Journal of Inflammation Research

Dovepress
Taylor & Francis Group

Open Access Full Text Article

LETTER

Innovative Assessment of Crohn's Disease: An Activity Prediction Tool Combining Laboratory Data and Imaging [Letter]

Fayuan Wang, Qinling Jiang, Ping He

College of Integrated Traditional Chinese and Western Medicine, Southwest Medical University, Luzhou City, Sichuan Province, People's Republic of China

Correspondence: Ping He, College of Integrated Traditional Chinese and Western Medicine, Southwest Medical University, Luzhou City, Sichuan Province, 646000, People's Republic of China, Email 1327255153@qq.com

Dear editor

We carefully reviewed the recent study by Han Zhang et al titled "A Nomogram Based on Laboratory Data, Inflammatory Bowel Disease Questionnaire and CT Enterography for Activity Evaluation in Crohn's Disease".[1] The findings of this study offer a direct, accurate, and reliable approach to identifying active and remitting states of Crohn's Disease (CD) and assessing its severity in patients. By integrating laboratory data, the Inflammatory Bowel Disease Questionnaire (IBDQ), and CT enterography (CTE) into a combined model, the study effectively distinguishes between active and relieved endoscopic CD. The study is grounded in robust data, employs a rigorous design, and thoroughly accounts for the demographic and clinical characteristics of the subjects, offering valuable insights for clinical diagnosis and disease management. However, to further enhance the results and increase their reliability, we propose the following constructive suggestions.

Firstly, CD is an immune-mediated chronic inflammatory bowel disease, with its activity closely linked to the abnormal activation of the immune system. The primary aim of this study is to establish and validate a Nomogram model based on laboratory data (eg, C-reactive protein, erythrocyte sedimentation rate, calprotectin), clinical data (eg, IBDQ score), and imaging data (eg, CT imaging). Incorporating immunohistochemical data—such as the proportion of T cell subsets and cytokine levels—could further enhance the accuracy of activity assessment.[2]

Additionally, the current Nomogram is based on cross-sectional data, assessing disease activity at a single point in time. It does not account for dynamic changes in disease activity or long-term follow-up. To address this limitation, a dynamically updated Nomogram could be developed to adjust activity predictions in real-time based on patient follow-up data and new clinical findings, such as regular CT scans and laboratory results. Moreover, time-series analysis models, such as Long Short-Term Memory (LSTM) or Gated Recurrent Units (GRU), could be utilized to predict the dynamic progression of disease activity.[3]

Lastly, data fusion techniques—such as feature selection, and weighted fusion—can be applied to integrate CT imaging, laboratory data, and IBD questionnaires. This approach would not only extract independent features from each data source but also uncover potential associations between different data types.[4] This would assist clinicians in understanding the roles of various factors in decision-making, thereby increasing the model's trustworthiness.

This study offers valuable insights and considerations for the clinical management of CD. We acknowledge the collaboration and dedication of medical institutions, public health professionals, social workers, and government officials whose efforts made this research possible. The findings are particularly relevant to the region and provide a foundation for further investigations in related fields across different countries. Future research should focus on developing more effective strategies based on these results, further advancing our understanding of CD in both diagnostic and therapeutic contexts.

Received: 8 January 2025
Accepted: 29 January 2025
Published: 3 February 2025

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Zhang H, Shen Y, Cao B, et al. A nomogram based on laboratory data, inflammatory bowel disease questionnaire and CT enterography for activity evaluation in crohn's disease. *J Inflamm Res*. 2025;18:183–194. doi:10.2147/JIR.S491043
2. Gómez-Bris R, Sáez Á, Herrero-Fernández B, et al. CD4 T-cell subsets and the pathophysiology of inflammatory bowel disease. *Int J mol Sci*. 2023;24(3):2696. doi:10.3390/ijms24032696
3. Nakako S, Okamura H, Yokota I, et al. Time-sequential change of the predictive power of peripheral blood WT1mRNA levels after allogeneic stem cell transplantation for myeloid neoplasm relapse and development of a dynamic relapse prediction model. *Blood*. 2022;140(Supplement 1):3416–3418. doi:10.1182/blood-2022-164932
4. Du Y, Chen C, Chen C, et al. Feature fusion technology based on serum FTIR spectra combined with chaos theory in the disease auxiliary diagnosis. *Appl Soft Comput*. 2024;163:111911. doi:10.1016/j.asoc.2024.111911

https://doi.org/10.2147/JIR.S516485