

Title: MULTISTARS AMI: Immediate Vs Staged PCI in STEMI and MVD

Participants: Dr Barbara Stahl

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Dr Barbara Stahl

"So my name is Barbara Stahl. I'm an interventional cardiologist at the University Hospital in Zurich and the assistant professor in coronary artery disease at the University of Zurich. And I'm very pleased and honoured to present the results of the MULTISTARS-AMI trial on behalf of the colleagues in the steering committee and all the investigators and the patients who participated.

Importance of this trial

So, MULTISTARS AMI was an international, open-label, non-inferiority randomised trial of immediate multivessel PCI versus staged multivessel PCI in patients with STEMI and multivessel coronary artery disease. So why is this important? We know that about half of patients with STEMI present with multivessel disease, so they have lesions in non-culprit arteries. And we know that these patients are at increased risk. And the trials, particularly the complete trial, have shown that complete revascularisation of these patients is superior to Culprit lesion only PCI in reducing the risk of cardiovascular death and myocardial infarction, as well as cardiovascular death, myocardial infarction and unplanned ischemia-driven revascularization but incomplete. All procedures of the non-culprit arteries were done as staged procedures and MULTISTARS-AMI was designed to investigate whether immediate revascularization of nonculprit lesions is non-inferior to staged revascularization of non-culprit lesions in these patients.

Gains linked with each strategy

The design of the study was to enrol patients with STEMI multivessel disease in stable hemodynamic conditions and they were randomised in a strategy of immediate multivessel PCI during the index procedure just after the treatment of the primary PCI. So there you have the acute infarction activation of coagulation and inflammation. And on the other side, the second strategy was a staged revascularisation of non-culprit

lesions within 19 to 45 days after the acute myocardial infarction. So there you have an elective procedure, a patient that has recovered from myocardial infarction biomarkers have normalised and we wanted to compare these two strategies.

Study design, eligibility criteria and outcome measures

Patients with acute ST-Elevation myocardial infarction within 24 hours from symptom onset were included. They needed to have multivessel coronary disease. This was defined as at least one nonculprit artery with at least 70% diameter stenosis based on visual assessment on the coronary angiogram. And they needed to be in stable hemodynamic conditions and of course needed to have a successful primary PCI.

Key Findings

When we have a look at the individual components of the primary endpoint, we saw that a strategy of immediate multivessel PCI was associated with lower rates of nonfatal myocardial infarction and unplanned ischemia-driven revascularization. Rates of stent thrombosis bleeding, acute kidney injury were comparable among the two groups. We also did a predefined subgroup analysis there. We saw consistency in the results according to age, according to sex and also according to the presence of diabetes.

How these findings should inform practice

So it's a very important finding for interventional cardiologists and for the treatment of STEMI patients with multivessel coronary artery disease. We showed with the Multistar Summit trial that immediate PCI of non-culprit lesions is non-inferior to staged multivessel PCI, so the operators and the patients can decide it's non-inferior and as I have said, it's associated with lower rates of non-fatal myocardial infarction and on planned ischemia during the vascularization and it has additional benefits. We had lower total amount of contrast agent used, a shorter fluoroscopy time and of course it's only one procedure, one arterial puncture, one revascularization, no second hospitalisation for the patients. They also don't have to worry waiting the second procedure. And I think

this is important for the little patients, but also in terms of resources and cost. Well, the next steps of course are now.

Next Steps

To better understand our results we have predefined subgroup and sub projects that we will now perform and that are ongoing. We will have a look at the extent and complexity of coronary disease, the completeness of revascularisation that was achieved. We will compare the results in women and men according to age patients with and without diabetes. And of course there are further questions then to answer in other trials such as the role of functional lesion assessment and intravascular imaging that was not addressed in this study.”