

ESC CONGRESS HIGHLIGHTS



GLOBAL SCIENTIFIC ACTIVITIES



IMAGING

Fausto J Pinto, FESC
Lisbon University, Portugal

Thanks to V. DELGADO (Leiden, NL)



CONTENTS

○ **Coronary artery disease**

- Greenwood (GB) «CE-MARC 2 trial»
- Chang (KR) «CONSERVE trial»

○ **Fusion imaging**

- Fernández-Friera (ES) «PET/MRI»
- Pazhenkottil (CH) «SPECT/CT»

○ **Impact on decision making**

- De Garate (GB) «Impact of CMR»
- Biering-Sørensen (US) «Impact of Echo»



CORONARY ARTERY DISEASE



Prognostic implications of stress-CMR vs. MPS and NICE guidelines in patients with suspected CAD

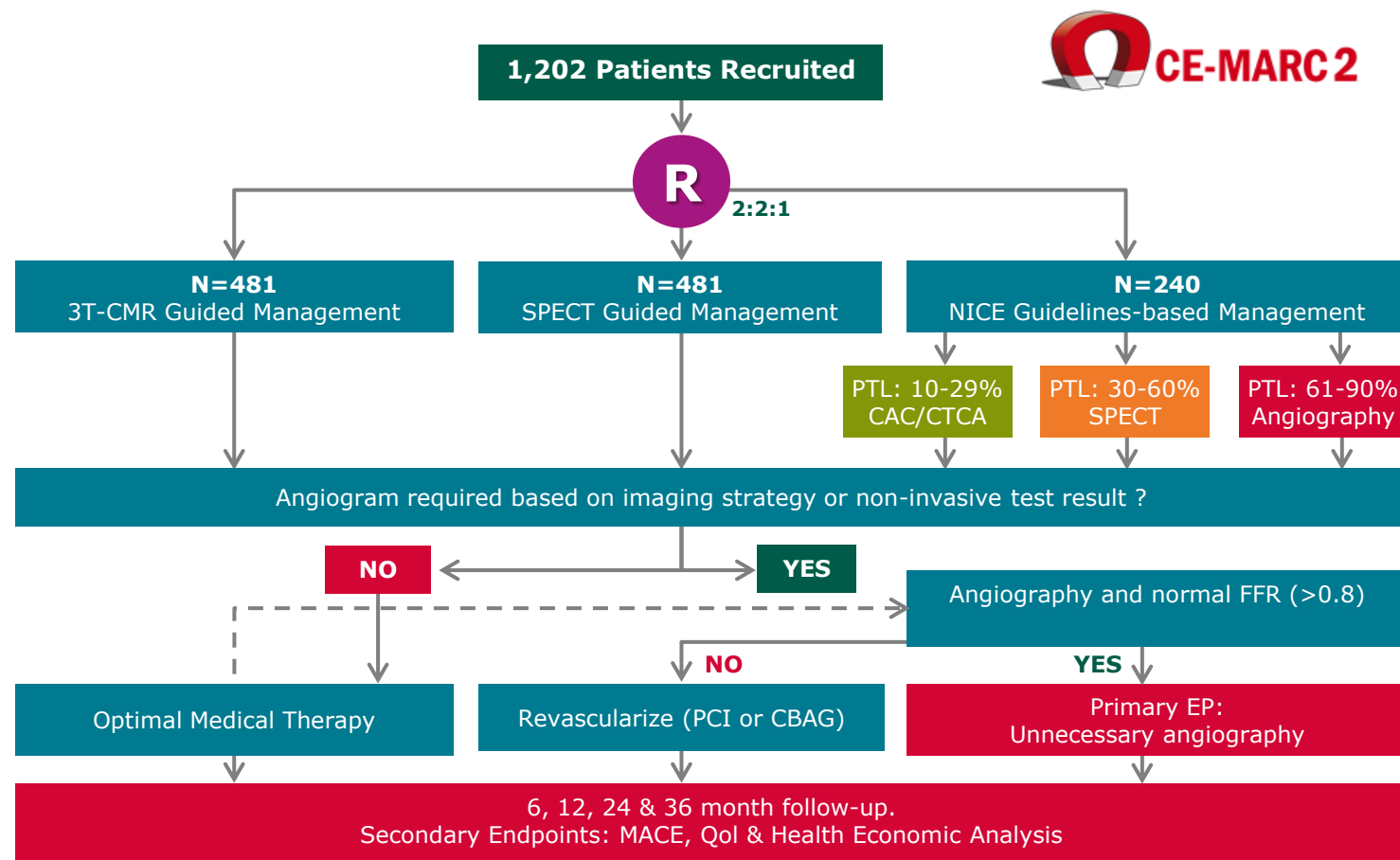
Design:

- N=1,202 patients
- 3T CMR stress guided care vs. current best clinical practice

Hypothesis:

Stress CMR-guided management of patients with suspected CAD is **superior** to current best clinical practice*

- avoiding unnecessary coronary angiography
- patient outcome

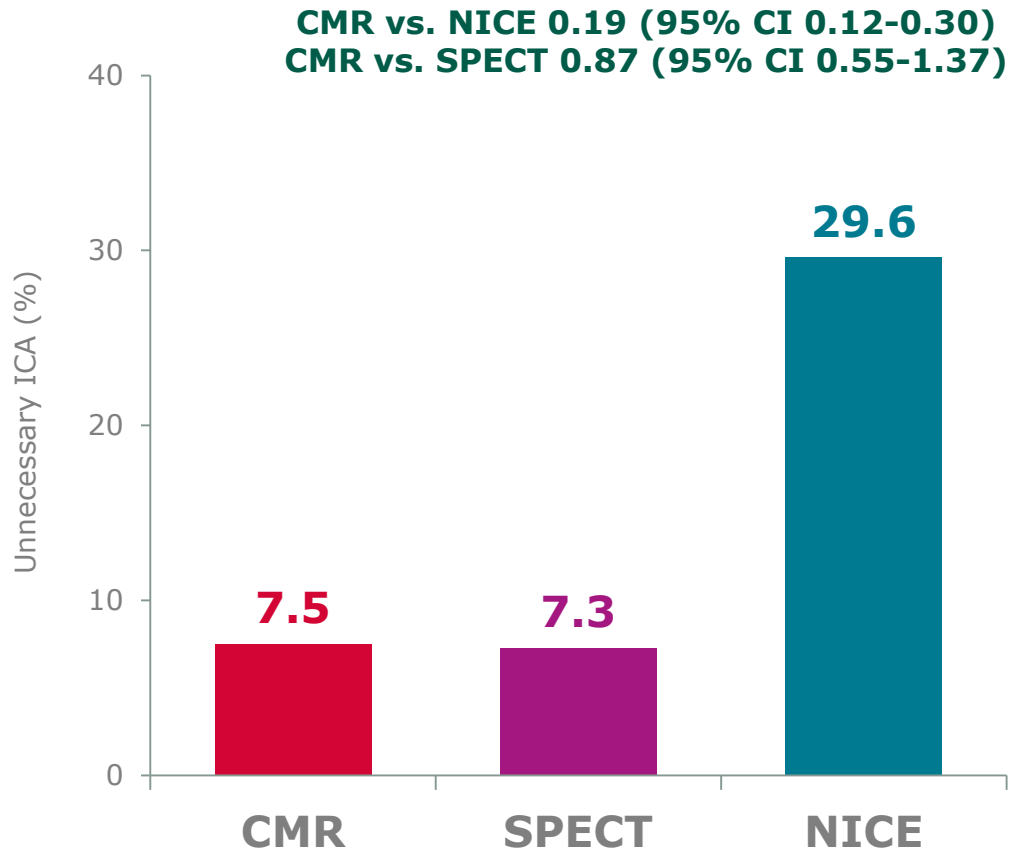


J. Greenwood (Leeds, UK), FP 4154

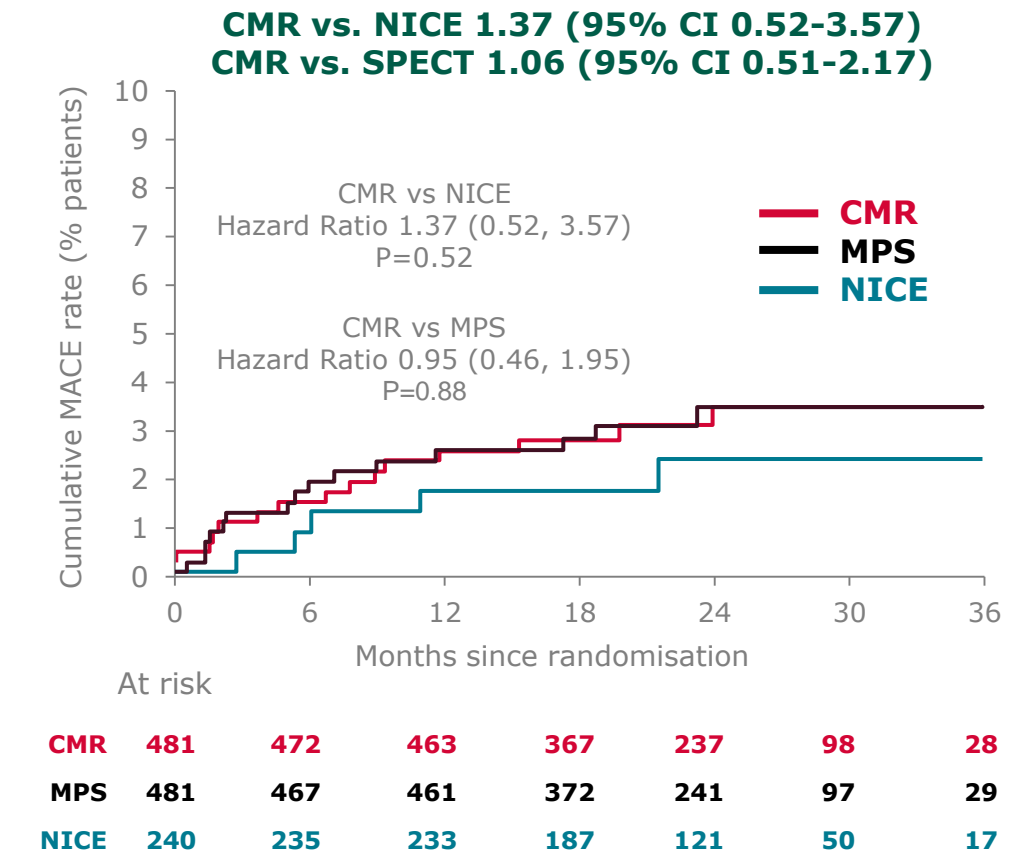


CE-MARC 2: results

Adjusted OR of unnecessary ICA



Adjusted HR for MACE



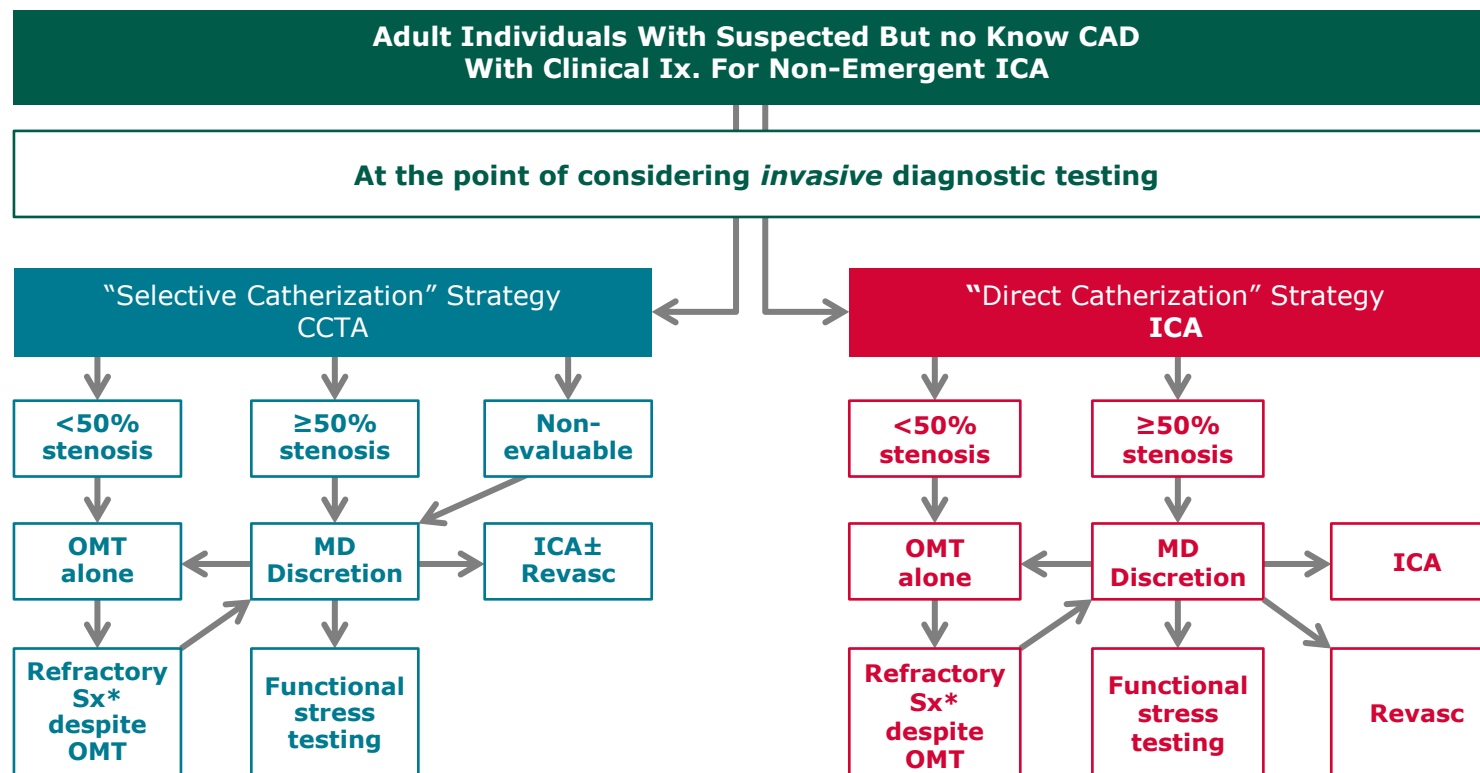
J. Greenwood (Leeds, UK), FP 4154



Coronary CTA for selective ICA: effect on cardiovascular outcomes, cost-effectiveness and quality of life



- **Design:**
N=1,500 patients
- **Hypothesis:**
CCTA –guided management compared to ICA:
 - ➔ Non-inferior for MACE
 - ➔ Serious test-related complications
 - ➔ Cost



H. J. Chang (Seoul, KR), FP 4148



CONSERVE: results

MACE

Median follow-up period: 12.3 months
(IQR, 117 – 13.2 months)

N = 36
(4.6%)

N = 33
(4.6%)

**Selective
referral**

**Direct
referral**

Per-patient	Direct ICA	Selective ICA	P value
ICA (Index + Downstream)	1.02	0.22	<0.001
-78% reduction			
Revascularization	0.17	0.10	<0.001
-41% reduction			
Non-invasive testing (Index + Downstream)	0.15	1.17	<0.001
Non-invasive testing (Downstream)	0.15	0.17	0.27
CV hospitalizations	0.04	0.04	0.95
Outpatient visits	3.04	2.82	0.018
Cardiovascular Costs* (USD)	6,740	3,338	<0.001
-50% reduction			

H. J. Chang (Seoul, KR), FP 4148



FUSION IMAGING



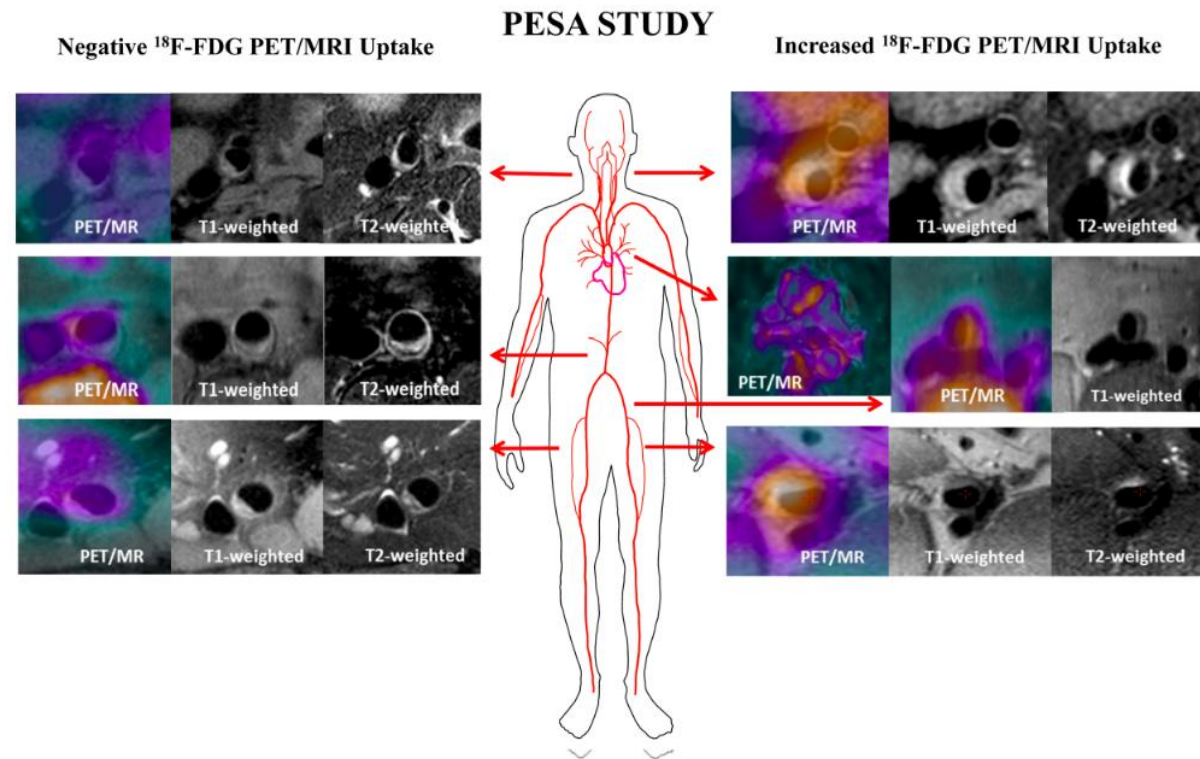
PET/MRI for multiterritorial evaluation of subclinical atherosclerosis

- **Design:**

- N= 938 asymptomatic patients

- **Hypothesis:**

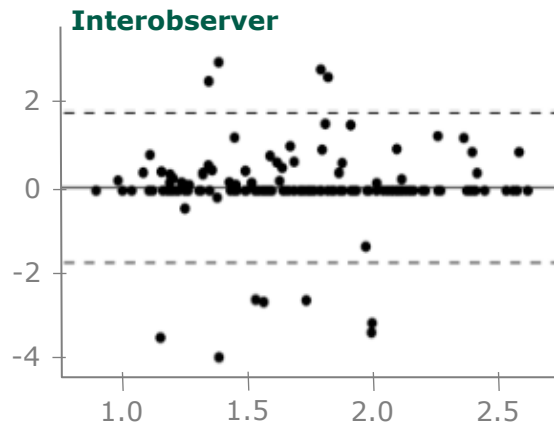
- To assess the feasibility and reproducibility of hybrid ^{18}F -FDG PET/MRI to characterize plaque burden, composition and inflammation in multiterritorial evaluation of subclinical atherosclerosis



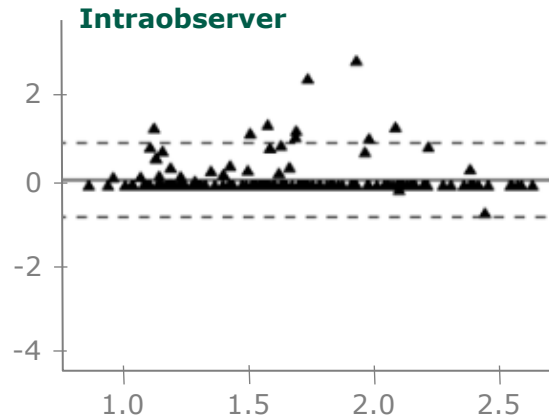
Fernández-Friera (Madrid, Spain) P518

- **Feasibility:** Analysis of 18F-FDG PET/MRI was feasible in 842 (89.7%) studies (5.9% of which were incomplete, mainly lacking carotid imaging).

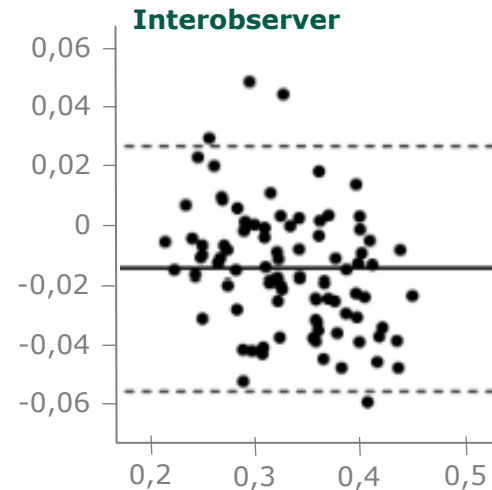
- **Reproducibility:**



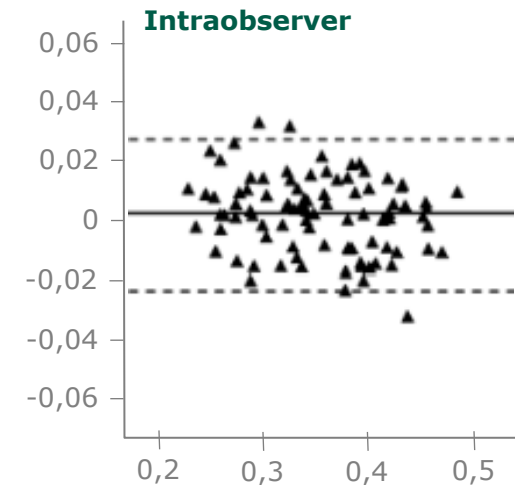
MeanTBRmax
(Observer 1 + Observer 2/2)



MeanTBRmax
(Measurement 1 + Measurement 2/2)



Index wall volume
(Observer 1 + Observer 2/2)



Index wall volume
(Measurement 1 + Measurement 2/2)

Fernández-Friera (Madrid, Spain) P518



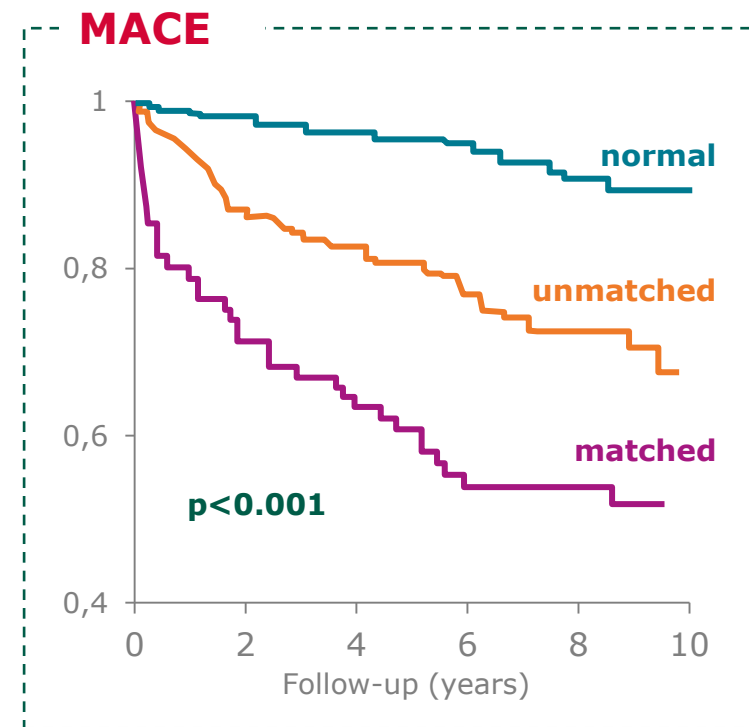
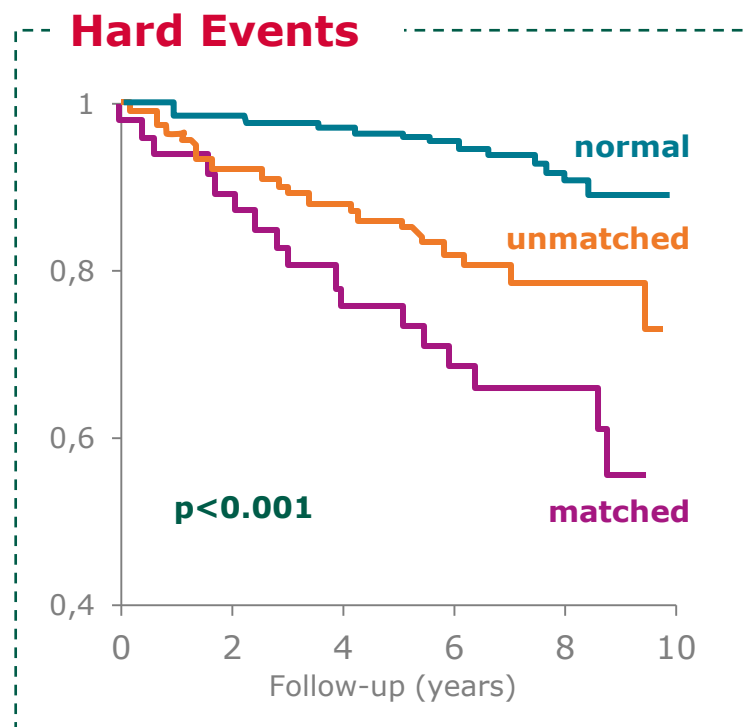
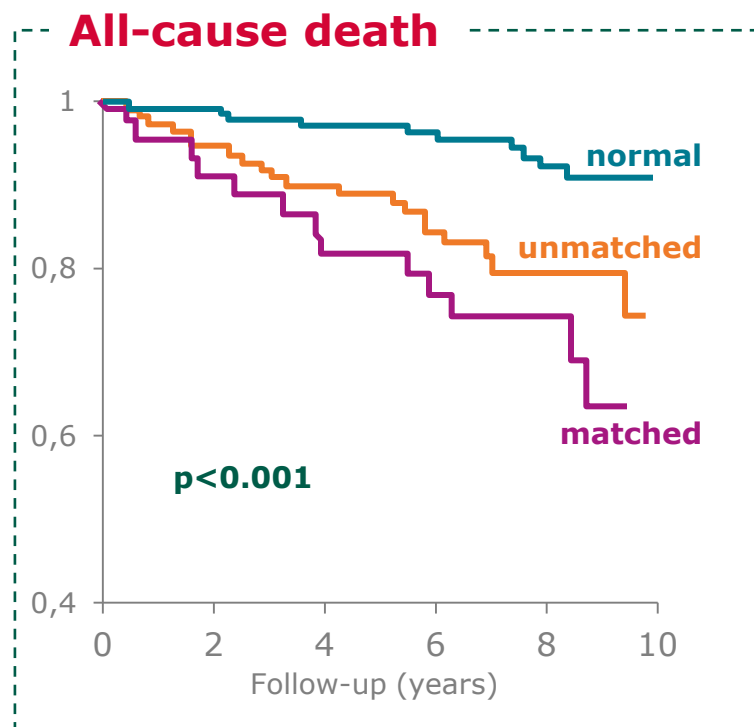
Long-term prognostic value of hybrid CTCA/SPECT

- **375 patients**
- **N = 216** → Normal finding by CCTA and SPECT-MPI
- **N = 113** → Unmatched CCTA and SPECT-MPI
- **N = 46** → Stenosis by CCTA and **matching** reversible perfusion defect by SPECT-MPI



Pazhenkottil (Zurich, Switzerland) P517

During a median follow-up of 6.8 years, 45 patients died, there were 19 myocardial infarctions and 160 MACE



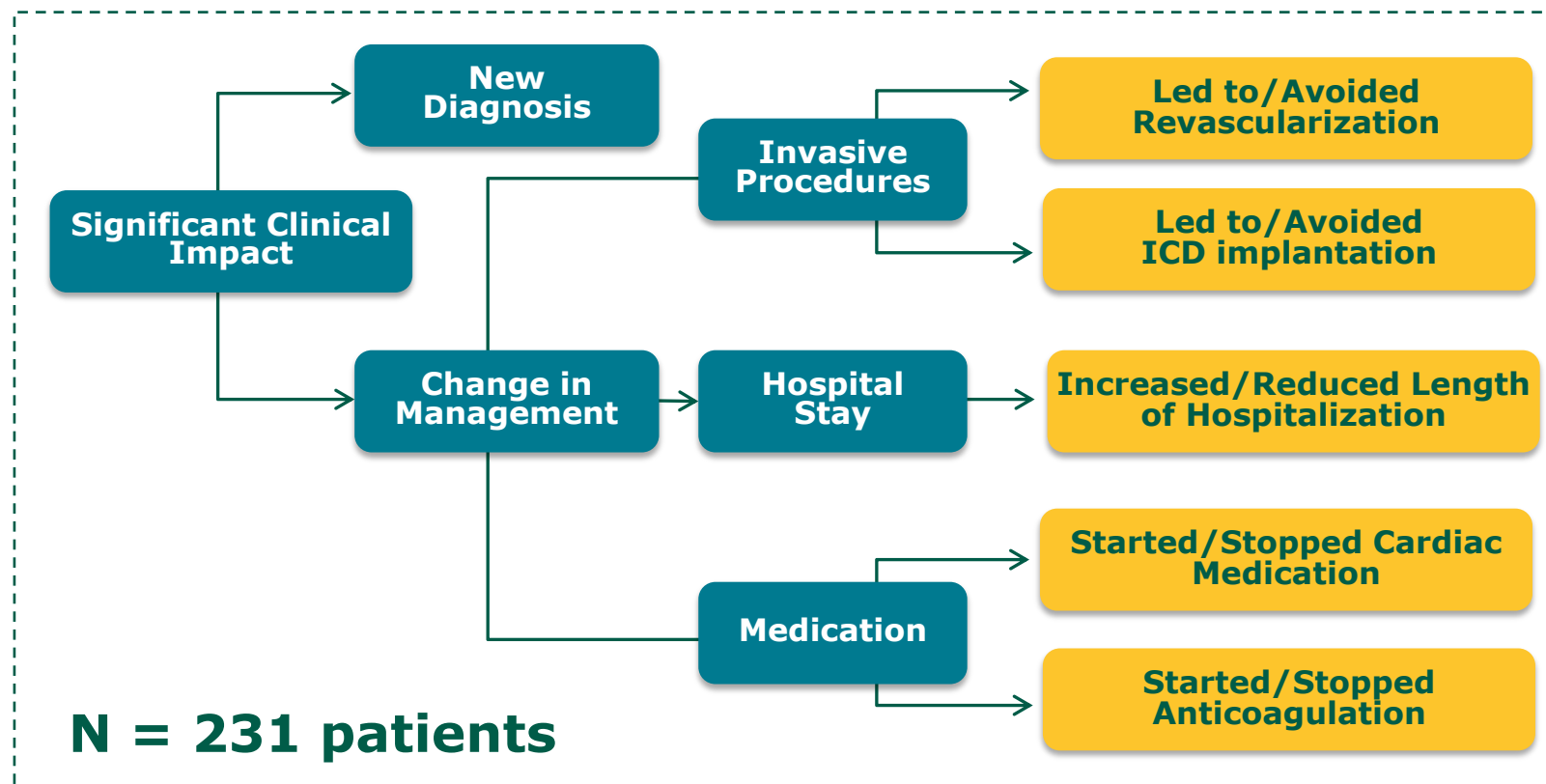
Pazhenkottil (Zurich, Switzerland) P517



IMPACT ON DECISION MAKING

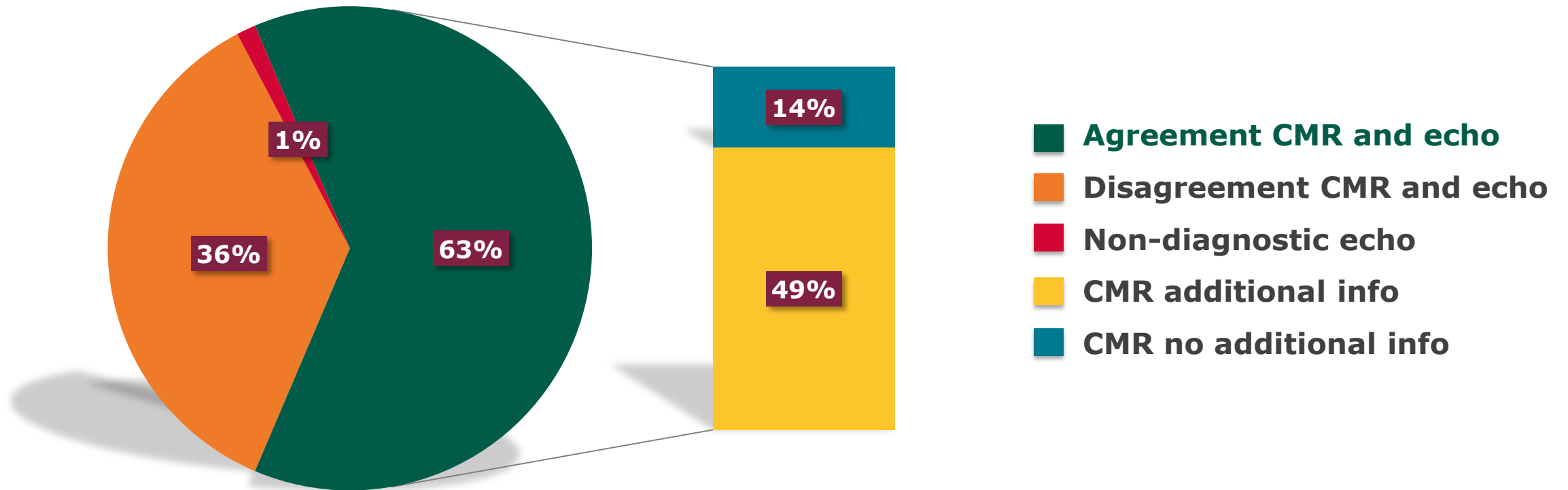


Complementary role of echocardiography and CMR in the management of patients admitted to cardiology



De Gárate (Bristol, United Kingdom) 1078





○ **CMR had a significant clinical impact:**

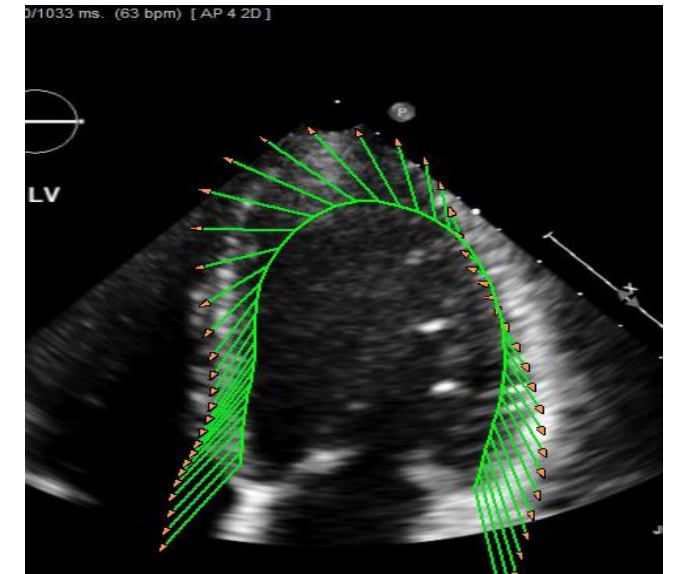
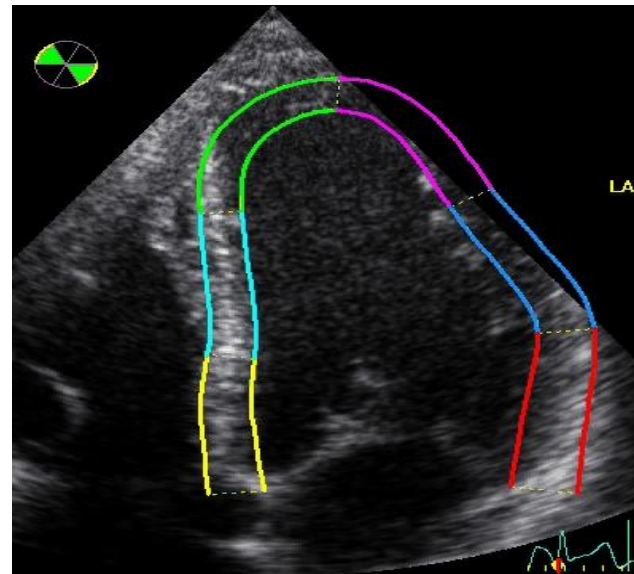
- completely new diagnosis in 27% of patients
- change in management in 31%
- new diagnosis and a change in management in 10% of patients

De Gárate (Bristol, United Kingdom) 1078



Global LV longitudinal strain as a predictor of atrial tachyarrhythmias in HFREF

- AF is associated with increased mortality in HFrEF patients
- LV systolic and diastolic dysfunction may lead LA remodeling
- Can global LV longitudinal strain predict the risk of AT in HFrEF?



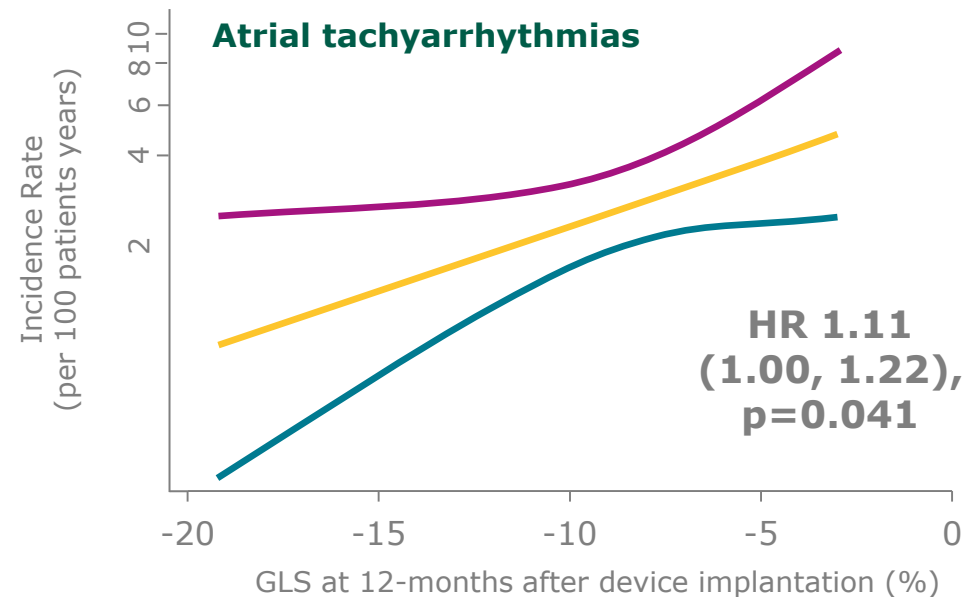
Biering-Sørensen (Boston, US) 1892



Global LV longitudinal strain as a predictor of atrial tachyarrhythmias in HFREF

- Of 1820 patients enrolled in MADIT-CRT, speckle tracking echocardiography at 1 year follow-up was feasible in 807 patients.
- After a median follow-up of 2.2 years, 43 (5%) AT events

Whole cohort (CRT+ICD) (n=807)



Biering-Sørensen (Boston, US) 1892



- **Non-invasive imaging for evaluation of patients with suspected CAD results in lower rates of ICA without stenosis, lower cost and similar prognosis than direct ICA approach**
- **Fusion imaging is promising**
- **CMR and advanced echocardiographic techniques may impact decision making in patients with heart disease**

