

A Comparison of Manometric and Functional Lumen Impedance Planimetry (FLIP) Diagnoses of Esophageal Dysmotility

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BACKGROUND

- Functional Lumen Imaging Probe (FLIP) has been utilized as an adjunct to High Resolution Manometry (HRIM) for evaluating disorders of esophageal dysfunction.¹
- FLIP and HRIM are closely related but not identical as distensibility and relaxation pressures are similar but distinct measures of esophageal function.²
- Greater understanding of concordance rates of the studies will help evaluate how to best use FLIP and HRIM as complementary diagnostic techniques.

AIM

- To evaluate the extent of agreement between FLIP and HRIM diagnoses by constructing parallels between diagnoses from both studies.

METHODS

- Retrospective study on patients who received a FLIP and HRIM within two years from each other during 2017 to 2021
- 227 patients with both tests performed
 - patients who had GI surgeries (Nissen fundoplication, sleeve gastrectomy, etc) during the time interval between the procedures were excluded.
- Pairs of diagnostic outcomes from both tests were created based on similarities in diagnostic criteria. 171 total pairs were made.
- 52 patients were diagnosed with Jack Hammer Esophagus, Ineffective Esophageal Motility, Type 2 Achalasia, or Fragmented Peristalsis by HRIM and were not able to be paired, as there was no correlating diagnosis. Similarly, patients that were diagnosed with Normal Contractile Response with Increased EGJ Distensibility, Absent Contractile Response with Increased EGJ Distensibility, and Diminished or Disordered Contractile Response by FLIP were not able to be paired.

Patient Characteristics

	FLIP (n=313)	HRIM (n=227)	p-value
Age (years)	61.0	60.5	0.99
Sex	51% female	51% female	0.99

RESULTS

Manometric and FLIP Diagnostic Agreement

HRIM Diagnosis	Correlating FLIP Diagnosis	Number of Pairs	Pairs in Agreement (%)
Normal	Normal	17	7 (41.2)
Diffuse Esophageal Spasm	Normal Distensibility with Repetitive Retrograde Contractile Response	2	0 (Undefined)
Type 1 Achalasia	EGJOO with Absent Contractile Response	18	14 (77.8)
Type 3 Achalasia	EGJOO with Repetitive Retrograde Contractile Response	15	5 (33.3)
Esophagogastric Outflow Obstruction (EGJOO)	EGJOO with Normal Contractile Response	113	29 (25.7)
Aperistalsis	Normal Distensibility with Absent Contractile Response	6	2 (33.3)

Cohen's Kappa Analysis

	Percent of Agreement between Pairs	Cohen's Kappa (p-value)
Studies including unpaired diagnoses	26%	0.121 (p < 0.0001)
Studies of paired diagnoses	33.5%	0.157 (p < 0.0001)

CONCLUSION

- The manometric diagnosis agreed with FLIP testing more often than random change would expect.
- Cohen's Kappa analysis indicates that the agreement is only weak to slight in both groups, as the kappa is not greater than 0.2.
- Agreement is complicated by imperfect pairing of the tests diagnostic criteria.
- Our study demonstrates that HRIM and FLIP are useful when used in conjunction, as they correlate diagnostically. However, they test physiologically distinct parameters.³

REFERENCES

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