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Intestinal endocrine cells as biomarkers for the diagnosis of irritable bowel syndrome

The diagnosis of Irritable Bowel Syndrome (IBS) in clinical practice is a diagnosis of exclusion, whereby diagnostic tests and invasive investigations are conducted to exclude other gastrointestinal diseases. Attempts have been made to achieve a positive diagnosis based on symptoms assessment such as the Rome III criteria. However, symptom-based diagnosis is not widely used in everyday clinical practice. Searches for biomarkers for the diagnosis of IBS that reflect pathological states have not yielded any useful candidates. The duodenum contains the largest number of endocrine cells in the gastrointestinal tract, followed by the rectum. The densities of four of the five duodenal endocrine cell types have been found to be reduced in patients with sporadic (non-specific) IBS. Chromogranin A (CgA) is a common marker for gastrointestinal endocrine cells. It has been thought that the cell density of CgA the duodenal endocrine cells, can be used as a biomarker for the diagnosis of IBS. Receiver Operator Characteristic (ROC) revealed areas under the ROC curve (ROCAUC) values of 0.97, and positive likelihood (+LH) and negative LR (-LH) of 18.5 and 0.14, respectively. This biomarker is simple, inexpensive, and easy to perform, and does not require sophisticated equipment or considerable experience. The density of PYY cells is reduced in the rectum of sporadic IBS patients, whereas that of somatostatin is increased. As biomarkers for the diagnosis of IBS, rectal PYY has a ROCAUC values of 0.96 and +LH and –LH 7.56 and 0.18, respectively. The corresponding values for somatostatin are 0.93, 7.20, and 0.23. These biomarkers erform well in differentiating IBS from health and are better than Rome III criteria, which has +LH and –LH of 3.53 and 0.39, respectively. Moreover, these biomarkers reflect an anatomical lesions occurring in the gastrointestinal tract of IBS patients, namely gastrointestinal endocrine cells.

Biography

Magdy El-Salhy is Professor of Gastroenterology and Hepatology at Bergen University, and Consultant Gastroenterologist at Stord Hospital, Norway. He is a Member of the Editorial Boards of 10 international journals, and is associated Editor-in-Chief of *World Journal of Gastroenterology*. Furthermore, he is on the referee list of a large number of international journals. He has evaluated grant applications for national and international research foundations. He has also attended and contributed to several national and international meetings as Invited Speaker, or Chairman. He authored over 200 publications, which include original articles, invited reviews, book chapters, and books. His work has been cited in 4105 scientific articles. In 2013-2015, four of his highly cited papers are in the top 1% of world publications. His research field for the last 40 years has been the neuroendocrine system of the gut, from basic science to clinical applications.

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