**The Utility of Repeat High Resolution Esophageal Manometry (HREM) in Patients With a Normal Index Manometry**

Akaash Mittal, BS, Vishant Bansal, MD, Nitin Aggarwal, MD, Pankaj Aggarwal, BS, Kaveh Hajifathalian, MD, and Scott Gabbard, MD

Background:

High Resolution Esophageal Manometry (HREM) is an invaluable tool for evaluation of dysphagia and chest pain and plays an important role in preoperative planning for foregut surgeries. However, the utility of serial HREMs is unclear. A few studies have reported the manometric progression of various motility disorders or treatment effects of interventions. However, there are no studies to date reporting the natural progression of normal HREM.

Methods:

We performed a retrospective review of all patients who had >1 HREM performed at the Cleveland Clinic from January 1, 2004 to April 1, 2016. Of these HREMs, all patients who had an abnormal index HREM were excluded. The indications, final diagnoses, and demographic features of the remaining HREMs were analyzed.

Results:

A total of 543 patients who underwent 1,151 HREM were analyzed. 490 (90%) patients had 2, 43 (8%) had 3, and 9 (2%) and 1 (0.2%) patients had 4 and 5 HREMs. Indications include hiatal hernia in 232 (43%), lung transplant in 140 (26%), dysphagia in 67 (12%), chest pain in 35 (6%), cough in 44 (8%), and dyspepsia in 31 (6%) patients. 338 (62%) patients were female with a mean (SD) age of 62 (13) years. 160 (29%) patients had at least one HREM which was abnormal.

Abnormal diagnoses include Ineffective Esophageal Motility (IEM) in 95 (17%), nutcracker esophagus in 16 (3%), jackhammer esophagus in 15 (3%), distal esophageal spasm in 14 (3%), esophagogastric junction outflow tract obstruction in 7 (1%), and achalasia and absent contractility in 3 (0.5%) patients each. Of note, of the patients who had at least one HREM with a diagnosis of IEM, 9 patients’ HREM changed from normal to IEM and back to normal.

In univariate analyses, patients’ age, gender, and indication were not associated with change in diagnosis. However, when time between repeat HREM was categorized into quartiles, repeat HREM between 200 and 800 days after index (RR 2.18, 95%CI 1.25-3.81, p=0.006), and more than 800 days after the index (RR 3.18, 95%CI 1.85-5.48, p<0.001) was associated with increasingly higher chance of a change in manometry results, when compared to repeated manometries the first 100 days after the index study.

Conclusion:

Our data show 12% of patients develop a major disorder and a further 17% develop a minor disorder of esophageal motility after initially being diagnosed with normal HREM. Time lapsed between repeat HREMs is a risk factor for the progression of diagnosis of normal HREM into abnormal.