

Coronary Physiology in 2018

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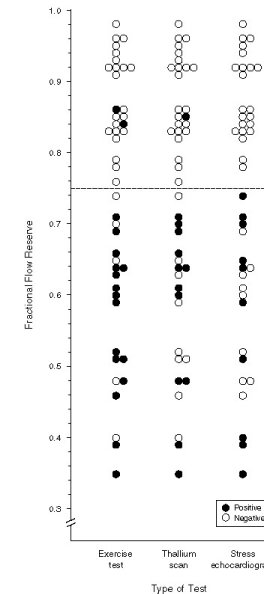
President of Union of European Medical Specialists, Cardiac Section

FFR: 20 years ago

FFR

ischaemia diagnosis in the cath lab: one stop shop

- FFR corelates well with Spect and thus can diagnose ischaemia in the cath lab.
- 45 patients



How things have evolved afterwards:

FFR in SCAD

Randomized studies and Registries

- Randomized studies
 - DEFER
 - FAME
 - FAME II
 - FUTURE
- Prospective Registry
 - IRIS-FFR

Clinical utility of FFR:

FROM

AN INDEX DIAGNOSING ISCHAEMIA IN CATH LAB AND REPLACING INTO SOME
EXTEND THE UTILITY OF MYOCARDIAL FUNCTION TESTS

TO

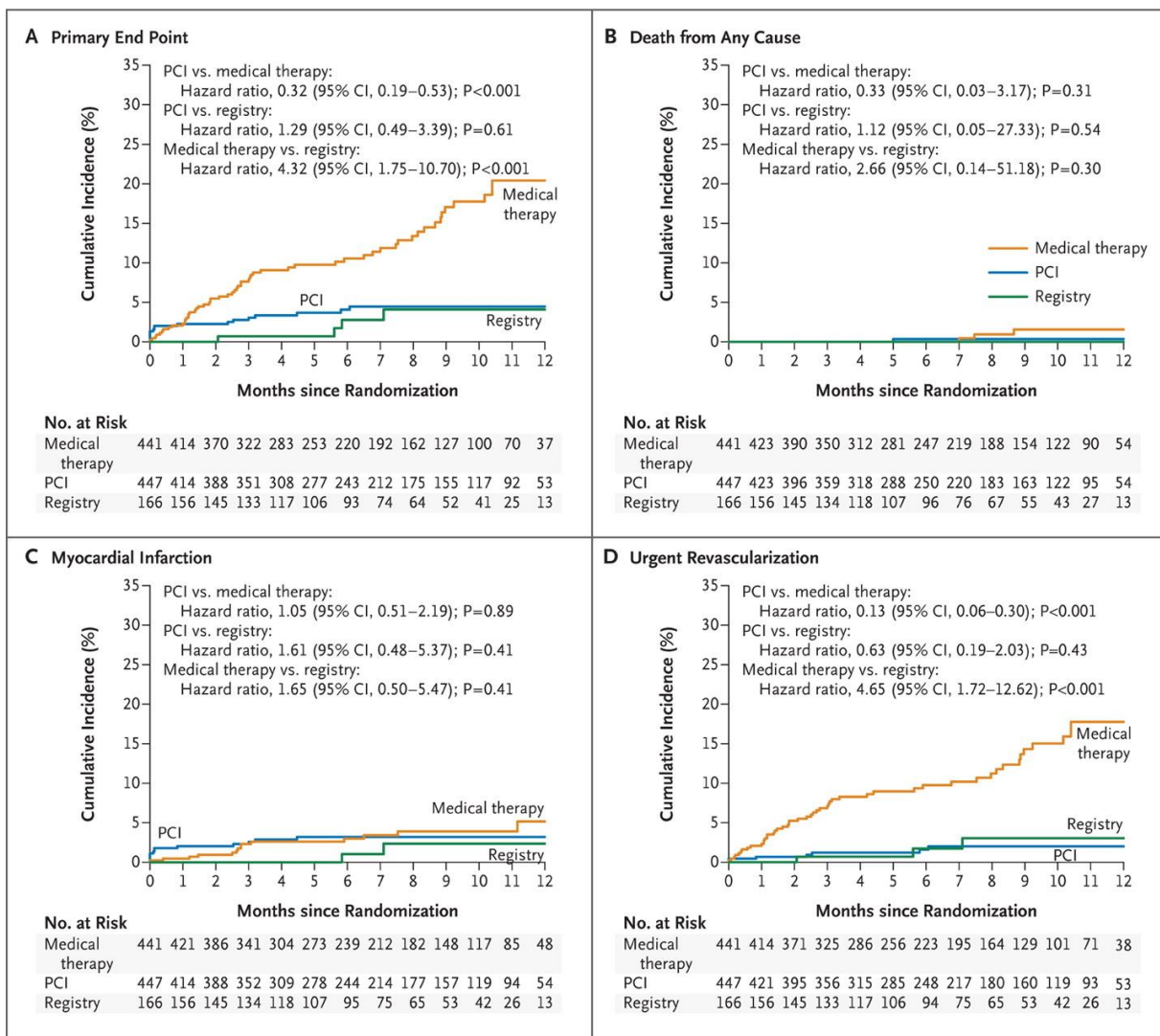
A PREDICTOR OF FUTURE EVENTS

FAME II STUDY: 24 MONTHS FOLLOW-UP:

Can really significant lesions (FFR<0.80) be treated with OMT only?

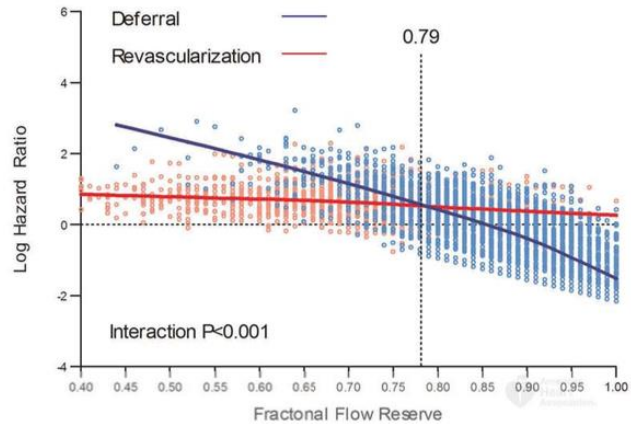
Patients with FFR<0.80 are benefited from PCI due to less urgent ReVasc

Patients with FFR>0.80 do well on OMT

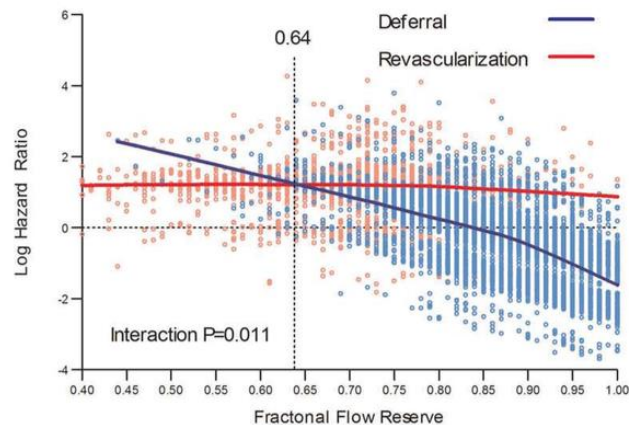


IRIS FFR REGISTRY

(A) Major Adverse Cardiac Events



(B) Cardiac Death or Myocardial Infarction



The largest prospective, multicenter registry of FFR
“risk continuum” for FFR in deferred coronary stenoses.

FFR < 0.79 PCI reduces possibility of revasc

FFR ≤ 0.64 , PCI reduces possibility of death of MI

FFR < 0.76 reasonable to perform PCI

Independent predictors of clinical events in deferred

FFR,

Imaging characteristics

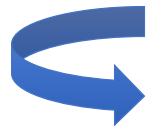
- thrombus-containing lesion,
- multivessel coronary artery disease, and
- percent diameter stenosis.

FFR in SCAD

- FFR can diagnose ischaemia
- FFR can predict future events helping thus clinical decision making in SCAD patients

Clinical use of FFR

- FFR < 0.80



PCI with DES reduces the risk of revasc (urgent and non)

- In patients with MVD we can decide which artery should be treated based upon FFR (<0.80)

- FFR < 0.64



PCI with DES reduces the risk of death or MI

Use of FFR in the everyday clinical practice

- FFR in <20% of the selective PCIs
 - Possible reasons
 - Financial cost (
 - Prolongation of the procedure
 - Adenosine administration (cost and side effects)
- Alternative to FFR methodologies
 - BASED UPON PHYSIOLOGY
 - iFR
 - STAND ALONE IMAGING
 - Coronary angiography
 - IVUS (virtual histology)
 - OCT
 - IMAGING COUPLED WITH PHYSIOLOGY
 - FFRct
 - vFAI
 - ESS

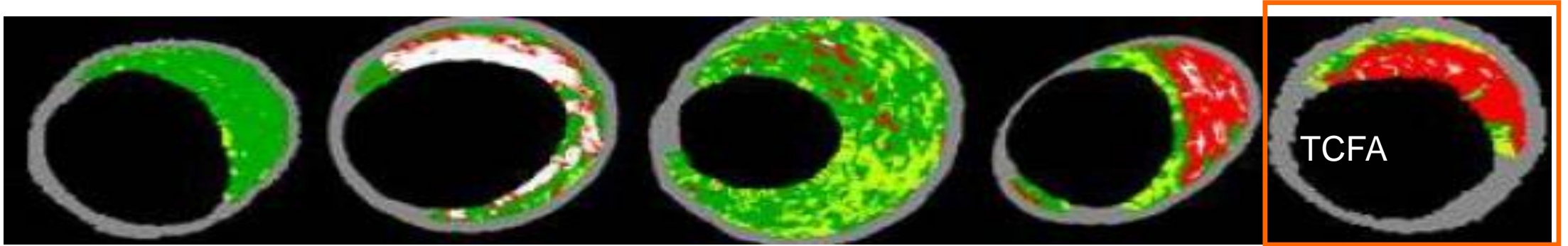
iFR: Index with similar to FFR philosophy BUT without the need of adenosine

- Deferral of revascularization is equally safe with both iFR and FFR
 - 1 year MACE rate of deferred lesions around 4%
 - 1 year MACE rate of deferred lesions higher in ACS compared to SCA pts (5.91% vs 3.64%)
- Advantages of iFR vs FFR
 - No need of adenosine
 - Cost
 - Side effects
 - ? Better accuracy in predicting severity of tandem lesions

Stand alone imaging

- IVUS and Virtual Histology
- OCT
- 3D coronary angiogram

PROSPECT STUDY



Independent predictors of lesion level events by logistic regression analysis

<u>Variable</u>	<u>OR [95% CI]</u>	<u>P value</u>
$PB_{MLA} \geq 70\%$	4.99 [2.54, 9.79]	<0.0001
VH-TCFA	3.00 [1.68, 5.37]	0.0002
$MLA \leq 4.0 \text{ mm}^2$	2.77 [1.32, 5.81]	0.007
Lesion length $\geq 11.6 \text{ mm}$	1.97 [0.94, 4.16]	0.07
$EEM_{MLA} < 14.3 \text{ mm}^2$	1.30 [0.62, 2.75]	0.49

