

LETTER

Artificial intelligence in diagnosis and management of COVID-19 in dermatology

Dear Editor,

Artificial intelligence (AI) has been defined as "the field of science encompassing the computational understanding of intelligent behavioral patterns, and the development of models which exhibit similar behavior."¹ In the world of medicine, AI has a significant role and is being used to provide an aid to the clinician in reaching a diagnosis and predicting the outcome. It is particularly useful in settings where health care infrastructure in terms of manpower is inadequate. New coronavirus (COVID-19) has spread rapidly throughout the world leading to more than 350 000 deaths and World Health Organization has declared it a global pandemic.²⁻⁵

AI is being used by the health care workers in different aspects of COVID-19 management. AI is helping the health care professionals in understanding the transmission and high-risk populations; establishing the natural course of COVID-19, incubation period, the estimated mortality rate; identification and characterization of the causative virus; and in planning effective prevention and control measures.⁶⁻⁸ Researchers used AI for real-time forecasting of COVID-19 for estimating the size, duration, and expected time of end of COVID-19 in China and were able to forecast its trajectory across different regions, which was useful in public health planning and policy making.⁹ AI has been used for diagnostic purposes where AI has been used to detect lesions of COVID-19 pneumonia and assess its shape and density. AI comes in handy by lowering the burden on physicians and in early diagnosis as polymerase chain reaction (PCR) based diagnostic tests take a long time.

AI has recently been incorporated in dermatology practice by researchers and clinicians where AI-based software programs have been used for diagnosing various dermatoses. The efficacy of the diagnostic techniques becomes important in the specialty of dermatology as COVID-19 has been seen to present with a wide variety of dermatological manifestations ranging from perniois like lesions, vesicular rash, petechial lesions, and vasculitic rash, which may present a diagnostic difficulty for the dermatologist. AI-based diagnostic tools can be useful in the early diagnosis of COVID-19 cases who present mainly with dermatological manifestations and may present a diagnostic problem for the attending health care worker or the dermatologist.¹⁰



AI will play a major role in this pandemic and its utility will shape the course of any similar event in future. The dermatology-based AI tools can be incorporated among the initial screening measures for COVID-19 as it will broaden the spectrum of clinical manifestations and will be helpful in screening out more patients who might have been missed by the conventional screening methods. The early diagnosis and management of COVID-19 patients is pivotal for reduction of disease spread and for flattening of the curve.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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