

Transcript Details

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Advancing ATTR-CM Identification: Early Findings from TRACE-AI

Announcer:

This is *Heart Matters* on ReachMD. On this episode, Dr. Bruno Batinica, a Postdoctoral Associate at the Yale School of Medicine, will share early findings from the TRACE-AI study evaluating multimodal AI for ATTR-CM identification. Let's hear from him now.

Dr. Batinica:

It's very easy to train something which works in your own healthcare system. What is challenging is making something which is generalizable. It's a big thing with research that we want our models and our findings to generalize across systems because that's where they're going to ultimately be used and deployed.

We've collected this large consortium of 12 sites, which I think is amazing. It has been such a blessing working with all of the clinicians and health informatics people across these different sites to deploy our models in all of these different diverse health systems.

So the first step is we're going to show that these models can work. We want to show that these models are not picking up on things specific to certain institutions; they're really finding a pattern which is generalizable for amyloidosis in the heart.

The next part of that equation, then, is we want to deploy them across a different system. And so we wanted to purposely find a lot of different sites with different health architectures. And so by dealing with all of these sites, we've actually built up so much knowledge and experience in terms of using these models in health systems across the US.

In terms of key findings, we've done our first batch of analyses, and so the first thing which we very happily confirmed is that these models still work well. They generalize across different sites. Both the AI ECG and AI echo models are still performant when we deploy. It doesn't matter what health system we deploy them in.

Why multimodality? Why do we want to focus on both of these? If we just focus on AI ECG, we have models which work at a specific point in time on a very accessible data source. But then we really want to think about where this is actually going to fit into a clinical workflow. And so even if a model is very performant, if you were to just run it on every single person in the health system, even if your discriminative performance is well, just because it's a pretty rare condition, you're going to be having a lot of false positives which are flagged up.

And so part of this work was to deploy in a very broad cohort so that we can potentially look down into sub-cohorts and see where this will be most effective to be deployed. And it's possible that combining these modalities and finding individuals who not just flag positive on ECG but on echo is going to be a very select population who are going to have a pretty high positive predictive value, and quite a few of them will actually have the disease. And so using multiple modalities, we can improve performance downstream.

So when we looked specifically amongst individuals who had confirmatory testing done, we found that amongst individuals who double flag positive for ECG and echo, up to 80 percent of them actually were positive for ATTR. And that's from that unselected population who got tested, where maybe 15 percent of them actually have ATTR.

So the next step is going to be first to pick exactly where in the clinical journey we want to deploy this and on which patients we want to deploy this. We're going to be looking not just at people who underwent confirmatory testing. The whole idea behind this work is that for a lot of people who go on to get tested, there's underdiagnosis. So not everybody who needs radionuclide testing has gotten it.

But then you have this really interesting question where we have a bunch of people where we can run our AI models, but we don't have a gold standard flag of whether or not it works. We don't know necessarily if they have cardiac amyloidosis. And so we're going to dig a little bit deeper, and amongst those people who flag positive in this more unselected population where we don't know exactly if they

have ATTR, we'll look for downstream incident events which are indicative of ATTR. So we'll look for overall mortality, but then more specifically at conduction issues and incident heart failure, which indicate that we're maybe picking up a population which didn't undergo testing under traditional means but actually would've benefited from that testing.

Then, the next step will be prospective deployments. That's really going to be where we can show benefit where, based on the model findings, if it flags positive or not, we let clinicians and providers and patients know and refer them for testing.

Announcer:

That was Dr. Bruno Batinica discussing early findings from the TRACE-AI study. 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!