Letter to Editor
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The Transformative Role of Artificial Intelligence in Diabetes Treatment

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Dear Editor,

I am writing to draw attention to the remarkable advances of artificial intelligence (AI) in the field of diabetes treatment. Artificial intelligence (AI) and machine learning (ML) are revolutionizing the healthcare system, including diabetes care. The application of AI/ML has the potential ability expand the scope of diabetes care, making it more accessible and effective. The AI is proving to be a game-changer in managing and improving the lives of diabetic people.

Diabetes is one of the chronic and common diseases in the world with increasing incidence and prevalence, especially in developing countries (1). Diabetes, a disease that affects millions of people worldwide, requires continuous monitoring and careful intervention. The integration of AI in diabetes treatment has helped in a new era of personalized and efficient care (2). In fact, ML/AI is currently used to predict the risk of diabetes based on genomic data, diagnose diabetes based on EHR (Electronic Health Record) data, predict the risk of complications such as nephropathy and retinopathy, and also diagnose diabetic retinopathy (3). The focuses is on developing AI-based glucose monitoring systems that can analyze data in real-time and provide more accurate insight into people's glucose levels and trends, as AI/ML can help automate insulin infusions and calculate ratios. Carbohydrate assisted insulin predicts insulin doses for each patient, especially in multiple daily subcutaneous injections (4). In addition, AI plays an important role in treatment decision-making; for instance, analysis of blood glucose events can predict impending hypoglycemia or hyperglycemia based on continuous glucose monitoring (CGM) data, which is currently in commercial use (4). AI/ML can predict the risk of retinopathy, nephropathy, neuropathy, or cardiovascular events using baseline clinical and biochemical data (4). Researchers in Blood Glucose

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Management Programs at Oregon Health & Science University have developed the Daily Dose App, which uses an AI algorithm to evaluate blood glucose data, identify relevant trends, and recommend steps to help patients keep their glucose level within the healthy range (4). Regarding general classification of diabetes, AI can predict diabetes risk and classify diabetes based on existing clinical guidelines (5) Machine learning algorithms can use large data sets to identify patterns, predict and analyze how individuals' blood sugar levels will respond to specific interventions. This personalized approach allows for more targeted and effective treatment plans, reducing the risk of complications and improving overall health outcomes (6). In addition, AI is helping to develop innovative insulin delivery systems. Smart insulin pumps, driven by AI algorithms, can automatically adjust insulin doses based on real-time data, providing a level of accuracy previously unattainable. This not only simplifies diabetes treatment, but also enables people to have better control over their condition, leading to improved quality of life.

While these advances are promising, addressing ethical considerations and data privacy concerns in relation to using AI in healthcare is essential. Achieving a balance between harnessing the potential of AI and protecting patient privacy is crucial for widespread acceptance and adoption of these technologies. Despite the potential benefits of AI/ML in diabetes treatment, there are limitations related to the quality of the data used to generate the intelligence (7).

In conclusion, the integration of AI in the treatment of diabetes is undeniable. The synergy between technology and healthcare opens up new avenues for personalized, precise, and efficient diabetes care. As we move forward, it is imperious to continue, explore and responsibly embrace these technological advances and ensure that the benefits reach those who need them most since AI has great potential to improve the treatment of diabetes. Research in this field is progressing and significant progress is expected to be made in the coming years.

Authors' contributions

M. A: Wrote initial draft of the manuscript.

VS. A: conceived of the presented idea and planning methodology to reach the conclusion.

All authors have accepted responsibility for the entire content of this manuscript and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved and approved the version to be published.

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