

ARTIFICIAL INTELLIGENCE AND ANORECTAL MANOMETRY: AUTOMATIC DETECTION AND DIFFERENTIATION OF ANORECTAL MOTILITY PATTERNS - A PROOF OF CONCEPT STUDY

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Poster

Colorectal

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A pilot study developed and validated machine learning algorithms to automatically differentiate fecal incontinence from obstructed defecation patterns in anorectal manometry data, with the gradient boosting model achieving 84.6% accuracy.

KEY POINTS

- Four machine learning models were tested on 827 anorectal manometry exams (493 obstructed defecation, 334 fecal incontinence) from a Brazilian motility clinic between 2015 and 2021.
- The gradient boosting model showed the highest discriminating performance with 84.6% overall accuracy and an area under the curve of 0.939, outperforming random forests, support vector machines, and k-nearest neighbors models.
- For obstructed defecation classification, the gradient boosting model achieved 83.6% precision and 92.4% sensitivity; for fecal incontinence, it achieved 87.4% precision and 73.6% sensitivity.
- The authors suggest that subsequent development of these tools may optimize access to anorectal manometry studies, which are currently limited by accessibility and complexity of data analysis.
- This material is relevant to gastroenterologists and motility specialists interested in artificial intelligence applications for anorectal functional disorder diagnosis.

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