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Christodoulidis G, Tsagkidou K, Koumarelas KE, Kouliou MN. Advances and challenges in peroral endoscopic myotomy: Safety, precision, and post-procedure management. *World J Gastroenterol* 2025; 31(5): 97574 [DOI: 10.3748/wjg.v31.i5.97574]

OPINION REVIEW

Pan Q, Xu QY, Zhang LH, He YF. What is the role of nonalcoholic fatty liver disease in pulmonary carcinoma development? *World J Gastroenterol* 2025; 31(5): 97500 [DOI: 10.3748/wjg.v31.i5.97500]

REVIEW

Paul JK, Azmal M, Haque ASNB, Meem M, Talukder OF, Ghosh A. Unlocking the secrets of the human gut microbiota: Comprehensive review on its role in different diseases. *World J Gastroenterol* 2025; 31(5): 99913 [DOI: 10.3748/wjg.v31.i5.99913]

ORIGINAL ARTICLE**Retrospective Study**

Zhang PC, Wang SH, Li J, Wang JJ, Chen HT, Li AQ. Clinicopathological features and treatment of gastrointestinal schwannomas. *World J Gastroenterol* 2025; 31(5): 101280 [DOI: 10.3748/wjg.v31.i5.101280]

Zhang Y, Shi K, Feng Y, Wang XB. Machine learning model using immune indicators to predict outcomes in early liver cancer. *World J Gastroenterol* 2025; 31(5): 101722 [DOI: 10.3748/wjg.v31.i5.101722]

Sun ZG, Chen SX, Sun BL, Zhang DK, Sun HL, Chen H, Hu YW, Zhang TY, Han ZH, Wu WX, Hou ZY, Yao L, Jie JZ. Important role of lymphovascular and perineural invasion in prognosis of colorectal cancer patients with N1c disease. *World J Gastroenterol* 2025; 31(5): 102210 [DOI: 10.3748/wjg.v31.i5.102210]

Yao ZY, Ma X, Cui YZ, Liu J, Han ZX, Song J. Impact of triglyceride-glucose index on the long-term prognosis of advanced gastric cancer patients receiving immunotherapy combined with chemotherapy. *World J Gastroenterol* 2025; 31(5): 102249 [DOI: 10.3748/wjg.v31.i5.102249]

Clinical Trials Study

Ovadia B, Niv E, Stern Katie S, Mahajna E, Gal O, Kopelman Y. Effect of Modulen vs budesonide on clinical response and mucosal healing in Crohn's patients. *World J Gastroenterol* 2025; 31(5): 100238 [DOI: 10.3748/wjg.v31.i5.100238]

Basic Study

Mi L, Zhang K, Ma JX, Yao JF, Tong YL, Bao ZJ. Hollow cerium nanoparticles synthesized by one-step method for multienzyme activity to reduce colitis in mice. *World J Gastroenterol* 2025; 31(5): 98732 [DOI: 10.3748/wjg.v31.i5.98732]

Li LJ, Wu CQ, Ye FL, Xuan Z, Zhang XL, Li JP, Zhou J, Su ZZ. Histopathological diagnosis of microvascular invasion in hepatocellular carcinoma: Is it reliable? *World J Gastroenterol* 2025; 31(5): 98928 [DOI: 10.3748/wjg.v31.i5.98928]

LETTER TO THE EDITOR

Tsukanov VV, Vasyutin AV, Tonkikh JL. Risk factors, prevention and screening of colorectal cancer: A rising problem. *World J Gastroenterol* 2025; 31(5): 98629 [DOI: [10.3748/wjg.v31.i5.98629](https://doi.org/10.3748/wjg.v31.i5.98629)]

Xie WT, Yang H, Bai L, Wu FF. New perspectives and prospects for the next generation of combination therapy in inflammatory bowel disease. *World J Gastroenterol* 2025; 31(5): 99462 [DOI: [10.3748/wjg.v31.i5.99462](https://doi.org/10.3748/wjg.v31.i5.99462)]

Dell'Unto E, Panzuto F, Esposito G. Rectal neuroendocrine tumors: Can we predict their behavior? *World J Gastroenterol* 2025; 31(5): 101150 [DOI: [10.3748/wjg.v31.i5.101150](https://doi.org/10.3748/wjg.v31.i5.101150)]

Lu JJ, Chen YZ, Huang YP. Critical assessment of the reported bidirectional associations between gallstone, non-alcoholic fatty liver, and kidney stone diseases. *World J Gastroenterol* 2025; 31(5): 102047 [DOI: [10.3748/wjg.v31.i5.102047](https://doi.org/10.3748/wjg.v31.i5.102047)]

Moore S, Donlon NE. Improving gastrointestinal scoring systems for predicting short-term mortality in critically ill patients. *World J Gastroenterol* 2025; 31(5): 102622 [DOI: [10.3748/wjg.v31.i5.102622](https://doi.org/10.3748/wjg.v31.i5.102622)]

Tawheed A, Ismail A, Amer MS, Elnahas O, Mowafy T. Capsule endoscopy: Do we still need it after 24 years of clinical use? *World J Gastroenterol* 2025; 31(5): 102692 [DOI: [10.3748/wjg.v31.i5.102692](https://doi.org/10.3748/wjg.v31.i5.102692)]

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Rectal neuroendocrine tumors: Can we predict their behavior?

Elisabetta Dell'Unto, Francesco Panzuto, Gianluca Esposito

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Abstract

Rectal neuroendocrine tumors (r-NETs) are the second most common type of neuroendocrine tumor in the gastrointestinal tract, with an increase in incidence in the last decades. They are low-grade tumors and, given their low risk of metastasis, current guidelines recommend endoscopic resection for small lesions. The GATIS predicting score, proposed by Zeng *et al*, represents an innovative model designed to predict individualized survival outcomes for patients with r-NETs, analyzing the relationship between clinicopathological features and patient prognoses. The authors identified tumor grade, T stage, tumor size, age, and prognostic nutritional index as key prognostic factors, demonstrating that the GATIS Score provides a more accurate prognosis assessment compared to the World Health Organization classification or the tumor-node-metastasis staging system. Nevertheless, further larger prospective studies are necessary, and the scientific community's efforts in this context should be directed toward developing international multicentric prospective studies, with the ultimate aim of accurately defining and understanding the behavior of these conditions.

Key Words: Rectal neuroendocrine tumors; Prognostic factors; GATIS prognostic score; Carcinoids; Survival outcomes

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Core Tip: This study proposes the GATIS score, an innovative model designed to predict individualized survival outcomes in patients with rectal neuroendocrine tumors. This model analyzes the relationship between clinicopathological features and patient prognoses. Nevertheless, additional prognostic factors (such as genetic and molecular markers) need to be investigated with further larger multicentric prospective studies.

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TO THE EDITOR

Rectal neuroendocrine tumors (r-NETs) are the second most common type of neuroendocrine tumor in the gastrointestinal tract[1]. In the last decades, their incidence has been rising, mainly because of improvements in colonoscopy techniques and the expanded use of colorectal cancer screening programs[2].

Endoscopically, r-NETs are typically round, small, and yellowish, often incidentally discovered during colonoscopies conducted for screening or other unrelated reasons. Histology usually reveals low-grade tumors, commonly classified as G1 or G2, with a low Ki-67 index[3-6]. Given their low risk of lymph node involvement or metastasis, current guidelines recommend endoscopic resection for small (< 1 cm), low-grade, localized lesions, even though a recent French study demonstrated that up to 20% of r-NETs are not adequately recognized during endoscopies, resulting in inappropriate excision[4,7]. Consequently, r-NETs tend to have a favorable prognosis with indolent behavior, often exhibiting some of the longest median overall survival rates in this tumor category (even exceeding 30 years)[2].

Several prognostic factors are used to assess the risk of lymph node and distant metastasis in r-NETs, including lesion size (typically with a cutoff of ≥ 10 mm), tumor grading, staging, and lymphovascular invasion[2,4,8]. Another area of interest is the clinical significance of incomplete endoscopic resection (with positive resection margins, or R1), which remains unclear, but does not necessarily affect progression and recurrence outcomes[9,10].

Along with the World Health Organization (WHO) classification[3], the American Joint Committee on Cancer tumor-node-metastasis (TNM) staging system[11] and the European Neuroendocrine Tumor Society system[12] are used to stratify patients. Tumor size, though important, should not be the sole factor in treatment planning, as grading and staging also play critical roles in determining outcomes[13].

In this context, the GATIS predicting score, proposed by Zeng *et al*[14], represents an innovative model designed to predict individualized survival outcomes for patients with r-NETs. This model analyzes the relationship between clinicopathological features and patient prognoses. The authors identified tumor grade, T stage, tumor size, age, and prognostic nutritional index (PNI) as key prognostic factors, demonstrating that the GATIS Score provides a more accurate prognosis assessment compared to the WHO classification or the TNM staging system. Notably, this study[14], in addition to considering grade, stage, and size, also accounts for clinical variables such as age and PNI. This highlights the growing importance of factors such as nutritional aspects, which are increasingly recognized as necessary in managing neuroendocrine tumors and other oncological diseases. As demonstrated in other malignancies, malnutrition can significantly reduce the quality of life and the response to treatment - often underestimated aspects of patient care. This is also true for neuroendocrine tumors, although the data on this topic remain scarce and need further development [15,16].

As is well known, neuroendocrine tumors are rare and exhibit heterogeneous behavior. Their characteristic indolence makes it difficult to accurately determine their true nature, especially through retrospective studies with short follow-up periods. Although a median follow-up of nearly 3 years (as in this study) may seem like a reasonable timeframe to assess the behavior of neoplastic disease, it may be insufficient for neuroendocrine tumors. In such cases, even significantly longer follow-up periods (up to 13 years, as observed in other studies and for other primary sites[17]) may be inadequate to evaluate the behavior of these slow-growing conditions[18].

Moreover, in the context of prognostic factors and efforts to predict disease behavior, it is increasingly essential to recognize the growing importance of biomarkers and genetic/molecular markers. Their relevance in oncology has been rising steadily, especially in this tailored and personalized medicine era. While histopathological and molecular evaluations provide valuable prognostic insights, identifying biomarkers for NETs still needs to be explored, highlighting the need for further research[19-21]. We believe this is an important area that warrants further investigation, especially considering the heterogeneous nature of neuroendocrine tumors. Identifying valuable stratification factors would undoubtedly aid in guiding the management and follow-up of these patients.

Finally, although the effort to obtain such a large sample size is commendable, given the difficulty in acquiring it for a rare condition, it is important to note that the study is based on an Asian population. This may limit its applicability to other regions, such as the Western world, due to potential differences in genetic and environmental factors that could influence tumor outcomes.

In conclusion, the GATIS score is an innovative predictive model that can aid in stratifying patients with r-NETs. Nevertheless, further larger prospective studies are essential, and the scientific community's efforts in this context should be directed toward developing international multicentric prospective studies, with the ultimate aim of accurately defining and understanding the behavior of these conditions.

FOOTNOTES

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REFERENCES

- Cives M, Strosberg JR. Gastroenteropancreatic Neuroendocrine Tumors. *CA Cancer J Clin* 2018; **68**: 471-487 [PMID: 30295930 DOI: 10.3322/caac.21493]
- Dasari A, Shen C, Halperin D, Zhao B, Zhou S, Xu Y, Shih T, Yao JC. Trends in the Incidence, Prevalence, and Survival Outcomes in Patients With Neuroendocrine Tumors in the United States. *JAMA Oncol* 2017; **3**: 1335-1342 [PMID: 28448665 DOI: 10.1001/jamaoncol.2017.0589]
- Rindi G, Mete O, Uccella S, Basturk O, La Rosa S, Brosens LAA, Ezzat S, de Herder WW, Klimstra DS, Papotti M, Asa SL. Overview of the 2022 WHO Classification of Neuroendocrine Neoplasms. *Endocr Pathol* 2022; **33**: 115-154 [PMID: 35294740 DOI: 10.1007/s12022-022-09708-2]
- Rinke A, Ambrosini V, Dromain C, Garcia-Carbonero R, Haji A, Koumariou A, van Dijkum EN, O'Toole D, Rindi G, Scoazec JY, Ramage J. European Neuroendocrine Tumor Society (ENETS) 2023 guidance paper for colorectal neuroendocrine tumours. *J Neuroendocrinol* 2023; **35**: e13309 [PMID: 37345509 DOI: 10.1111/jne.13309]
- Frydman A, Srirajaskanthan R. An Update on the Management of Rectal Neuroendocrine Neoplasms. *Curr Treat Options Oncol* 2024; **25**: 1461-1470 [PMID: 39476215 DOI: 10.1007/s11864-024-01267-4]
- Basuroy R, Haji A, Ramage JK, Quaglia A, Srirajaskanthan R. Review article: the investigation and management of rectal neuroendocrine tumours. *Aliment Pharmacol Ther* 2016; **44**: 332-345 [PMID: 27302838 DOI: 10.1111/apt.13697]
- Fine C, Roquin G, Terreboune E, Lecomte T, Coriat R, Do Cao C, de Mestier L, Coffin E, Cadiot G, Nicolli P, Lepiliez V, Hautefeuille V, Ramos J, Girot P, Dominguez S, Céphise FV, Forestier J, Hervieu V, Pioche M, Walter T. Endoscopic management of 345 small rectal neuroendocrine tumours: A national study from the French group of endocrine tumours (GTE). *United European Gastroenterol J* 2019; **7**: 1102-1112 [PMID: 31662867 DOI: 10.1177/2050640619861883]
- Sohn B, Kwon Y, Ryoo SB, Song I, Kwon YH, Lee DW, Moon SH, Park JW, Jeong SY, Park KJ. Predictive Factors for Lymph Node Metastasis and Prognostic Factors for Survival in Rectal Neuroendocrine Tumors. *J Gastrointest Surg* 2017; **21**: 2066-2074 [PMID: 29047070 DOI: 10.1007/s11605-017-3603-y]
- Wang L, Qiu J, Zhang Y, Pan X. Do Rectal Neuroendocrine Tumors with Incomplete Endoscopic Resection for Positive Resection Margin Need Salvage Treatment? *Am J Gastroenterol* 2024; **119**: 1647-1648 [PMID: 38713143 DOI: 10.14309/ajg.0000000000002814]
- Sun D, Ren Z, Xu E, Cai S, Qi Z, Chen Z, Liu J, Shi Q, Zhou P, Zhong Y. Long-term clinical outcomes of endoscopic submucosal dissection in rectal neuroendocrine tumors based on resection margin status: a real-world study. *Surg Endosc* 2023; **37**: 2644-2652 [PMID: 36380122 DOI: 10.1007/s00464-022-09710-z]
- Shi C, Woltering E, Beyer DT, Klimstra D, Malin K, Bergsland E, Washington K. Neuroendocrine tumors of the colon and the rectum. In: Amin AB. *AJCC Cancer Staging Manual*. Springer, 2018: 395
- Rindi G, Klöppel G, Couvelard A, Komminoth P, Körner M, Lopes JM, McNicol AM, Nilsson O, Perren A, Scarpa A, Scoazec JY, Wiedenmann B. TNM staging of midgut and hindgut (neuro) endocrine tumors: a consensus proposal including a grading system. *Virchows Arch* 2007; **451**: 757-762 [PMID: 17674042 DOI: 10.1007/s00428-007-0452-1]
- Capurso G, Gaujoux S, Pescatori LC, Panzuto F, Panis Y, Pillozzi E, Terris B, de Mestier L, Prat F, Rinzivillo M, Coriat R, Couvelard A, Delle Fave G, Ruszniewski P. The ENETS TNM staging and grading system accurately predict prognosis in patients with rectal NENs. *Dig Liver Dis* 2019; **51**: 1725-1730 [PMID: 31405587 DOI: 10.1016/j.dld.2019.07.011]
- Zeng XY, Zhong M, Lin GL, Li CG, Jiang WZ, Zhang W, Xia LJ, Di MJ, Wu HX, Liao XF, Sun YM, Yu MH, Tao KX, Li Y, Zhang R, Zhang P. GATIS score for predicting the prognosis of rectal neuroendocrine neoplasms: A Chinese multicenter study of 12-year experience. *World J Gastroenterol* 2024; **30**: 3403-3417 [PMID: 39091717 DOI: 10.3748/wjg.v30.i28.3403]
- Clement DSVM, van Leerdam ME, Tesselaar MET, Cananea E, Martin W, Weickert MO, Sarker D, Ramage JK, Srirajaskanthan R. The global leadership into malnutrition criteria reveals a high percentage of malnutrition which influences overall survival in patients with gastroenteropancreatic neuroendocrine tumours. *J Neuroendocrinol* 2024; **36**: e13376 [PMID: 38389192 DOI: 10.1111/jne.13376]
- Poblocki J, Jasińska A, Syrenicz A, Andrysiak-Mamos E, Szczuko M. The Neuroendocrine Neoplasms of the Digestive Tract: Diagnosis, Treatment and Nutrition. *Nutrients* 2020; **12**: 1437 [PMID: 32429294 DOI: 10.3390/nu12051437]
- Nesti C, Bräutigam K, Benavent M, Bernal L, Boharoon H, Botling J, Bouroumeau A, Brcic I, Brunner M, Cadiot G, Camara M, Christ E, Clerici T, Clift AK, Clouston H, Cobiainchi L, Ćwikła JB, Daskalakis K, Frilling A, Garcia-Carbonero R, Grozinsky-Glasberg S, Hernando J, Hervieu V, Hofland J, Holmager P, Inzani F, Jann H, Jimenez-Fonseca P, Kaçmaz E, Kaemmerer D, Kaltsas G, Klimacek B, Knigge U, Kolasińska-Ćwikła A, Kolb W, Kos-Kudła B, Kunze CA, Landolfi S, La Rosa S, López CL, Lorenz K, Matter M, Mazal P, Mestre-Alagarda C, Del

- Burgo PM, van Dijkum EJM, Oleinikov K, Orci LA, Panzuto F, Pavel M, Perrier M, Reims HM, Rindi G, Rinke A, Rinzivillo M, Sagaert X, Satiroglu I, Selberherr A, Siebenhüner AR, Tesselaar MET, Thalhammer MJ, Thiis-Evensen E, Toumpanakis C, Vandamme T, van den Berg JG, Vanoli A, van Velthuysen MF, Verslype C, Vorburger SA, Lugli A, Ramage J, Zwahlen M, Perren A, Kaderli RM. Hemicolecotomy versus appendectomy for patients with appendiceal neuroendocrine tumours 1-2 cm in size: a retrospective, Europe-wide, pooled cohort study. *Lancet Oncol* 2023; **24**: 187-194 [PMID: 36640790 DOI: 10.1016/S1470-2045(22)00750-1]
- 18 **Lamberti G**, Andrini E, Ricci C, Campana D. Omitting hemicolectomy for patients with appendiceal neuroendocrine tumours of 1-2 cm. *Lancet Oncol* 2023; **24**: e187 [PMID: 37142375 DOI: 10.1016/S1470-2045(23)00059-1]
- 19 **Oberg K**, Modlin IM, De Herder W, Pavel M, Klimstra D, Frilling A, Metz DC, Heaney A, Kwkkeboom D, Strosberg J, Meyer T, Moss SF, Washington K, Wolin E, Liu E, Goldenring J. Consensus on biomarkers for neuroendocrine tumour disease. *Lancet Oncol* 2015; **16**: e435-e446 [PMID: 26370353 DOI: 10.1016/S1470-2045(15)00186-2]
- 20 **Tsoli M**, Koumariou A, Angelousi A, Kaltsas G. Established and novel circulating neuroendocrine tumor biomarkers for diagnostic, predictive and prognostic use. *Best Pract Res Clin Endocrinol Metab* 2023; **37**: 101785 [PMID: 37336711 DOI: 10.1016/j.beem.2023.101785]
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