



RESEARCH TOPIC MEM27

SGLT-2 inhibitors and coronary artery disease progression after an acute coronary syndrome in patients with diabetes mellitus

MECM Standard

Research Area

Cardiology

Laboratory name

Cardio Center

Research Supervisor

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Abstract

Background: despite advancements in percutaneous coronary revascularization strategies, up to one fifth of patients with acute myocardial infarction (AMI) undergoing primary percutaneous coronary intervention (PCI) require a repeat revascularization within the following 3 years. Diabetes mellitus has been described as one of the main clinical determinants of myocardial revascularization failure, due to an increased atherosclerotic burden related to lipid metabolism dysregulation, endothelial dysfunction and chronic inflammation. Thus, tailored therapeutic approaches to stabilize vulnerable plaques in diabetic patients are highly desired.

Recently, sodium-glucose cotransporter 2 inhibitors (SGLT2i) have been shown to consistently improve cardiovascular prognosis in patients suffering from ischemic heart disease, although the mechanisms mediating such therapeutic benefit remain unclear. Interestingly, the use of SGLT2i has been associated with a reduction of ischemic events in patients with established atherosclerotic vascular disease and retrospective evidence suggested a potential effect on atherosclerotic plaque stabilization.

Objective: To evaluate the effect of SGLT2i on coronary plaque stabilization in diabetic patients after an AMI.

Methods: A multicenter randomized controlled trial will be performed. A total of 300 diabetic patients will be enrolled at 9 participating Institutions after an AMI treated with successful PCI.

Included subjects will be randomly allocated to receive a SGLT2i (empagliflozin, dapagliflozin or canagliflozin) on top of optimal antidiabetic therapy or optimal antidiabetic therapy excluding SGLT2i, in a 1:1 fashion. Randomization will be performed prior to hospital discharge, and will be stratified by sex with a prespecified target of 50% of women included. All patients will undergo a coronary computed tomography angiography (CCTA) at baseline (within 2 weeks after the AMI) and after 12 months follow-up. The primary endpoint will be



the change in coronary percent atheroma volume (PAV), assessed by CCTA, from baseline to 12 months of follow-up.

Expected results.

We expect to demonstrate an effect of coronary plaque stabilization associated with SGLT2i when administered for secondary prevention in diabetic patients after an AMI

Main technical approaches

Basic knowledge in biostatistics, experience in clinical research.

Type of contract

Scholarship of € 24.500 gross per year awarded by Istituto Clinico Humanitas. This sum is subject to IRPEF income tax and exempt from social security contributions.

Borsa di studio pari a € 24.500 annui lordi erogata da Istituto Clinico Humanitas. Importo soggetto a tassazione IRPEF ed esente da contribuzione previdenziale.

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