

addition to AET, 27/34 CC patients presented a pathological MI-pH (79% vs 47% of AET alone,  $p < 0.05$ ). Conclusions: Patients with CC, compared to patients with TS, are characterized by a higher frequency of reflux episodes and higher proportion of mixed refluxes. These findings could explain the lower response to PPIs. IB measurement allows to improve the diagnostic yield of MI-pH in CC patients.

	No. of refluxes	Weakly acidic (%)	Mixed reflux (%)	Proximal (%)
CC patients	74 (51-110)*	42% (20-57%)	67% (48-80%)*	46% (31-56%)
TS patients	41 (34-58)	36% (17-50%)	50% (43-72%)	64% (28-78%)

\*  $p < 0.05$

#### Tu1779

##### Factors Associated With Erosive Esophagitis in Patients Undergoing Esophageal Manometry and Combined 24 Hour pH Monitoring and Multichannel Intraluminal Impedance Studies

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Background: A subset of patients with gastroesophageal reflux disease (GERD) symptoms has erosive esophagitis (E+) on upper endoscopy (EGD). Those whose symptoms persist despite proton pump inhibitor (PPI) therapy may further undergo testing with combined multichannel intraluminal impedance and 24 hour pH (MII-pH) to determine if acid is adequately suppressed and if non-acid reflux plays a role in symptoms. Aim: To determine which factors on esophageal manometry (EM) and MII-pH were associated with E+. A secondary aim is to examine the relationship between the degree of E+ and 24 hour pH score. Methods: A clinical database was searched for EM and MII-pH studies performed off acid suppressive therapy between 2006 and 2011. Patients referred for evaluation had typical GERD symptoms (heartburn or acid regurgitation) or atypical symptoms (chest pain, cough, hoarseness, dysphagia or dyspepsia). Data was further extracted to patients who had an EGD performed within 6 months of the MII-pH study. Patients with a normal esophagus on EGD or eosinophilic esophagitis were excluded from this study. Erosive esophagitis was defined and graded according to the Los Angeles classification system. A Johnson-DeMeester score of  $\geq 22$  was considered diagnostic for GERD by pH testing. An abnormal impedance study was defined as  $> 73$  distal reflux episodes. Categorical data was expressed as percentages and continuous data as means and standard deviation. Fisher's exact tests and parametric statistics were used to analyze data. A  $p$ -value  $\leq 0.05$  was considered statistically significant. Results: Of 348 patients identified in the database, 21 patients had E+ (67% were males, 76% were Caucasians and 79% had Grade A esophagitis). The majority of patients (95% were previously treated with PPI, however all cases were performed off PPI for at least one week. Significantly more patients with E+ had hiatal hernias compared to patients without esophagitis (E-), (43% vs 19%,  $p=0.021$ ). E+ patients had significantly more acid reflux episodes than E- patients ( $46 \pm 40$  vs  $27 \pm 26$ ,  $p=0.011$ ). There was also significantly more distal impedance episodes ( $73 \pm 59$  vs  $49 \pm 27$ ,  $p=0.014$ ) and decreased lower esophageal sphincter (LES) pressure in E+ patients ( $12 \pm 11$  mm Hg vs  $15 \pm 11$  mm Hg,  $p=0.012$ ). E+ and E- patients had similar degree of upright acid reflux (pH:  $4.91 \pm 4.0$  vs pH:  $4.98 \pm 6.3$ ,  $p=0.224$ ). E+ patients had more supine acid reflux than E- patients without statistical significance (pH:  $5.8 \pm 14.8$  vs pH:  $2.4 \pm 7.3$ ,  $p=0.177$ ). Conclusions: Hiatal hernia, decreased LES pressure, and total number of reflux episodes were associated with E+. There was a trend in more supine reflux in E+ patients, however no difference in upright reflux was observed between the two groups. Due to the small number of higher grade E+ cases, a correlation could not be made between severity of degree of E+ and 24 hour pH score.

#### Tu1780

##### Antireflux Surgery Is Effective in Asthma in GERD Patient With Asthma Who Show Pre-Operative Esophageal 24hours pH<4 Monitoring Over 10%

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(Purpose) There are several reports about antireflux surgery with asthma. However, it is not clarified what kind of patient it is effective in. We want to clarify the effects of laparoscopic fundoplication for asthmatic patients. (Methods) From 2002 to 2011, we performed laparoscopic fundoplication in 79 cases. Fourteen cases had asthma or chronic cough. We examined 24 hours esophageal PH in all cases preoperatively. One month later after the operation, we evaluated an asthmatic improvement effect. (Results) The effect for cough was excellent in 9 cases, good in 2 cases and no change in 3 cases. The 9 cases who improved cough markedly had showed pre-operative esophageal 24 hours PH  $< 4$  monitoring over 10%, whereas, 2 cases of 3 who did not improve cough had showed pre-operative esophageal 24 hours PH  $< 4$  monitoring under 10%. (Discussion) Laparoscopic fundoplication for gastroesophageal reflux in asthmatic patient is often effective. However, in case of mild gastroesophageal reflux with asthma or chronic cough, we should suspect other causes of cough. We recommend laparoscopic antireflux surgery for severe gastroesophageal reflux with asthmatic patient who show pre-operative esophageal 24 hours PH  $< 4$  monitoring over 10%.

#### Tu1781

##### Description of Findings in Esophageal Impedance -pH Monitoring in Patients With Extraesophageal Symptoms and Suspected GERD in Hospital San Ignacio Bogota

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BACKGROUND There are findings that suggest association between extraesophageal symptoms such as cough, laryngitis and chest pain and gastroesophageal reflux disease. However the cause - effect so far is controversial OBJECTIVE : Describe the findings in esophageal pH monitoring with impedance testing in patients with extraesophageal symptoms and

suspected gastroesophageal reflux disease (GERD) in patients referred to Hospital San Ignacio de Bogotá between 2006 and 2010. METHODS AND PATIENTS We review the records of gastrointestinal physiology studies performed in our unit with multichannel intraluminal impedance-pH monitoring between 2006 and 2011, with indication was extraesophageal symptoms and suspected GERD. Some of our patients was on treatment with PPI and others do not. RESULTS We found in our records 348 patients who underwent esophageal impedance - pH monitoring for extraesophageal symptoms and suspected GERD, 234 female (67%) and 114 male (33%). In 198 patients (57%) the test was performed without treatment, and 150 patients (43%) with treatment. The most common manifestation was laryngitis with 49%, followed by coughing up 38%, and chest pain with 13%. In patients where the study was done without treatment, the test was positive for acid reflux in 23% and positive for non acid reflux only in 13% of cases. In patients in whom the procedure was done with treatment, it was positive for acid reflux in 11% and positive for non-acid reflux in 38%. CONCLUSIONS : Esophageal impedance - pH monitoring is useful in determining whether GERD is present in patients with extraesophageal symptoms. It also helps to distinguish between acid reflux and non -acid reflux in these patients . Most of our patients had a negative result for both acid and non acid reflux , which may suggest a poor relation between extraesophageal symptoms and GERD detecting by impedance . pH monitoring which can be explain because there is a large amount of procedures performed with the wrong indications. KEY WORDS: Gastroesophageal reflux disease (GERD), extraesophageal symptoms, esophageal pH monitoring with impedance.

#### Tu1782

##### Weak Peristalsis With Large Breaks Is Associated With Higher Acid Exposure and Delayed Reflux Clearance in the Supine Position in GERD Patients

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Background: Weak peristalsis may account for delayed bolus transit and impaired esophageal reflux clearance in GERD patients. It has been demonstrated that conventional manometry findings cannot predict reflux clearance in GERD patients. High resolution manometry (HRM) allows an accurate analysis of esophageal motility. Large ( $> 5$ cm) peristaltic breaks in the 20 mmHg isobaric contour are associated with delayed bolus transit in non-obstructive dysphagia patients. Aim: To assess the correlation between presence of peristaltic breaks and reflux clearance in GERD patients. Methods: Following a 3-week washout from proton pump inhibitor (PPI) and/or H2 antagonists, HRM and 24-hour ambulatory multichannel pH-impedance (MI-pH) monitoring were performed in 31 consecutive GERD patients, with typical symptoms responding to PPIs and no evidence of hiatal hernia at endoscopy (F 18, mean age 45 yrs). Patients were analyzed in the supine position, a catheter with 36 solid state pressure sensors located at 1cm intervals (MMS, HRM, Enschede, The Netherlands) was used. Data were stored and analyzed using dedicated software. A total of 10 saline (5ml) swallows, at 30-sec intervals were analyzed in each subject. The pH-impedance assembly was positioned with the pH electrode at 5cm above the LES and impedance measuring segments at 3, 5, 7, 9, 15 and 17cm above LES. Reflux episodes were classified according to standardized criteria. Bolus clearing time (BCT) total, in upright and supine position were calculated using Bioview software, after a manual analysis of each MI-pH tracing. For each swallow the integrity of the 20mm Hg isobaric contour was analyzed and the length of breaks measured with a specific software tool. The normal range for isobaric contour breaks was 0-20% for large ( $> 5$ cm) and 0-30 % for small (2-5cm) breaks. Results: Of the 31 patients, 7 showed large breaks in  $> 20\%$  of swallows (group 1), 8 showed small breaks in  $> 30\%$  of swallows (group 2) and 16 showed a number of small or large breaks in the normal ranges (group 3). Mean BCT and acid exposure time (AET) values are shown in table. Patients with large breaks were characterized by a higher BCT in the supine position. Patients with a higher occurrence of small or large breaks showed a significantly higher mean AET value. Conclusions: Peristaltic breaks in the 20 mmHg isobaric contour, assessed at HRM, seem to play a relevant role in delaying clearing of reflux episodes in the supine position and are associated with higher AET and, likely, to disease complication.

	BCT total (sec.)	BCT upright (sec.)	BCT supine (sec.)	AET (%)
Group 1	14	13.4	20.4*	13.6%*
Group 2	12.8	12.4	12	9.4%*
Group 3	12.4	12.4	11.2	4.4%

\*  $p < 0.05$

#### Tu1783

##### Esophageal Impedance Basal Values in Patients With Pathophysiological Characteristics of Functional Heartburn

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INTRODUCTION: Patients with functional heartburn (FH) based on normal esophageal acid exposure and negative symptoms association are further classified as affected by FH in case of negative response to proton pump inhibitors (PPIs) therapy according to Rome III criteria. Indeed, in clinical practice, it has been observed that patients with pathophysiological characteristics related to FH have a satisfactory response to PPIs. Recently, it has been suggested that low basal impedance may reflect impaired mucosal integrity and increased acid sensitivity. AIM: The aim was to compare basal impedance values in patients with heartburn and pathophysiological characteristics related to FH divided into two groups on the basis of symptom relief after PPI therapy. PATIENTS AND METHODS: Consecutive endoscopy-negative patients underwent manometry and impedance-pH monitoring (MII-pH) off-therapy. Then, patients with normal acid exposure time (AET), normal reflux number, and lack of association between symptoms and refluxes were further selected and treated with esomeprazole or pantoprazole 40 mg daily for 8 weeks and completed two questionnaires