Revista Española de Educación Médica

Artificial intelligence and wounds: advances, limitations and perspectives in medical education

Inteligencia artificial y heridas: avances, limitaciones y perspectivas en la educación médica

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Received: 10/15/2023; Accepted: 10/20/2023; Published: 10/23/2023

Since John McCarthy described the concept of artificial intelligence (AI) more than 60 years ago, its application in the field of medicine has been widely predicted (1). AI, especially machine learning (ML), has found applications in various medical specialties, including different branches of surgery, including ophthalmology, dermatology and cardiology (2). In this context, the other branches of medicine have also experienced growing interest in the use of AI for the prediction of pathologies and the automated interpretation of medical images (3-4).

AI has shown promising results in injury prediction and image interpretation in the medical field (3). Using ML algorithms, it has been possible to predict injuries in patients with high precision (4). Furthermore, the capacity of AI for pattern recognition has been a great support in the identification of skin pathologies, and also in musculoskeletal pathologies present in magnetic resonance images and computed tomography (3).

The use of AI in medical education has been the subject of research, especially in surgical specialties such as plastic surgery (5). A recent study explored the use of an AI program called DALL·E 2 to generate clinical images from text in the field of plastic surgery (5). This approach allowed the creation of clinically accurate images without violating patients' privacy (5). The images generated by AI have been shown to be surprisingly realistic and can be used for pattern recognition and discussions of clinical cases (5), especially in first-level health care centers where staff are not always prepared or trained to manage wounds. complex, such as burns, so AI can represent support for the identification of wounds with greater precision, taking into account the location, extension and depth, and thus be able to define the best course of action.

Despite advances, AI also has limitations in its application in medicine and wounds. ML models can generate results in a sort of "black box," where the internal processes evaluated by the algorithm are not fully understood (3). This may raise concerns about the dehumanization of medicine and potential bias in results. The quality of the results also depends on the quality and relevance of the input data, and low-quality data can lead to inaccurate conclusions (3). Furthermore, the use of insufficient data may affect the precision of the method (5).

Despite the limitations, continued advancement of technology and collection of more data will improve the accuracy and effectiveness of AI-based automated systems in the future (3, 5). It is essential to address ethical limitations and ensure that AI models are used responsibly to improve healthcare without displacing healthcare professionals and maintaining the importance of human clinical experience and intuition (3). In medical education, the use of AI to generate clinical images from text offers a new way to provide image material without violating patients' privacy, as well as facilitates case analysis and illustrates the most accurate possible diagnosis and its management (5).

In conclusion, AI has proven to be an innovative tool, with increasing development that supports all health personnel, especially in the prediction of injuries and the interpretation of cases through the generation of clinical images. AI offers new opportunities to strengthen the education, analysis and treatment of patients, especially in areas with difficult access or first level of health care. Likewise, it is essential to address ethical limitations and ensure responsible use of AI by doctors and healthcare personnel, respecting patient privacy and maintaining the importance of the human clinical experience.

Financing: None.

Declaration of conflict of interest : The authors declare that there is no conflict of interest.

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