I am Francisco Hidalgo from the Department of Cardiology of the Reina Sofia Hospital from Cordoba in Spain. It is a great pleasure for me to be with the Radcliffe interview. So it's a big pleasure for me.

What was the rationale for this study?

Yes, well as you know the use of physiological assessment is our routine practice in the contemporary cath labs, the IFR presents the advantage of far quicker evaluation and the absence of side effects derived from other nursing administration However, the evidence supporting their use in acute coronary syndrome is scarce, and derived from a sub-analysis of the main trials with already 222 patients until one month follow up. But the association between acute coronary syndrome and the presence of other non-culprit lesions is very frequent in daily practice and require of PCI decision making available. But our group has been using the IFR to determine the need for revascularization of non-culprit lesions. For this reason we decided to study the usefulness, safety and efficacy of a physiological evaluation with IFR of non-culprit lesions in patients with acute coronary syndrome with successful revascularization of the culprit vessel.

Can you describe the design, patient population and endpoints?

Yeah, we performed a multicenter registry where we included 356 patients with acute coronary syndrome STEMI. And NSTEMI in whom the IFR was used to guide the need for revascularization of nonculprit lesions between January 2017 and December 2019 in four high volume PCI centres of Spain. The total of of nonculprit lesions included, were 472 lesions. The cutoff value was then established in the main trial, 0.89. We excluded from the analysis patients with severe left or right ventricular dysfunction, cardiogenic shock, and the of the non-consecution of an optimal result of the culprit vessel during the index procedure. Patients were 66 years old and 77% were male 37% had a personal history of diabetes. And the clinical presentation was NSTEMI in 66% of the patients, and STEMI in 34%. The main left ventricular ejection fraction was 55%, and the radial access was the choice access in more than 90% of the patients who presented a mean syntax score of 15. The most frequent culprit vessel was the right coronary artery following by the LAD artery. That was the most frequent non-culprit vessel analysed. The primary endpoint of the study was the incidence of MACE at follow-up, and the secondary endpoint we established the following. First, to analyse the components of the primary endpoint separately. Two, to explore predictive factors for MACE. Three, to calculate the risk of MACE depending on the clinical scenario, STEMI versus NSTEMI and to calculate the rates of MACE according to the IFR obtained during the procedure, a mean. Patients in whom at least one lesion presenting an IFR higher than 0.89 and patients in whom of the lesion analysed presenting an IFR lower than 0.89%, who were revascularized.

What are your key findings to date?

Yes, we observed a total incidence of MACE of 9% patients with this strategy presented at 22 months follow up, incidence of cardiac death of 1.4% and incidence of myocardial infarction 3.4% and stent thrombosis of 0.3% and a need for repeat revascularisation of 3.9%. Regarding secondary endpoints, we observed that there were no differences in terms of MACE between patients who presented with STEMI and NSTEMI. And finally, for me, the most important finding of the study, we observed that patients with at least a nonculprit lesion with a baseline IFR higher than 0.89%, deferred for PCI a total of 251 patients presented that similar incidence of MACE, regarding patients in whom or the lesion analysed presenting an IFR lower than 0.89% underwent complete revascularization. A total of 105 patients. We observed that the only predictor of a higher incidence of MACE at follow-up was the presence of a personal history of prior coronary revascularization, but not for example the presence of nonculprit lesions without physiological significance deferred for PCI, or the type of nonculprit vessel deferred for revascularisation. An important point is that, although the main type of lesion analysed was angiographically moderate lesions, the 42% of the lesions can be considered as a complex lesion, diffuse disease, sequential lesions bifurcation lesions, in-stent restenosis coronary revascularisation, etc.

What conclusions can be made and how should this impact practice?

Yeah, I think that the main conclusions are, first, that IFR guided PCI strategy in nonculprit vessels in patients with acute coronary syndrome seems to be safe With an acceptable percentage of MACE at the mid-term follow-up. And second, that patients with PCI deferral of lesions without physiological significance and patients undergoing complete revascularization show with a similar rate of cardiac adverse events at follow-up.

What are the take-home messages?

Yeah, I think that the take-home message is that it is feasible to guide PCI decision-making with the use of IFR in patients who present an acute coronary syndrome, a STEMI and NSTEMI with several revascularization and other nonculprit lesions. Using the same cut-off value that they established in the main trial, we know that the probability of suffering MACE during the followup is similar in patients in whom at least one of the lesions evaluated present an IFR higher than 0.89%, and those patients with complete revascularization.

What are the next steps?

Yes, I think that this study can be considered as a hypothesis generator. I think that isn't necessarily on a specific randomised clinical trial to confirm this result, but until we have a specific study I think that the results are very useful for the interventional cardiologists who have to take decision-making in these clinical scenario on the daily.