AI-Driven Advances in ATTR-CM Care

Announcer:

You're listening to *Heart Matters* on ReachMD. On this episode, Dr. Frederick Ruberg will discuss the use of artificial intelligence in ATTR-CM management. Dr. Ruberg is the Chief of Cardiovascular Medicine at Boston Medical Center as well as the Thomas J. Ryan Professor of Cardiovascular Medicine at Boston University Chobanian & Avedisian School of Medicine. Let's hear from him now.

Dr. Ruberg:

At the present time, AI has not yet shown any role in treatment selection because it's principally being used for disease recognition, and so we have not really yet begun to understand how deep learning models, for example, or the automated interpretation of echocardiography can actually inform which treatment to choose.

There are three approved therapies, and how one chooses them is debatable. It might be that AI, by either looking at image-based data or integrated data across the EHR as well as imaging-based data, might better be able to inform which drug is the best as an initial therapy, because that will most likely be effective for that particular phenotype. We don't know this yet; it's a great unanswered question, and I'm hopeful that potentially, there'll be some guidance there from AI.

The question regarding AI and disease progression is an interesting one because AI models have generally been developed to identify disease and not identify progression of disease. However, a model could be trained such that patients who we know ultimately develop an outcome, whether they unfortunately die or have a hospitalization for heart failure or some other evidence of disease progression. They could be labeled, and the model could be trained to recognize baseline differences that would potentially ultimately predict those outcomes. Those models have not been trained at this time.

There's also reason to believe that the AI models might be able to also predict prognosis because they may select for "sicker hearts." Patients who have more advanced disease and therefore have higher probabilities of amyloidosis are more likely to probably have more advanced disease and progress at a more rapid rate.

Now, in terms of disease monitoring, the capacity to automatically interpret echocardiograms is really interesting because the ability to make precise measurements of, say, wall thickness or strain or diastolic function or mass—we don't really have that right now. Right now, we have high-quality core labs with humans who do measurements in triplicate or quadruplicate, and then they average them with all the great rigor that we apply to core labs. But there are still humans doing these measurements. The capacity to have a machine do it quickly and reproducibly, in the same way every time, might allow us to see signals that we otherwise couldn't see. Automated interpretation may be able to identify response to therapy changes echocardiographically or electrocardiographically in a way that we haven't been able to see before.

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That was Dr. Frederick Ruberg discussing the use of artificial intelligence in ATTR-CM management. To access this and other episodes in our series, visit *Heart Matters* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!