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FIRE trial Update after COMPLETE trial publication

At the recent European Society of Cardiology Congress in Paris, the final results of the Complete vs. Culprit-only Revascularization to Treat Multi-vessel Disease After Early Percutaneous coronary intervention for STEMI (COMPLETE) study has been presented and simultaneously published on the New England Journal of Medicine. This is the largest randomized clinical trial (RCT) investigating the benefit of a preventive revascularization of non-culprit lesions in patients with ST-segment elevation myocardial infarction (STEMI) and multivessel disease. The study shows a significant reduction in reinfarction and revascularization, without any effect on cardiovascular (CV) death. The main characteristics of the COMPLETE study population can be summarized as follows: mean age 62 years old, inclusion of only ST-segment elevated myocardial infarction (STEMI) patients, low mean SYNTAX score (16 overall, 4 in the non-culprit lesion), location of the non-culprit lesion in proximal left anterior descending (LAD) in around 10% of cases, non-culprit lesion treatment following intracoronary physiology in less than 1% of the cases [1]. As a consequence of the study population features, the overall rate of all cause and CV death have been relatively low, being around 5 and 3% at 3 years, respectively. Following the publication of the COMPLETE results, the Steering Committee of the FULL-REVASC trial deemed to be necessary from the ethical standpoint to temporarily pause the enrolment (https://www.ucr.uu.se/fullrevasc/). This is probably related to the overlap of the inclusion criteria between the two studies.

The Executive Committee of the FIRE trial internally discussed the results of the COMPLETE trial. Our conclusion is that the conduction of the FIRE trial is even more warranted after the COMPLETE trial results. In fact, the inclusion criteria of the FIRE trial totally differ from those of the COMPLETE trial. We are including:

- Older patients (≥75 years) who were almost not included in the COMPLETE;
- NSTEMI patients with clearly identifiable culprit lesion. This is due to the fact that in older patients NSTEMI is the most frequent clinical presentation of MI;
- Patients with higher anatomical and clinical complexity. This population can highlight the benefit of a functionally driven complete revascularization compared to an angio-based one reducing the risk of inappropriate PCI and periprocedural complications.

The FIRE trial population is actually undertreated in terms of receiving coronary artery angiography and suffers from the worse prognosis [2,3]. The need of clarifying if COMPLETE findings can be translated also to a different population such as older MI patients strongly supports the conduction of the FIRE trial. The same editorial of the COMPLETE trial published on the NEJM affirms that **"patients participating in trials are different from sicker patients seen in the clinical setting, and extrapolation of the results to patients with a greater risk of complications may not be safe [4]"**. The FIRE trial will contribute to fill this gap.

The Executive Committee of the FIRE trial

References

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