B16

Ugwumsinachi Nwaubani M.S.   Advisor(s): Sharon Glick M.D.

Co-author(s):

Unveiling the Influence of Artificial Intelligence on Informational and Diagnostic Proficiency in Dermatology

Introduction: Artificial Intelligence (AI) is a discipline of computer science aimed at automating intelligent tasks. Machine learning, a branch of AI, utilizes data-based techniques to detect regularities and make predictions. Within dermatology, there is a growing interest in exploring the capabilities of machine learning to accurately classify skin lesions. This study aims to scrutinize the application of AI in dermatology, specifically assessing its effectiveness in diverse skin types as well as detecting areas for future research and improvement.
Methods: The authors analyzed posts via PubMed; keyword searches included: (Artificial Intelligence dermatology). 1434 articles were identified. 1273 articles were excluded due to being out of scope and/or being reviews. 161 articles were found to be relevant to artificial intelligence and dermatology, and 16 were included in the review.
Results: AI demonstrated diagnostic accuracy comparable to dermatologists in four studies, while two studies reported AI outperformed dermatologists. However, AI models consistently underperformed on diagnosing malignancies on darker skin tones, with average specificity and sensitivity ratings being lower than those of lighter skin tones in comparison. Models trained with diverse datasets showed improved performance, particularly through the use of image-to-image translation techniques. The informational capabilities of AI displays a promising potential in clinical practice; however, limitations such as the lack of real-time data and the non-representative nature of online forums accentuate the necessity for further development before wider adoption in healthcare environments.
Conclusion: AI has the potential to enhance dermatology diagnostics, but diverse and inclusive datasets are essential for ensuring equitable diagnostic accuracy. AI should be adopted into dermatology cautiously, recognizing its current limitations and the need for ongoing validation and improvement.