



FONDAZIONE  
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MENARINI

Press Release

**Doctors and researchers are coming close to understanding the different origins of ischaemia and infarction**

**ROME, 10 JULY 2017** – Despite the progress made in recent decades, coronary diseases remain the number one killer. Although we have effective drugs for reducing the damage of infarction, further research is necessary for understanding the various causes of coronary diseases, first and foremost, hypertension and cholesterol, but also inflammation. It is however surprising that even with this strong epidemiological evidence, public and private funding for supporting research into the causes and treatment of coronary diseases has been progressively reduced over recent years. It was with these considerations in mind that the international Symposium entitled “Ischemic heart disease: the main cause of morbidity and mortality worldwide. What can we improve?” was held in Rome, organised by Professor Filippo Crea, Director of the Pole of Cardiovascular and Thoracic Sciences of the Fondazione Policlinico Universitario Agostino Gemelli and promoted by the Fondazione Internazionale Menarini.

“The aim of the Symposium was to define the guidelines of the most promising research for reducing mortality caused by coronary diseases” explains Crea. “In particular, the causes of infarction were discussed in the light of the fact that what seemed to be a single disease is instead caused by various mechanisms that all require different therapies,. This important conceptual innovation has been made possible thanks to the imaging technologies, in particular, OCT. This is a technology that allows for “exploring” inside our patients’ coronaries with a resolution similar to that of a microscope”.

OCT stands for “Optical Coherence Tomography” and it exploits the physical characteristics of the light waves, transforming the interaction between the electromagnetic waves and the various structures making up the arteries and the atherosclerotic plaque into images. Its most important feature is that it allows us to see inside the artery: the OCT analysis is performed by inserting a probe into the coronary artery through a normal angioplasty catheter, which then scans the entire artery extremely rapidly. Thanks to its very high resolution power, 10 microns, compared to the 200 or 600 microns of the coronarography or the coronary CAT, the OCT makes it possible to view the structures comprising the artery walls or the

atherosclerotic plaque with much greater precision than the current so-called “imaging” techniques. In fact, the OCT allows us to look inside a beating heart in real time and see things that would otherwise only be visible under the microscope.

During the course of the Symposium the role of the alterations of the coronary microcirculation was also addressed. In recent years great scientific interest has focussed on the study of the physiopathology of the small coronary vessels. Structural and functional alterations of the microcirculation may explain the onset of myocardial ischaemia in various clinical situations, ranging from ischaemic cardiopathy to structural cardiopathies.

“This important conceptual innovation has been possible thanks to the new technologies which now make a functional exploration of the coronaries possible and which have documented cases in just on half of the patients of angina, infarction and heart failure that were not caused by coronary obstructions “visible” under the coronarography, but instead by alterations to the coronary microcirculation”, continues Crea. “Therefore, a great number of patients who were suffering from an “invisible” coronary disease eluded diagnosis. More and more often, in patients in whom the smaller vessels are obstructed, we are discovering that the dysfunctions of the coronary microcirculation were already in existence before the infarction. These therefore, are the cause of a non-positive prognosis”.

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