

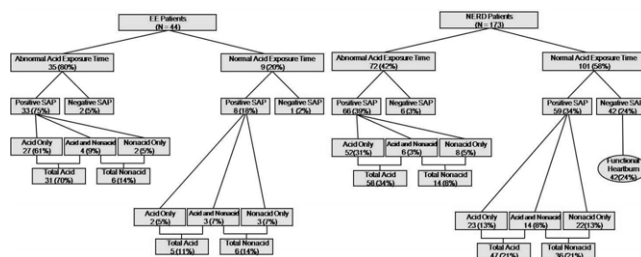
Parameter	Mean (range)	Number of Events	Median (IQR) duration (yr)
ISFET	2.9 (1.7 - 7.2)	21 (18 - 33)	32 (20 - 45)
Glass MIC M3	3.7 (2.0 - 7.0)	31 (17 - 39)	26 (20 - 44)

S1908

### Symptom Association Probability for Acid and Nonacid Reflux in Patients with Erosive Esophagitis (EE) and Non-Erosive Reflux Disease (NERD)

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**Introduction:** Nonacid reflux has been shown to be able in inducing reflux symptoms in gastroesophageal reflux disease (GERD) patients. Non-erosive reflux disease (NERD) and erosive esophagitis (EE) are the most frequent phenotypic presentations of GERD. **Aim:** To evaluate symptom association probability (SAP) in patients with NERD and EE. **Methods:** We evaluated 44 patients with EE (26M, median age 48; range 23-73 yrs), 173 with NERD (67M, median age 49; range 18-78 yrs) and 48 controls (22M, median age 44; range 22-77) using multichannel intraluminal impedance and pH while off-PPI therapy. All patients had typical reflux symptoms. We measured distal esophageal acid exposure time (AET), number of impedance-detected reflux episodes (acid, nonacid) and symptom association probability (SAP; positive if  $\geq 95\%$ ). **Results:** Symptom-reflux association with SAP in EE and NERD patients is shown in the Figure below. Out of 35 (75%) EE patients with an abnormal AET, 33 (75%) had a positive SAP. Twenty-seven (61%) patients had a positive SAP for acid reflux only, 2 (5%) for nonacid reflux only and 4 (9%) for both. Among the 8 (18%) patients with a normal AET and a positive SAP, 3 (7%) had a positive SAP for nonacid reflux only, 2 (5%) for acid reflux only and 3 (7%) for both. Out of 72 (42%) NERD patients with an abnormal AET, 64 (37%) had positive SAP. Fifty-two (31%) patients had a positive SAP for acid reflux only, 8 (5%) for nonacid reflux only and 6 (3%) for both. Among the 101 (58%) patients with a normal AET, 59 (34%) had a positive SAP. Twenty-two (13%) patients had a positive SAP for nonacid reflux only, 23 (13%) for acid reflux only and 14 (8%) for both. **Conclusions:** Nonacid reflux clearly contributes to provoke reflux symptoms in both NERD and EE patients. The increased percentage of NERD patients whose symptoms are related to nonacid reflux could be due to the higher sensitivity of these patients to stimuli different from acid.



S1909

### Gender Specific Risk Factors for Reflux Esophagitis in Asia: Role of Age, Body Mass Index, Metabolic Syndrome and Menopause

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**Background/Aim:** Recent epidemiologic studies suggest that the prevalence of reflux esophagitis (RE) has been steadily increasing in Asia with a significant male predominance. The role of gender in RE is largely unexplored but may be multifactorial involving constitutional and behavioral factors. We aimed to evaluate the prevalence and risk factors for RE according to gender in Korea. **Method:** A total of 8,362 subjects (43.9% women, mean age 45±10 years) who had undergone endoscopy were enrolled at the health promotion center in Ewha Womans University Mokdong Hospital from January to December 2007. Each subject completed validated questionnaires, including data on demographics, alcohol drinking, smoking history, and menopause status. RE was defined by Los Angeles classification. Metabolic syndrome was defined as the Modified National Cholesterol Education Program Adult Treatment Panel III. **Result:** The prevalence of RE was significantly higher in men (10.4%, 486/4,693) than women (1.9%, 68/3,669) ( $p<0.001$ ). The univariate logistic regression analysis revealed that increments of body mass index (BMI), smoking and metabolic syndrome were significant risk factors for RE in both genders. Notably, alcohol drinking in men (OR=1.40, 95% CI 1.16-1.69) but not women was significantly associated with RE. In women, RE was more prevalent in older age subjects ( $\geq 55$  years) than younger age subjects (4.1% vs. 1.4%,  $p<0.001$ ). There was no significant difference of the proportion of RE in postmenopausal vs. premenopausal women (2.4% vs. 1.4%,  $p>0.05$ ). By multivariate logistic regression analysis, the independent risk factors for RE were obesity (OR 2.47, 95% CI 1.85-3.31) and smoking (OR 1.42, 95% CI 1.12-1.79) in men, and age (OR 1.03, 95% CI 1.01-1.06) with smoking (OR 3.58, 95% CI 1.47-8.73) in women. **Conclusion:** A greater male predominance of RE was demonstrated in Korea, which is different from Western countries. There were notably different gender specific risk factors for RE, specifically BMI for men and aging for women. **Key Words:** Reflux Esophagitis, Risk Factors, Gender Difference Table 1. Univariate Analysis of Gender Specific Risk Factors for Reflux Esophagitis

Variable	EE Patients			NERD Patients		
	OR	95% CI	P-values	OR	95% CI	P-values
Age	1.00	0.99-1.01	0.635	1.05	1.02-1.07	<0.001
BMI(kg/m2)						
BMI 23-24.9	1.86	1.39-2.50	<0.001	1.58	0.86-2.91	0.145
BMI $\geq 25$	3.03	2.32-3.96	<0.001	2.29	1.31-3.99	0.004
Alcohol use	1.40	1.16-1.69	<0.001	1.26	0.54-2.95	0.587
Current Smoker	1.46	1.21-1.77	<0.001	4.24	2.06-8.75	<0.001
Metabolic Syndrome	1.98	1.51-2.44	<0.001	2.81	1.52-5.21	0.001

BMI, body mass index

S1910

### Acid Reflux and Symptom Association in Gastroesophageal Reflux Disease: Signal Detection Theory Approach

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Signal Detection Theory (SDT) estimates discriminability ( $d'$ ), and criterion (C) reflects the response strategy from decision making experiments. The primary virtue of  $d'$  is its value that does not depend upon C, but instead it is a true measure of the internal response. The aim of this study was find more accurate time window and pH threshold for acid reflux and symptom association by means of SDT approach and compares with Symptom Index (SI) and Symptom Associated Probability (SAP) method. **Method:** Patients with typical GERD symptoms (heartburn and/or regurgitation), benefit from proton pump inhibitors and abnormal DeMeester score have described as GERD patients. GERD patients who have normal (include esophagitis) upper gastrointestinal endoscopy and appropriate symptom diary retrieved from our pHmeter database. Number of Signal (window which contains at least one reflux event), Noise (window which does not contain reflux event), Hit (window which contains reflux event before symptom) and False Alarm (window which does not contain reflux event before symptom) parameters were found for different time windows (1, 2, 5, 15 and 30 minutes) and pH thresholds (pH<4 and pH<3) during awake period. SAP,  $d'$ , C and SI values were calculated by means of these parameters. Results were presented as mean±SD. Results: The study included 12 patients (6 F/6 M; mean age 46 (range 24-68)). SAP and  $d'$  values for 1 min. windows were significantly higher than other windows for both pH thresholds. Irrespective to time window, pH<3 values for  $d'$  and SAP were higher than pH<4 values. There were no difference between 1 min and 2 min. of SI values for both pH thresholds. Irrespective to time window, pH<4 values for SI were higher than pH<3 values. There were significant correlations between  $d'$  and SAP values for pH<4 and pH<3 ( $r = 0.7292$  and  $0.8131$  respectively). There are no correlations between SI and both ( $d'$  and SAP) values. C values of pH<4 did not differ from values of pH<3 ( $1.82 \pm 0.65$  vs.  $1.81 \pm 0.57$ ;  $p>0.05$ ). **Conclusion:** SDT approach suggests that 1 min. time window and pH<3 threshold seem to be more accurate than higher values.

	$d'$		SAP		SI	
	pH<4	pH<3	pH<4	pH<3	pH<4	pH<3
1 min.	0.64±0.28(1)	0.91±0.24(3)	83.68±16(5)	93.17±7.5(7)	68.75±26(9)	61.33±28(10)
2 min.	0.57±0.29(2)	0.85±0.25(4)	73.62±29(6)	89.23±11(8)	69.58±25	62.16±27
5 min.	0.42±0.23	0.64±0.25	54.72±32	71.67±27	72.41±23	62.16±27
15 min.	0.09±0.61	0.50±0.34	34.36±28	52.51±31	83.58±15	76.08±24
30 min.	-0.26±0.81	0.13±0.70	21.36±26	28.32±32	86.66±14	76.08±24

1 vs. 2:  $p<0.01$ ; 1 vs. 3:  $p<0.0001$ ; 3 vs. 4:  $p=0.0654$ ; 5 vs. 6:  $p<0.05$ ; 5 vs. 7:  $p<0.01$ ; 7 vs. 8:  $p<0.01$ ; 9 vs. 10:  $p<0.05$ .

S1911

### Epidemiology of Gastroesophageal Reflux Disease and Esophagitis: the Systematic Investigation of Gastrointestinal Diseases in China (SILC) Study

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**Introduction.** Reflux esophagitis is present in up to 20% of the adult population of Western countries, and is asymptomatic in a proportion of patients. The aim of this study was to investigate the epidemiology of symptoms and endoscopic findings related to gastroesophageal reflux disease (GERD) in China. **Methods.** As part of a larger study in China, a representative sample of 3600 residents of the Shanghai region (aged 18-80 years) was selected using a randomized, stratified, multi-stage sampling method. Urban and rural subjects were sampled at a ratio of 1:1 ( $n = 1800$  each). Subjects completed a Chinese version of the Reflux Disease Questionnaire and were also asked to undergo endoscopy and provide blood samples for *Helicobacter pylori* serology (IgG ELISA). GERD was defined as mild symptoms of heartburn or regurgitation occurring on at least 2 days a week, or moderate/severe symptoms occurring on at least 1 day a week. To investigate associations between GERD symptoms and endoscopic findings, odds ratios (OR) and 95% confidence intervals (CI) were calculated in multiple logistic regression analysis. **Results.** In total 3153 subjects completed the survey (a response rate of 87.6%). All subjects underwent blood tests, and 1030 subjects (32.7%) accepted endoscopy, with 1029 suitable for analysis. Esophagitis prevalence was 6.4% ( $n = 66$ ); 63.6% had Los Angeles grade A, 33.3% grade B, and 3.0% grade C. In total, 19 cases of endoscopically suspected esophageal columnar metaplasia (Prague classification) were found. There were no esophageal strictures. Esophagitis was associated with male gender (OR: 6.1; 95% CI: 2.5-14.6), but age and body mass index