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Reply to Letter to the Editor: "Large Language Models: Could They Be the Next Generation of Clinical Decision Support Systems in Cardiovascular Diseases?"

LETTER TO THE EDITOR
REPLY

To the Editor,

We have reviewed the feedback[1] on our article[2] and are glad to touch the artificial intelligence (AI)-driven large language models (LLMs), which are reshaping various facets of cardiology.

Large language models empower computers to understand and analyze text by recognizing specific concepts and their connections. They can summarize, translate, answer questions, and offer guidance, among other capabilities. Researchers and clinicians are using LLMs to sift through vast amounts of medical literature, quickly extracting relevant information to aid decision-making. In clinical settings, AI-driven LLMs enhance diagnostic accuracy and treatment efficacy by analyzing patient data, medical histories, and diagnostic images, providing tailored insights and recommendations to improve patient outcomes.[3]

While general LLMs are pretrained on publicly available data with limited medical content, recent studies have shown impressive performance in specialized medical tasks, such as medical board exams.[4] Nevertheless, the structured nature of training data contrasts with the complexity of real-world clinical scenarios, where information is often incomplete and relies heavily on clinical intuition and experience. Additionally, clinical documentation differs significantly from exam questions, often being less organized and containing abbreviations. Therefore, LLMs may struggle to capture nuanced clinical reasoning, even when trained on diverse datasets, necessitating careful evaluation.[5]

Despite the potential of AI and LLMs in cardiology, challenges such as data privacy, bias, and model interpretability persist. Ethical considerations underscore the need for robust governance frameworks and interdisciplinary collaboration in healthcare.[3]

In conclusion, integrating AI and LLMs into cardiology promises innovation and improved patient care, but ongoing research, ethical reflection, and regulatory oversight are crucial to maximize benefits while minimizing risks.

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