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LETTER TO THE EDITOR

Application of artificial intelligence regarding the performance of the predictive criteria of the American Society for Gastrointestinal Endoscopy in the diagnosis of choledocholithiasis



Aplicación de la inteligencia artificial respecto al desempeño de los criterios predictivos de la Sociedad Americana de Endoscopia Gastrointestinal en el diagnóstico de coledocolitiasis

We read the work by Ovalle-Chao et al.,¹ “Performance of the predictive criteria of the American Society for Gastrointestinal Endoscopy in the diagnosis of choledocholithiasis at a secondary care public hospital in the state of Nuevo León, Mexico”, with interest. Their aim was to validate the performance of said criteria for predicting choledocholithiasis.

It is possible to develop mathematical algorithms through artificial intelligence (AI) models that analyze information and create prediction models that recognize data patterns with great accuracy. In the context of diagnosis and prognosis, these algorithmic processes play an essential role in the application of new technologies to medical practice. There is evidence that AI models have the capacity to classify patients diagnosed with choledocholithiasis, thus accurately aiding in selecting an efficacious treatment.²

In their study, Ovalle-Chao et al.¹ corroborated the diagnosis of choledocholithiasis with 64.2% accuracy, 68.7% sensitivity, and 52% specificity. Dalai et al.³ developed a predictive machine-learning model that analyzed 270 patients with choledocholithiasis diagnoses confirmed through magnetic resonance cholangiography or ultrasound, resulting in 77% accuracy, 77% sensitivity, 75% specificity, a negative predictive value (NPV) of 37% and a positive predictive value (PPV) of 94%, for predicting the presence of choledocholithiasis.

In a study that included 94 patients, Herrera et al.⁴ applied a mathematical model to predict the presence of choledocholithiasis, comparing it with the model established by the American Society for Gastrointestinal Endoscopy

(ASGE). They reported that the high risk for choledocholithiasis had 70.3% accuracy, 61% sensitivity, 85.7% specificity, a PPV of 87.5%, and a NPV of 57.1%.

In conclusion, given that AI-based diagnostic accuracy and prediction were higher, compared with other approaches, AI should be recognized as a useful instrument for predicting diagnoses, with a high potential for aiding in clinical decision-making. The implementation of machine-learning is imperative because it will improve clinical prediction models. Adding it to daily practice will always result in more accurate approaches, fewer cost overruns, and be in line with the dynamics of global change. Characterization and validation studies of these choledocholithiasis predictors should be encouraged, with future research embracing AI in the study methodologies.

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Conflict of interest

The authors declare that there is no conflict of interest.

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Response to the Letter to the Editor by Castrillón-Lozano JL, et al. "Application of artificial intelligence regarding the performance of the predictive criteria of the American Society for Gastrointestinal Endoscopy in the diagnosis of choledocholithiasis"



Respuesta a Castrillón-Lozano JL, et al. "Aplicación de la inteligencia artificial respecto al desempeño de los criterios predictivos de la Sociedad Americana de Endoscopia Gastrointestinal en el diagnóstico de coledocolitiasis"

We appreciate the interest in our original article, "Performance of the predictive criteria of the American Society for Gastrointestinal Endoscopy in the diagnosis of choledocholithiasis at a secondary care public hospital in the state of Nuevo León, Mexico",¹ shown by Castrillón-Lozano et al. Our article evaluated the performance of the predictive criteria proposed by the American Society for Gastrointestinal Endoscopy (ASGE² in 2019 for predicting choledocholithiasis at a secondary care public hospital that does not have access to magnetic resonance cholangiography or endoscopic ultrasound.

Recent advances in artificial intelligence (AI) have given rise to generative models capable of providing accurate and detailed text-based responses to written prompts ("chats"). These models have obtained high scores on standardized medical exams.³

Generative AI is a promising complement to human cognition in the diagnostic process. Nevertheless, agencies, including the US Food and Drug Administration (FDA), have currently issued important warnings, with respect to these modern differential diagnosis-generating models.⁴ Research, such as that by Castrillón-Lozano et al., aids in investigating possible biases and diagnostic blind spots in the generative models of AI.

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No financial support was received in relation to this letter.

Conflict of interest

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