Degree of Ineffective Peristalsis Does Not Affect Frequency of Gastro-Esophageal Reflux, But May Facilitate More Proximal Reflux Events

Christy Chon, MD, Nour Al Khalili, MD, Maan El Halabi, MD, Michael S. Smith, MD, MBA

Department of Medicine, Mount Sinai West & Mount Sinai Morningside Hospitals, New York, NY, USA

BACKGROUND

- Chicago Classification v4.0 (CC4) describes more stringent diagnostic criteria for Ineffective Esophageal Motility (IEM), with the goal of identifying patients with more clinically significant dysmotility
- IEM is a common manometric finding in patients with gastroesophageal reflux disease (GERD)

AIM

- To evaluate whether patients with weak peristalsis meeting CC4 IEM criteria also have more severe reflux, as evidenced by worse outcomes on 24-hour multichannel intraluminal impedance-pH testing (MII-pH)

METHODS

- 684 patients undergoing GERD evaluation with both high resolution esophageal manometry and MII-pH at a single high-volume motility center between 2019 and 2021 were identified
- Patients were divided into three groups: those with 50-69.9% ineffective swallows (CC3-only IEM), those with 70-100% ineffective swallows or at least 50% failed swallows (CC4 IEM), and those without a CC3/CC4 diagnosis (Controls)
- Demographic and symptom data, plus MII-pH results, were collected and analyzed

DEMOGRAPHICS

Characteristics	Control	CC3-only IEM	CC4 IEM	p-value
Subjects (N%)	26 (26%)	14 (14%)	60 (60%)	
Age (mean, years)	49.5	47.0	48.8	0.69
Gender				0.62
Male	14 (53.8%)	9 (64.3%)	30 (50%)	
Female	12 (46.2%)	5 (35.7%)	30 (50%)	
BMI (mean, kg/m^2)	28.8	27.1	27.9	0.59
Tobacco Use				0.50
Never	21 (80.8%)	9 (64.3%)	38 (63.3%)	
Former	4 (15.4%)	4 (28.6%)	20 (33.3%)	
Current	1 (3.8%)	1 (7.1%)	2 (3.3%)	
Alcohol Use				0.35
Never	7 (26.9%)	7 (50%)	25 (41.7%)	
Former	8 (30.8%)	3 (21.4%)	9 (15%)	
Current	11 (42.3%)	4 (28.6%)	26 (43.3%)	

SYMPTOM FREQUENCIES

	Controls	CC3-only IEM	CC4 IEM	p-value
Dysphagia	11 (42.3%)	5 (35.7%)	22 (36.7%)	0.87
Heartburn	21 (80.8%)	10 (71.4%)	42 (70%)	0.58
Regurgitation	8 (30.8%)	**11 (78.6%)**	23 (38.3%)	**0.01**

MII-pH FINDINGS

	Controls	CC3-only IEM	CC4 IEM	p-value (all groups)	p-value (CC3 only IEM vs. CC4 IEM)
Distal AET (%)	2.77	2.64	3.30	0.89	0.71
DeMeester score	14.67	11.13	14.35	0.91	0.64
Mean Number of Proximal Reflux Events	8.81	8.79	**21.63**	0.40	0.42
Mean Normalized Total Number of Reflux Events	42.42	61.36	47.58	0.17	0.14

CC3: Chicago Classification v3.0, CC4: Chicago Classification v4.0, IEM: Ineffective Esophageal Motility, BMI: Body Mass Index, AET: Acid Exposure Time

DISCUSSION

- The degree of ineffective peristalsis did not affect the overall number of reflux events seen on MII-pH, which is expected as peristalsis is not thought to be involved in the generation of a reflux event
- A trend toward more proximal reflux events in patients meeting CC4 criteria suggests a higher degree of esophageal dysmotility increases the likelihood reflux events are not cleared effectively, and therefore have a greater opportunity to move retrograde
- Extended refluxate exposure may predispose to worsened symptoms
- Future studies focusing on refluxate exposure times and symptom correlation may provide significant conclusions leading to improved care of these patients with peristaltic abnormalities.

REFERENCES

- Yadlapati R, Kahrilas PJ, Fox MR, et al. Esophageal motility disorders on high-resolution manometry: Chicago classification version 4.0©. Neurogastroenterol Motil. 2021;33(1):e14058. doi:10.1111/nmo.14058
- Yadlapati R, Pandolfino JE, Fox MR, Bredenoord AJ, Kahrilas PJ. What is new in Chicago Classification version 4.0?. Neurogastroenterol Motil. 2021;33(1):e14053. doi:10.1111/nmo.14053