

## INTERVENTIONAL CARDIOLOGY

**Person-in-charge: Gianluca Campo**

**Location: Ferrara University Hospital**

*5 interventionists*

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### Haemodynamic

The Interventional Catheterization Laboratory of the University Cardiology Centre is located in the Ferrara University Hospital and it is the only one for the entire Province of Ferrara. Three spoke hospitals send their patients daily for elective and urgent procedures through a well-established service strategy. Five full-time interventional Cardiologists provide the 24/7 primary PCI service and execute all the urgent and elective coronary artery angiograms and PCI. For structural interventions, two experienced and certified operators perform all the TAVI procedures for the province of Ferrara at the Sant'Orsola Hospital in Bologna where a cardiac surgery is onsite. Other interventions performed onsite are patent foramen ovalis occlusion, balloon aortic valvuloplasty and renal denervation.

The annual volume of procedures is around 350 for primary PCIs and around 1250 for overall PCIs (in the Italian top 10 for both).

Most of the patients are urgent and their clinical presentation is as acute coronary syndrome. The usual patient is old and with complex coronary disease and comorbidities since Ferrara is one of the oldest Italian provinces.

For these reasons, the main lines of research are:

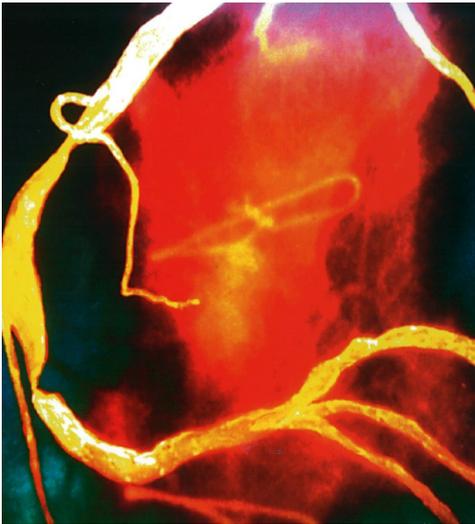
- A. Optimization of revascularization strategy in older MI patients ([www.theFIREtrial.com](http://www.theFIREtrial.com)).
- B. Optimization of physical activity strategy in older MI patients (NCT04183465).
- C. Frailty identification and treatment in older patients undergoing invasive procedures.
- D. Implementation of new technologies to facilitate a physiology-guided and more precise PCI (virtual PCI planning with angiography-based FFR, NCT04664140 presented as LBT at EuroPCR 2022).
- E. Identification and treatment of the responsible for the reperfusion injury damage during acute myocardial infarction.

In addition, under the responsibility of Prof Ferrari and Prof Campo, a rather unique link between clinical and basic research has been successfully initiated. Clinical cardiology provides liquid and solid biopsies to be analysed in the Basic Science Lab and the outcome is, whenever possible, tested in the clinic. The main line of research in this context are:

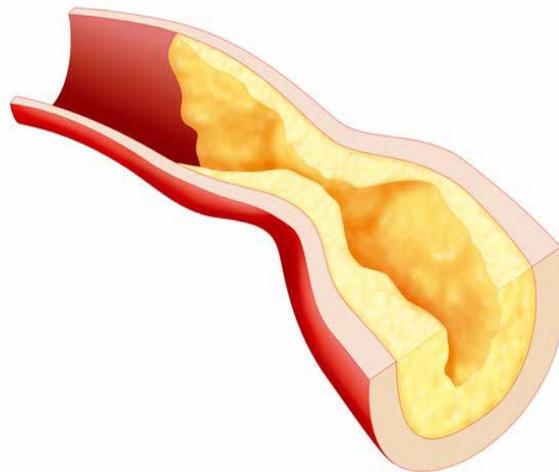
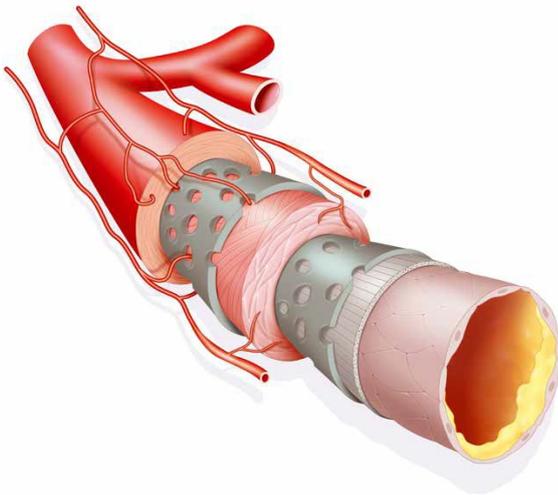
- a) The role of regulation of the mitochondrial  $\text{Ca}^{2+}$  pore on post-ischaemic reperfusion damage;

- b) The mechanism of progression of atherosclerosis in patients with ischaemic heart disease by studying life (*regeneration*) and death (*apoptosis*) of the human endothelial coronary arteries;
- c) The role of NOTCH transducing system in determining life and death of endothelial and heart cells of patients with either coronary artery disease and heart failure;
- d) Reconstruction of human coronary arteries with 3D scanner technology;

### Coronary Atherosclerosis



### Coronary Artery Spasm



**Cath-lab entrance**



**Main cath-lab**



**Imaging and audio room extended from the cath-lab**

