



ARTIFICIAL INTELLIGENCE SHOWS PROMISE FOR SKIN CANCER DETECTION

While technology needs further development, it could be a useful tool to support dermatologists' diagnoses

WASHINGTON (March 1, 2019) — The same technology that suggests friends for you to tag in photos on social media could provide an exciting new tool to help dermatologists diagnose skin cancer. While artificial intelligence systems for skin cancer detection have shown promise in research settings, however, there is still a lot of work to be done before the technology is appropriate for real-world use.

“AI systems for skin cancer detection are still in their very early stages,” says board-certified dermatologist Roger S. Ho, MD, MPH, FAAD, assistant professor in the Ronald O. Perleman Department of Dermatology at NYU Langone Health in New York. “Nothing is 100 percent clear-cut yet.”

One murky area is the skin cancer “scores” that AI algorithms assign to suspicious spots. According to Dr. Ho, it’s not yet clear how a dermatologist would interpret those numbers.

The training of AI systems presents an even larger barrier. Hundreds of thousands of photos that have been confirmed as benign or malignant are used to teach the technology to recognize skin cancer, but all of these images were captured in optimal conditions, Dr. Ho says — they’re not just any old photos snapped with a smartphone.

“Just because the computer can read these validated data sets with near 100 percent accuracy doesn’t mean they can read any image,” he says. “Everyone has a different phone, lighting, background.”

Board-certified dermatologist Adewole Adamson, MD, MPP, FAAD, assistant professor in the division of dermatology at UT Austin Dell Medical School in Austin, Texas, finds it troubling that the images used so far in training AI systems are almost exclusively of light-skinned patients.

“The algorithm is only as good as what you’ve taught it to do,” he says. “If you’ve not taught it to diagnose melanoma in skin of color, then you’re at risk of not being able to do it when the algorithm is complete.”

Although skin cancer is more common in people with lighter skin tones, people with skin of color can also develop the disease, and they tend to be diagnosed at later stages, when it’s more difficult to treat. Moreover, Dr. Adamson says, the images used to train AI systems for the most part haven’t included lesions on the palms of hands and soles of feet, places where people with skin of color are disproportionately affected.

“We already know there’s a disparity in how likely you are to have late-stage melanoma depending on skin type,” he says. “That disparity could potentially widen if AI systems are not trained properly.”

Dr. Ho agrees that the training data needs to include more racial diversity, as well as a variety of age groups. He doesn’t think AI will ever get to the point of being 100 percent accurate in skin cancer detection, but like Dr. Adamson, he hopes dermatologists can help shape the technology in its early stages so patients get the best care possible.

Dr. Ho says he would like to see educational content built into skin cancer detection smartphone apps, reminding users that this technology cannot replace a visit with a dermatologist. Dr. Adamson agrees: “Board-certified dermatologists have years of training and experience in recognizing skin cancer, so their judgment should still supersede whatever an algorithm tells you.”

Unlike AI technology, board-certified dermatologists don’t just look at one mole to determine whether it’s problematic. They consider several additional factors, including the other spots on the patient’s body and the evolution of the lesion in question, as well as the individual’s skin type, skin cancer history and risk factors, and sun protection habits.

“Patients need to know that AI is not a perfect system, and it will never be perfect,” Dr. Ho says. “From a dermatologist’s standpoint, we need to know these apps are out there and the technology will continue to grow, so it’s important that we continue to embrace it.”

“I don’t think the ‘man versus machine’ framing of AI and machine learning is correct,” Dr. Adamson adds. “It’s going to be more like AI is going to support the dermatologist and make the dermatologist even better.”

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