

## **Agreement with Fractional Flow Reserve and IFR in patients with heart failure and reduced ejection fraction: The TIRED Heart study**

**Introduction.** In patients with heart failure and depressed ejection fraction, coronary flow reserve may be reduced, due to elevated left ventricle pressure, impaired endothelial dependent response to nitrates and to increase of fibrosis. Adenosine, exploited by Fractional Flow Reserve (FFR), involves mainly the pathway of nitrates to induce vasodilation, and accuracy of FFR in this setting remains to be tested, especially when compared to an iFR based approach, not related to adenosine (1,2).

**Methods.** All consecutive patients with a reduced ejection fraction (less than 35%) and at least one lesion at coronary angiography between 50% and 90% will be tested with FFR (bolus or infusion according to local protocols) and iFR. Agreement between these two methods represents the primary end point.

**Sample size:** given the pivotal design of the study, no sample size calculation is needed. Up to 50 patients will be enrolled.



## REFERENCES.

- 1- Tsagalou EP<sup>1</sup>, Anastasiou-Nana M, Agapitos E, Gika A, Drakos SG, Terrovitis JV, Ntalianis A, Nanas JN. Depressed coronary flow reserve is associated with decreased myocardial capillary density in patients with heart failure due to idiopathic dilated cardiomyopathy. *J Am Coll Cardiol.* 2008 Oct 21;52(17):1391-8.
- 2- Mustafa SJ, Morrison RR, Teng B, Pelleg A. Adenosine receptors and the heart: role in regulation of coronary bloodflow and cardiac electrophysiology. *Handb Exp Pharmacol* 2009;193:161–88