

Does Lower Esophageal Sphincter Distensibility Measured by the Functional Lumen Imaging Probe Relate to Total Esophageal Acid Exposure Time?

Brendan P. Kemple, MD¹, James D Miller, BS², Steven B. Clayton, MD²

¹ Department of Medicine, Augusta University

² Section of Gastroenterology and Hepatology, Wake Forest School of Medicine

BACKGROUND

- FLIP has been tested in a variety of esophageal pathologies and clinical utility of the device is still under investigation¹
- Distensibility, the primary endpoint of FLIP, is a dynamic measure with unclear clinical correlation
- Relationships with distensibility Index (DI) and esophageal acid exposure time (AET) on 24-hour impedance have not been examined²

AIM

- To characterize the relationship between LES distensibility and AET to determine how DI relates to AET.

METHODS

- Retrospective study on patients who received a FLIP and 24-hour impedance monitoring within two years from each other during 2017 to 2021
- 146 patients with both tests performed
 - patients who had corrective GI procedures (Nissen fundoplication, sleeve gastrectomy, etc) during the time interval between the procedures were excluded
- Patients were grouped by acid exposure time normality, then mean DI was calculated for each group. Patients were then grouped by DI normality, and mean acid exposure time was calculated for each group

Patient Characteristics

	FLIP (n=313)	pH impedance (n=146)	p-value
Age (years)	61.0	61.0	0.99
Sex	51% female	51% female	>0.99

RESULTS

Mean DI in Unmedicated Patients

	N	Mean DI	Std Dev	p-value
Total Acid Exposure Time <4%	28	3.4	3.9	0.94
Total Acid Exposure Time 4-6%	11	3.1	1.4	
Total Acid Exposure Time >6%	30	3.5	3.1	

Mean DI in Medicated Patients

	N	Mean DI	Std Dev	p-value
Total Acid Exposure Time <1.2%	12	4.17	1.40	0.541
Total Acid Exposure Time ≥1.2%	36	3.81	1.84	

Mean Acid Exposure Time with DI Cutoff 2.0

	N	Mean Acid Exposure Time (%)	Std Dev	p
Unmedicated Patients				
DI < 2.0 mm ² /mmHg	25	7.28	7.44	0.454
DI ≥ 2.0 mm ² /mmHg	44	9.08	12.45	
Medicated Patients				
DI < 2.0 mm ² /mmHg	8	7.36	10.66	0.645
DI ≥ 2.0 mm ² /mmHg	40	9.15	9.82	

Mean Acid Exposure Time with DI Cutoff 2.8

	N	Mean Acid Exposure Time (%)	Std Dev	p
Unmedicated Patients				
DI < 2.8 mm ² /mmHg	28	9.36	13.57	0.592
DI ≥ 2.8 mm ² /mmHg	41	7.79	8.70	
Medicated Patients				
DI < 2.8 mm ² /mmHg	11	9.00	9.99	0.945
DI ≥ 2.8 mm ² /mmHg	37	8.81	9.97	

CONCLUSION

- DI and acid exposure time are unrelated across all groups and comparisons in the study
- Both DI and acid exposure time remain valuable tools for evaluating LES functionality³
- Future studies are necessary to corroborate FLIP's ability to support diagnoses made by pH impedance testing

REFERENCES

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