

Nutcracker Esophagus – This condition is usually diagnosed when the average strength of 10 consecutive esophageal contractions is of high amplitude (i.e., two standard deviations above normal). The duration of the contraction may be prolonged for more than 10 seconds.

Many patients with this pattern on manometry (a test to measure intra-esophageal pressure) have atypical chest pain, especially when given a provocative agent to increase the strength of the contraction. However, it is not uncommon to find this pattern in a patient with no atypical chest pain, thereby questioning the significance of whether these high amplitude contractions are the cause of the patient's chest pain syndrome.

Treatment is usually aimed at decreasing the amplitude of contraction by using medications – either nitrates, calcium channel blockers, or anticholinergics.

Diffuse Esophageal Spasm – This pattern is defined when more than 10 percent of esophageal contractions are simultaneous in nature, while most esophageal contractions remain peristaltic. In addition, these wave forms may have repetitive peaks, prolonged duration, and elevated pressures. Clinically, many patients with these finding may have associated chest pain which may last for hours, however the pain does not appear to correlate with these simultaneous contractions. Occasionally, difficulty swallowing may be the presenting symptom. Emotional stress or drinking cold fluids may exacerbate the pain.

These findings suggest that the symptoms associated with diffuse esophageal spasm may reflect a generalized phenomena of visceral hypersensitivity (unusually high sensitivity, even to normal events). Treatment aimed at altering this manometric pattern with calcium channel blockers or nitrates may be of help, although the use of medications aimed at decreasing stress and anxiety seem most beneficial.

Non-Specific Esophageal Motility Disorders (NEMD) – When manometric findings do not fit neatly into a specific diagnosis, then an esophagologist may classify the test findings as a non-specific motility disorder. Usually there is a combination of findings involving wave forms and contractions. The history and treatment of patients with this pattern is quite variable.

Summary – Although specific findings on manometric testing have led physicians to diagnose esophageal motility disorders, there appear to be common denominators of increased sensitivity to esophageal distention, acid and/or bile, and underlying psychological issues such as anxiety, depression, or panic attacks which exacerbate a person's symptoms.

In general, treatments aimed at these components have been quite helpful in treating these disorders. Clearly, further research into the areas of visceral hypersensitivity and psychological factors in patients with motility disturbances will be of benefit.

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