- My name is Hector Garcia. I'm an interventional cardiologist. I work at MedStar Washington Hospital Centre in which I am the director of the Angiographic and Invasive Imaging Core Laboratory. The topic of today will be my presentation at the CRT meeting on the artificial intelligence based AutocathFFR software.

Technology behind the AutocathFFR Sustem

Autocath software is an artificially-based technology which has been developed in Israel. The company's name is MedHub. They have previously validated and published the first document showing the training validation and testing of the algorithm. And in that very

initial report they only had 30 patients included.

Benefits of angiography imaging-derived FFR Technology

Angiography derived technologies are many, the most widely validated technology is quantitative flow ratio, or QFR, developed by MedHub's company in the Netherlands. That particular imaging technology has been tested and validated against more than 15,000 vessels in which they have them both, angiograph analysis and the invasive FFR. So that's also being validated in regards to a randomised clinical sham control trial in which they compared angiography derived FFR technology. In that particular case, QFR, against angiographic guidance for their revascularizations of patients with stable coronary artery disease. In that particular study, they were able to show that the use of angiography-derived FFR is better in reducing cardiovascular outcomes compared to just plain invasive angiography. The main reason for that is because you avoid and needed stenting. So if you kind of extrapolate those findings with this other imaging modality that I presented at CRT which is the MedHub AutocathFFR. We did a similar validation, but in this case in patients coming for either chronic stable angina or unstable angina that had in the core lab, sorry in the cath lab, the assessment of FFR and then available angiography. So in 304 patients, we compared invasive FFR with the newly developed artificial-intelligence based algorithm. And we were able to prove that as much as the other angiographic derived imaging technologies AutocathFFR software is able to have very curious sensitivity and specificity in regards to the diagnostics of FFR invasive values.

Key Findings

Yeah, So AutocathFFR comparison with invasive FFR yield the highest accuracy, the highest sensitivity in specificity compared to all previously published angiographic derived FFR methods. And we did that in 304 patients. And what is even more relevant for this technology, not only that is, is diagnostic performance is similar or slightly better than all other available angiographic derived FFR technologies. But, the fact that these analysis is hands free, it does not require any user interaction. And in terms of the acquisition of the imaging that is required for the analysis is simpler as well compared to the other angiographic FFR imaging modalities.

Recommended use

Angiographic graph technologies in my mind is better to form clinical decisions compared to the standard of care which is in this case, unfortunately I should say, angiographic visual assessment that has been shown in this randomised clinical trial. Of course, if you read the society recommendations, the guidelines, in invasive-based FFR which should be used to inform this clinical decision. Unfortunately, the adoption at best worldwide is around 15% of use in 50% of the PCI cases. So what these newer technologies are bringing on the table is the opportunity to do it in similar way as it does invasive FFR by using an software that can be easily integrated into your cath lab equipment, and have the analysis done online and base your decisions on this particular softwares.

Take-Home messages

So we have to move away from angiographic visual estimation for informing the decision to intervene or no ablation. We have to elevate our skills by adopting these newer angiographic derived FFR technologies. And again, the most widely validated is QFR but we have these other newer technologies that are also artificial-intelligence based and has hands free technologies, which therefore would enable us to do this in a seamless manner and without disrupting our workflow in the cath lab. So the final statement would be move away from visual angiographic estimation for informing your clinical decision, elevate your skills to better methods.