



High-resolution manometry versus conventional manometry in diagnosis of patients with nonobstructive dysphagia

Roman S, Huot L, Zerbib F, et al. High-Resolution Manometry Improves the Diagnosis of Esophageal Motility Disorders in Patients with Dysphagia: A Randomized Multi-center Study. *Am J Gastroenterol* 2016; 111: 372-80.

Dysphagia and non-cardiac chest pain are the most common symptoms of esophageal motility disorders. The barium swallow, upper gastrointestinal endoscopy and conventional esophageal manometry is traditionally used to evaluate patients with dysphagia. Esophageal manometry is the most sensitive tests for accurate diagnosis of esophageal motility disorders. Normal manometric findings and nonspecific motility disorders are reported frequently by conventional esophageal manometry in patients with non obstructive dysphagia and can not reach a definitive diagnosis in these patients. This reduces the sensitivity and specificity of the conventional esophageal manometry (1).

In recent years, high-resolution manometry (HRM) has gradually replaced conventional manometry (CM). HRM has several advantages over CM. Pressure sensors which located 4 or 5 centimeter (cm) range at CM and 1 cm. range at HRM. Therefore, functional image quality of HRM is much better than the CM. In addition, pressure changes are given by topographic image instead of pressure waves and this provides an easy evaluation. High resolution data provide a big advantage versus CM in the evaluation of muscle activity in the esophageal body. Presence of the narrow sensors also provides a great advantage in the evaluation of the lower esophageal sphincter (LES) by HRM. When performing CM displacement of LES with swallowing and breathing affects pressure measurements in this region. To prevent this, the Dentsleeve catheter is used at CM. HRM pressure sensors located one cm. intervals so measurements does not affected by LES movement caused by swallowing and breathing. In addition, HRM is currently the best diagnostic tool we have evaluation of hiatal hernia which is two cm or less (2).

Roman et al. (3) published a prospective randomized controlled trial that compared CM and HRM in diagnosis

of esophageal motility disorders patients with nonobstructive dysphagia at the February issue of the American Journal of Gastroenterology. Authors explains why not widespread use of HRM instead of CM is lack of prospective randomized controlled trial with high level of evidence showing the superiority of HRM over CM and HRM is a more expensive method. In this study they conducted a randomized controlled trial to prove that HRM has more accurate diagnosis of esophageal motility disorders patients with non obstructive dysphagia than CM.

Trial has carried out in six referral centers in France. Patients included to study who has dysphagia symptoms that could not be diagnosed by upper gastrointestinal endoscopy, taking no medication which could change the esophageal motility, over 18 years old. Patients were randomized in two groups CM and HRM. All patients have completed the Sydney swallowing questionnaire before manometry (4). CM performed with water perfusion system, HRM performed by solid state catheters. Patients was called for follow-up visits six months later initials visit and ask for filling the Sydney questionnaire again. In this study, the primary outcome was the diagnosis of esophageal motility disorders performed with the initial manometry and confirmed at the end of six months follow-up period. Secondary outcomes were the duration of manometry and the analysis, tolerability of the process and the side effects.

The Castell and Spechler classification for CM (5) and Chicago classification for HRM (6) was used. Esophageal motility disorders divided into 8 groups after the initial manometry examination. These are normal manometry, achalasia, esophagogastric junction (EGJ) outflow obstruction, hypermotility disorders (including the distal esophageal spasm, nutcracker and jackhammer esophagus), hypomotility disorders (ineffective esophageal motility, weak and absent peristalsis), upper esophageal or pharyngeal disorders, nonspecific disorders and examination failure.

One hundred twenty two patients in CM group, 123 patients in HRM group were analyzed. Normal mano-

metric findings were 28% at HRM group while this rate was found to be 52% at CM. Hyper or hypomotility diseases was detected by 32% in the HRM group and 15% in the CM group. Diagnostic rate of HRM and CM was respectively in achalasia 26% vs. 12%, hypomotility disorders 27% vs. 7%, non-specific disorders 3% vs. 12%, examination failure 0% vs 4% ($p<0.05$). At the six months follow up after initial visit the rate of the confirmed diagnosis by intention-to-treat analysis 89% for HRM and 81% for CM ($p=0.07$). From 14 patients initially diagnosed nonspecific motility disorders with CM later two cases was diagnosed achalasia, two cases EJJ outflow obstruction and two cases pharyngeal disorder. A patient initially diagnosed with hypomotility and another with hypermotility had been diagnosed with Achalasia at the follow up period. Any diagnosis could not be put to seven percent of patients. Seven percent of patients with CM has not been possible to any diagnosis at the end of follow up period. A patient with nonspecific motility disorders and a patient with EJJ outflow obstruction was diagnosed achalasia in HRM group at the end of follow-up period. Three percent of patients with HRM has not been possible to any diagnose at the end of the follow-up. Average processing time has was found significantly longer in CM group compared to HRM group (19 vs. 12 minutes, respectively). Pharyngeal pain was reported significantly more in HRM patients than CM patients (27.1% vs 10.5% respectively). The limitations of this study; the dent sleeve catheters should be used for CM, lack of blind manometry analysis and not only dysphagia patients also patients complaining chest pain should be included to study.

According to the first prospective randomized controlled trial for diagnosis of unexplained dysphagia HRM is superior to CM. Achalasia is more frequently identified with high-resolution manometry compared with conventional manometry.

Diagnostic criteria of achalasia has defined better in Chicago classification no doubt this influenced the study results. The

diagnostic sensitivity of HRM will increase after defining new diagnostic criteria for another motility disorders.

High-resolution manometry is an important technological innovation that opens a new era in the diagnosis and treatment of gastrointestinal motility disorders. HRM will increase attention to this group of diseases, and limited treatment options that we have for gastrointestinal motility patients will be increased by this attention and trigger development of new ones.

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