An Interview with Gary W. Falk, MD, MS

Gary W. Falk, MD, MS, joined the staff of the Division of Gastroenterology at Penn Medicine in January 2010 after almost 25 years at the Cleveland Clinic, where he was Director of the Center for Esophageal and Swallowing Disorders. A graduate of the University of Rochester School of Medicine, Dr. Falk is nationally and internationally recognized for treating esophageal diseases, including achalasia, esophageal motility disorders, and Barrett’s esophagus. He has served as president of the American Society for Gastrointestinal Endoscopy and is a member of several national societies. He has published extensively in leading journals and his research has received NIH funding. Dr. Falk was interviewed in his office at the Hospital of the University of Pennsylvania, near the Ruth and Raymond Perelman Center for Advanced Medicine, where he currently sees patients.

Before we discuss your experience in research, can you provide a brief overview of your background in clinical practice?

Certainly. I had a tertiary care referral practice in Cleveland for both esophageal and foregut diseases that drew patients locally, regionally and nationally. My goals were to provide state-of-the-art expertise in esophageal diseases in a collaborative and interdisciplinary fashion. Along the way, I had the opportunity to develop new clinical skills in areas such as high resolution manometry, advanced endoscopic imaging and endoscopic interventions for Barrett’s esophagus that have represented paradigm shifts in the care of patients with esophageal diseases.

I learned from my mentor, Joel Richter, MD, (former Chief of Gastroenterology at Cleveland Clinic and now Chair of Medicine at Temple University), how questions coming from clinical care are a fertile source of hypothesis driven clinical research. Over the course of 15 years, I became involved in thematic clinical research in Barrett’s esophagus, gastroesophageal reflux disease, esophageal motility disorders, advanced esophageal imaging and therapeutics, esophageal motility—and importantly, the early detection and prevention of esophageal cancer. These investigations ultimately resulted in participation in a number of NIH- and non-NIH-funded studies, as well as publications on the significance of high-grade dysplasia (HGD) in Barrett’s esophagus and other subjects. I have long been interested in HGD, and have examined the disorder from a variety of perspectives, including biopsy forces yield, findings of unsuspected cancer at esophagotomy, and the use of cytologic sampling as an alternative to biopsy-based surveillance. An investigation of the development of the concept of cytology...
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“The research environment at Penn offers many opportunities to pursue translational research in Barrett’s esophagus and esophageal cancer.” — Gary W. Falk, MD, MS

specimens as a platform for molecular-based biomarker studies led to collaborations with the Mayo Clinic, where investigators have advanced this conceptual model further. Other studies in Barrett’s esophagus focused on epidemiologic observations related to the role of Helicobacter pylori in the disease along with issues of age and gender in the development of cancer.

How has the way you pursue clinical research changed over the course of your career?

As my work in Barrett’s esophagus progressed, it became clear to me that single-center studies were no longer sufficient to truly advance the field. This led me to seek out collaborations with other centers to examine areas such as familial risk, molecular imaging paradigms, chemoprevention, radiofrequency ablation and endomicroscopy. Along the way, I was fortunate enough to receive a career development grant from the Cleveland Clinic in 2002 that allowed me to obtain additional training in clinical research skills leading to a Master of Science degree in Clinical Research. I currently chair the ongoing NCI multidisciplinary chemoprevention study examining the role of high-dose proton pump inhibitor therapy in conjunction with aspirin in Barrett’s esophagus.

Recently, translational research studies in collaboration with basic sciences in immunology and smooth muscle physiology have commenced in order to study the role of inflammatory mediators in eosinophilic esophagitis.

“There, I will continue to focus on early detection, prevention and treatment of Barrett’s-associated neoplasia, and the establishment of a tissue biorepository as a resource for future studies…” — Gary W. Falk, MD, MS

2) GASTRIC ANALYSIS — performed by very few other medical centers in the region, gastric analysis is used to evaluate gastric secretory function and to identify Zollinger-Ellison syndrome. Studies are commonly performed in patients with hypergastrinemia to distinguish achlorhydria (appropriate hypergastrinemia commonly due to medication therapy or pernicious anemia) from Zollinger-Ellison syndrome (inappropriate hypergastrinemia).

3) HYDROGEN BREATH TEST — used to measure hydrogen levels in the breath to identify bacterial overgrowth (lactulose, testing) as well as for disaccharide intolerance (lactose, sucrose or fructose). A recent advance in this area is the inclusion of methane testing together with hydrogen testing which improves the accuracy of these studies.

4) MANOMETRY — the gold standard for the evaluation of esophageal motor activity and motility, manometry measures the strength of esophageal contractions and is used to investigate dysphagia and particularly to diagnose achalasia. A new procedure, high-resolution esophageal manometry (HRM), measures pressure events simultaneously along the entire length of the esophagus and is both faster and more accurate than standard manometry. According to David Metz, MD, of the Penn Gastroenterology Division, HRM has greatly improved the ability of gastroenterologists to diagnose and treat patients with achalasia. With the new Chicago Classification, Dr. Metz adds, the test now has prognostic value in achalasia patients because it can identify patients who are likely to do well with surgery. HRM has been further advanced recently by being combined with impedance testing to permit more accurate assessment of bolus transit (movement of swallowed contents) in patients with dysphagia (difficulty swallowing) who may have abnormalities other than achalasia (e.g., ineffective motility which is commonly associated with GERD).

5) UREA BREATH TESTING — an accurate non-invasive test for the presence of H. pylori infection, this test involves the detection of gastric urease—the enzyme used by H. pylori to metabolize urea—in the patient’s breath. Since humans do not normally metabolize urea, the test easily discriminates between infected and uninfected individuals according to the presence or absence of urease breakdown products in expired breath.

The members of the GI Physiology and Motility Laboratory include: David Metz, MD; Garry Falk, MD, MS (co-directors); Yu-Xiao Yang, MD, MSCE and Octavia Pickrell-Bikely, MD (Fall, 2010).

“High-resolution esophageal manometry has greatly improved the ability of gastroenterologists to diagnose and treat patients with achalasia, and has prognostic value in some patients.” — David Metz, MD, Penn Gastroenterology Division