

BIELLA CUORE

2025



12-13
SETTEMBRE 2025
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RMN nello studio della vitalità miocardica: the right way?

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Appropriate use criteria for cardiovascular magnetic resonance imaging (CMR): SIC—SIRM position paper part 1 (ischemic and congenital heart diseases, cardio-oncology, cardiac masses and heart transplant)

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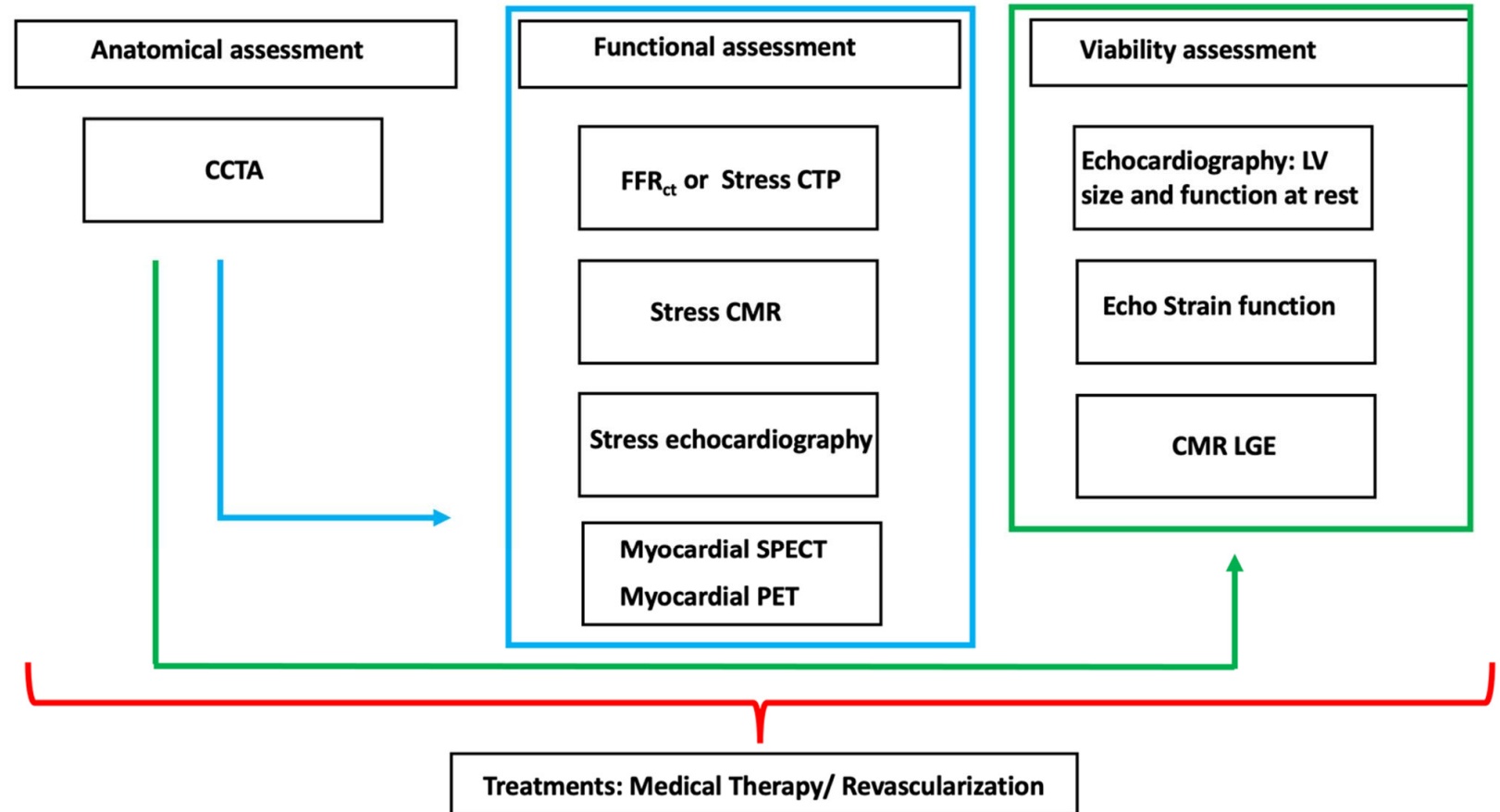
Table 1 Clinical recommendations for ischemic heart disease

Clinical setting	Diagnostic step	Recommendation	Report key-points
Stable chest pain in patients without history of revascularization	1st diagnosis	C	Detection of origin and proximal course of coronary arteries Evaluation of stenosis of proximal segments of coronary arteries
Stable chest pain in patients without history of revascularization	1st diagnosis	A	Detection of perfusion defects Detection of wall motion abnormalities Scar imaging Prognostic stratification
Stable chest pain in patients with previous history of revascularization and/or previous myocardial infarction	Follow-up	A	Detection of perfusion defects Detection of wall motion abnormalities Scar imaging for viability Prognostic stratification
Screening in asymptomatic patients with previous history of revascularization	Follow-up	C (CMR recommended 3 years after PCI and 5 years after CABG)	Detection of perfusion defects Detection of wall motion abnormalities Scar imaging Detection of viability in case of previous myocardial infarction
Acute myocardial Infarction	1st diagnosis	B (CMR following revascularization)	Evaluation of left and right ventricle function Evaluation of area at risk and myocardial hemorrhage Evaluation of microvascular obstruction and necrotic area Post-infarction complications Prognostic stratification
Acute myocardial infarction	Follow-up	C	Evaluation of left and right ventricle function Evaluation of scar extent Post-infarction complications Prognostic stratification

Review

Multimodality Imaging in Ischemic Chronic Cardiomyopathy

Giuseppe Muscogiuri ^{1,*}, Marco Guglielmo ², Alessandra Serra ³, Marco Gatti ⁴, Valentina Volpato ⁵, Uwe Joseph Schoepf ⁶, Luca Saba ³, Riccardo Cau ³, Riccardo Faletti ⁴, Liam J. McGill ⁶, Carlo Nicola De Cecco ⁷, Gianluca Pontone ⁸, Serena Dell'Aversana ⁹ and Sandro Sironi ^{10,11}

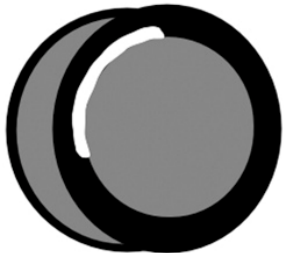


C'È DANNO MIOCARDICO / FIBROSI?

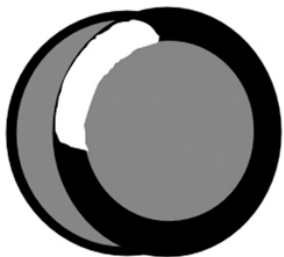
HYPERENHANCEMENT PATTERNS

Ischemic

A. Subendocardial Infarct

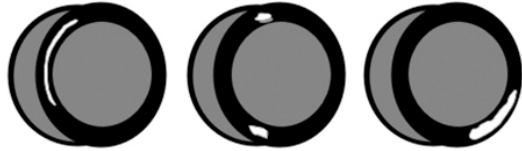


B. Transmural Infarct



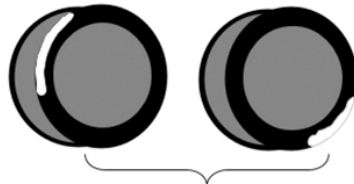
Nonischemic

A. Mid-wall HE



- Idiopathic Dilated Cardiomyopathy
- Myocarditis
- Hypertrophic Cardiomyopathy
- Right ventricular pressure overload (e.g. congenital heart disease, pulmonary HTN)
- Sarcoidosis
- Myocarditis
- Anderson-Fabry
- Chagas Disease

B. Epicardial HE

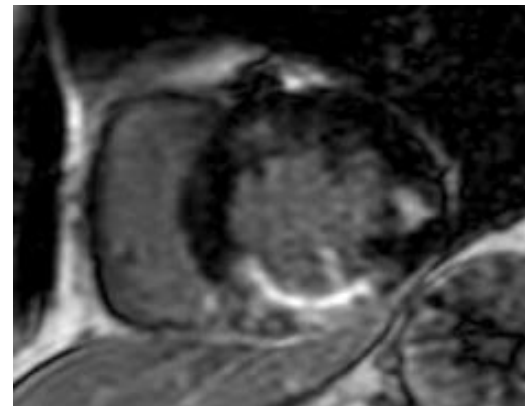
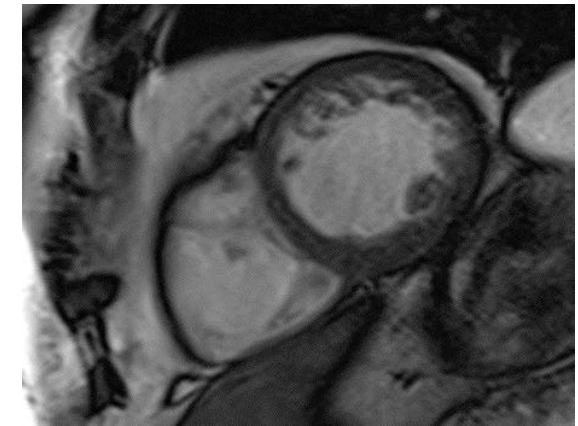
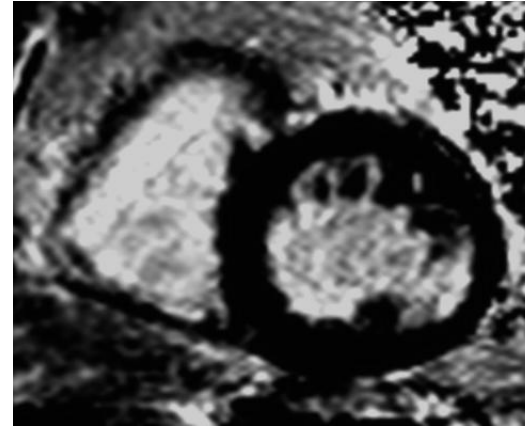


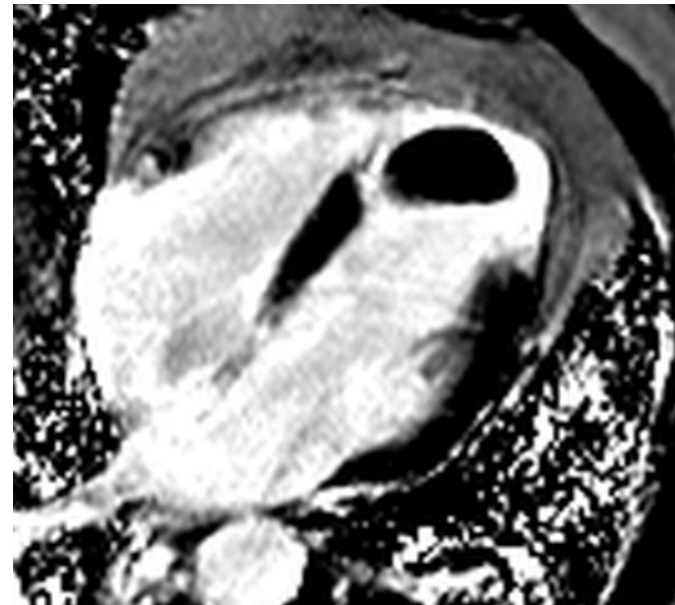
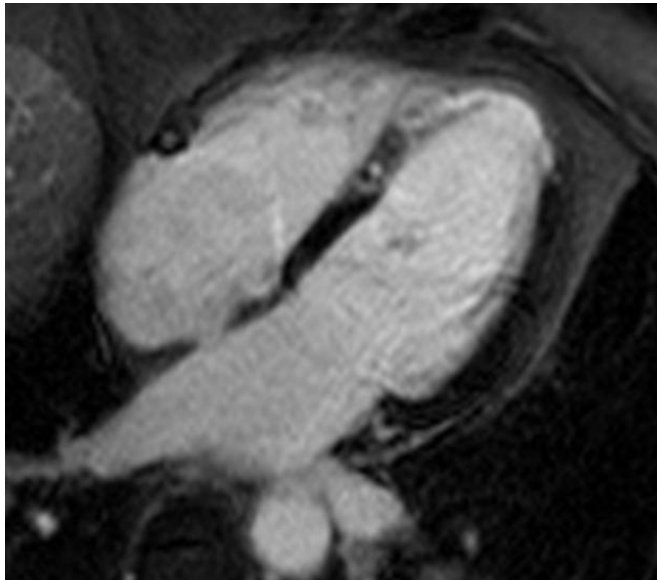
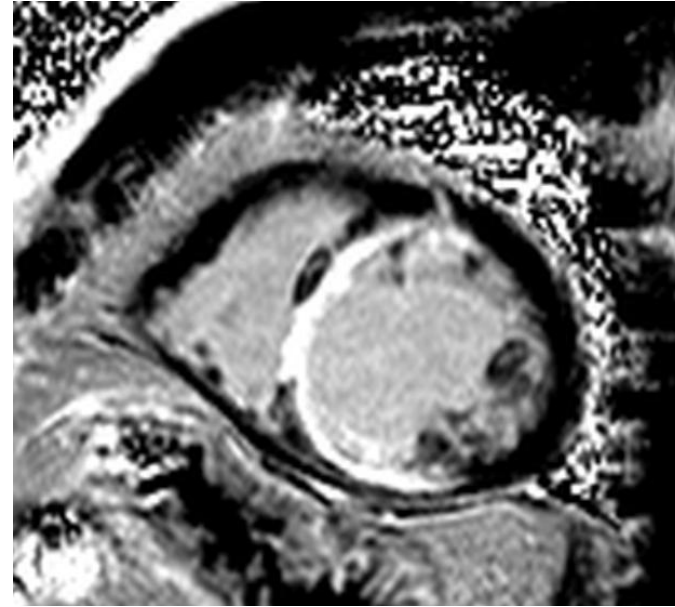
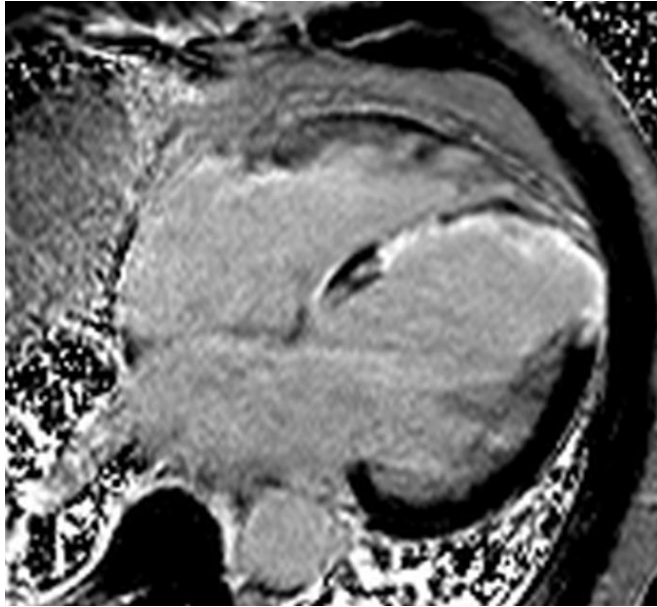
- Sarcoidosis, Myocarditis, Anderson-Fabry, Chagas Disease

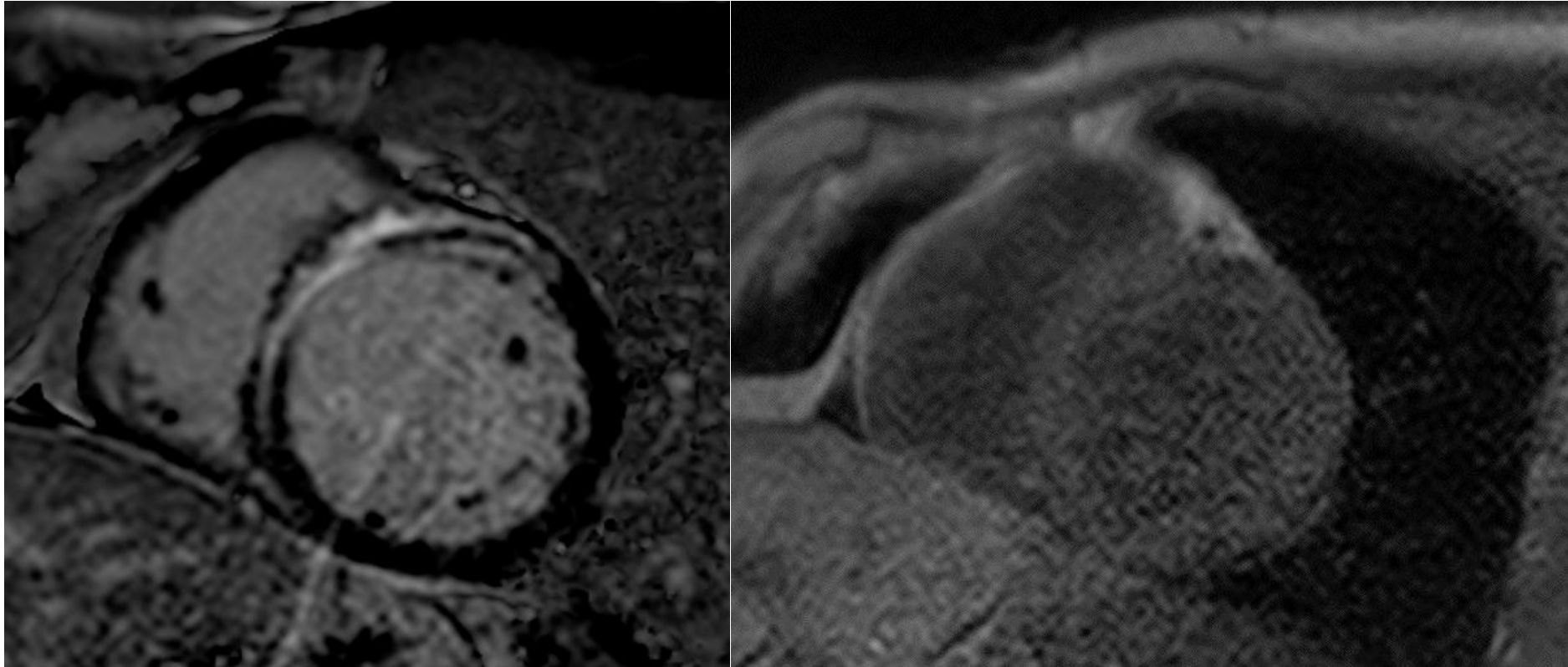
C. Global Endocardial HE



- Amyloidosis, Systemic Sclerosis, Post cardiac transplantation





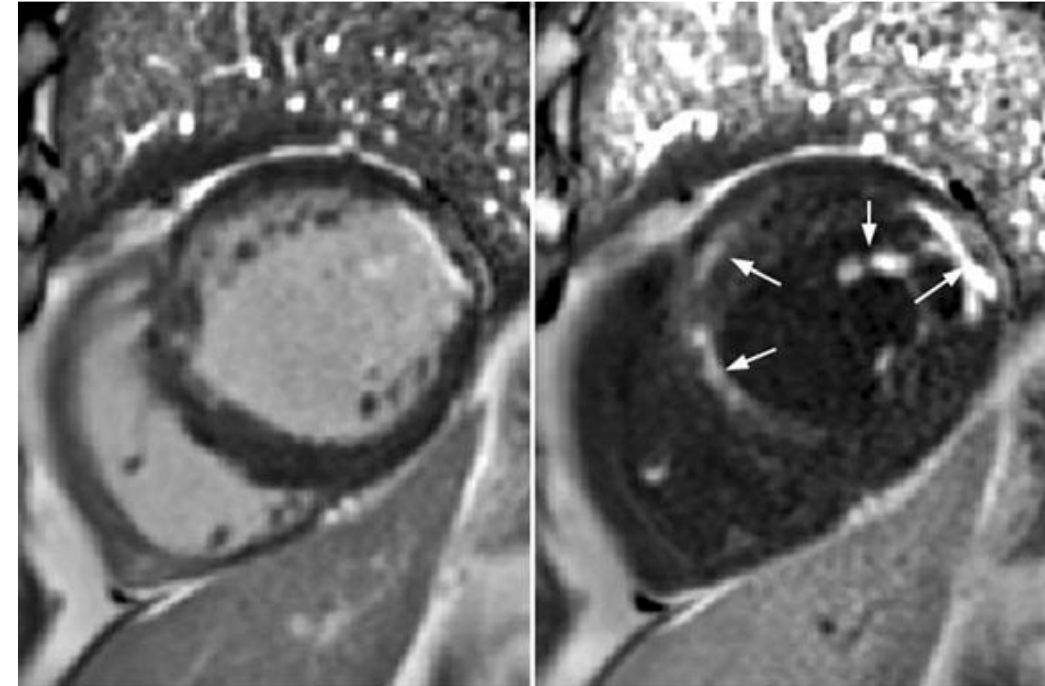


IMA con ostruzione microvascolare (no reflow)

LGE Black Blood

LGE-DB = sangue nero

- Sono sequenze Sperimentali
- Studiate esclusivamente in casi di Patologia Ischemica
- In caso di infarto sub-endocardico ottimizzano la qualità delle immagini
- Non esistono studi basati su casi di Patologia non Ischemica



Journal of the American College of Cardiology
© 2007 by the American College of Cardiology Foundation
Published by Elsevier Inc.

Vol. 50, No. 14, 2007
ISSN 0735-1097/07/\$32.00
doi:10.1016/j.jacc.2007.06.030

Cardiac Imaging

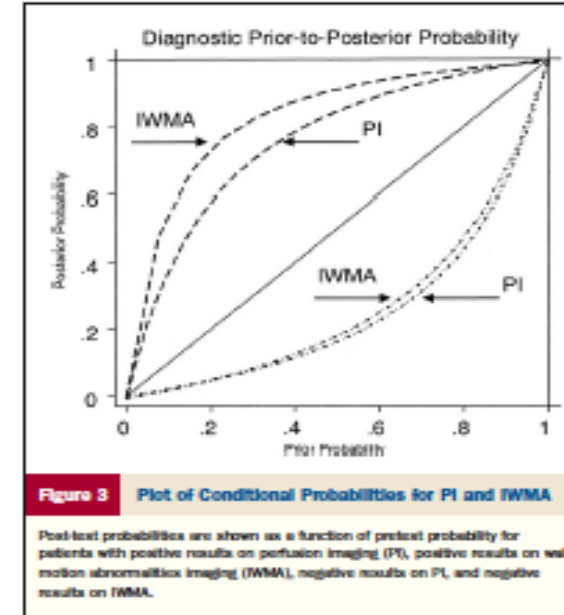
Diagnostic Performance of Stress Cardiac Magnetic Resonance Imaging in the Detection of Coronary Artery Disease

A Meta-Analysis

Kiran R. Nandalur, MD,* Ben A. Dwamena, MD,*† Asim F. Choudhri, MD,‡
Mohan R. Nandalur, MD,§ Ruth C. Carlos, MD, MS*

Ann Arbor, Michigan; Charlottesville, Virginia; and Washington, DC

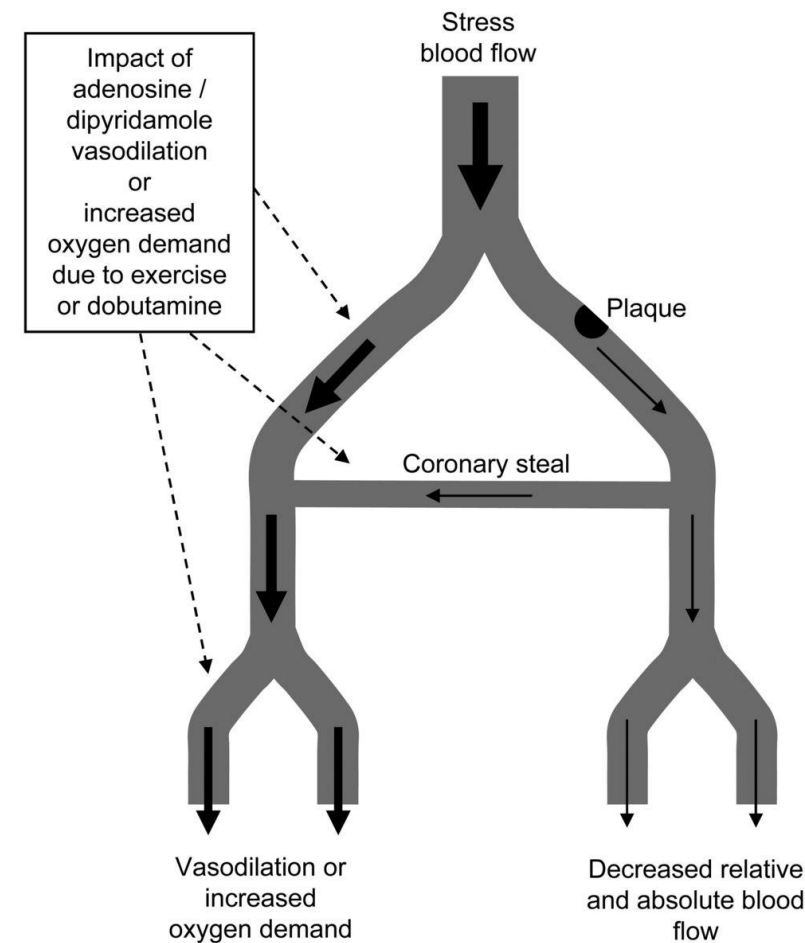
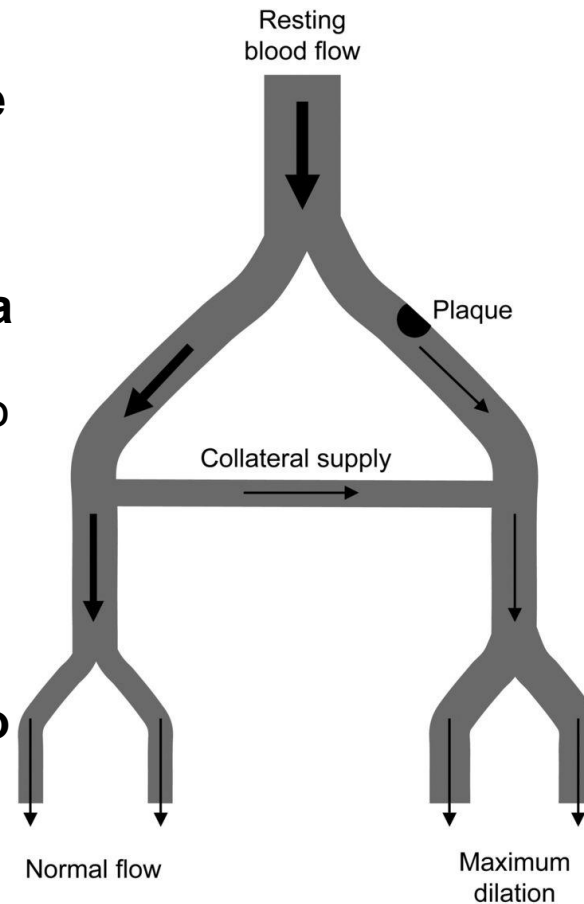
A meta-analysis of all CMR perfusion studies demonstrated a sensitivity of 91% and specificity of 81% for the diagnosis of CAD on a per-patient level.

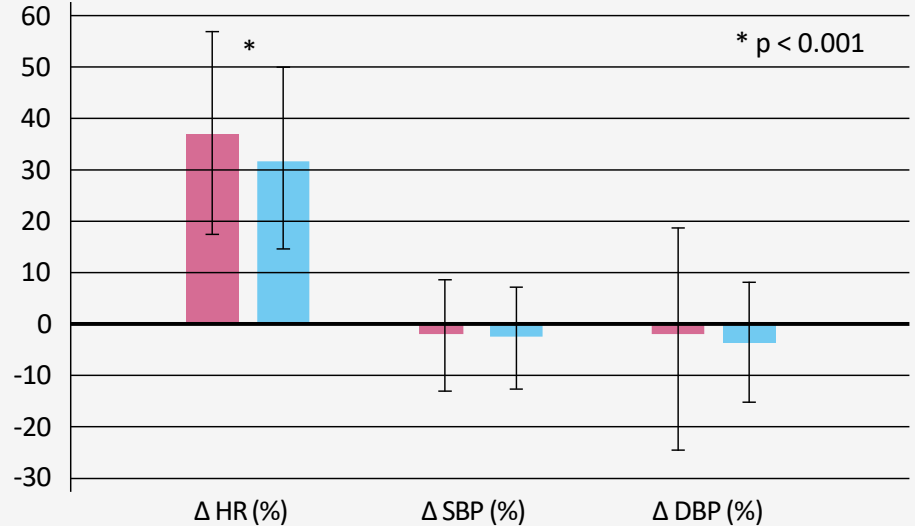


STABLE ISCHEMIC HEART DISEASE

Adenosina - farmacodinamica:

Viene indotta una **vasodilatazione massimale delle arterie coronarie normali**, con un incremento di flusso fino a 4-5 volte rispetto al flusso basale: a valle dei **segmenti stenotici**, peraltro, la **resistenza arteriolare è già ridotta** in condizioni basali per mantenere un sufficiente apporto ematico tissutale, e pertanto non esiste margine per un'ulteriore vasodilatazione. L'aumentato flusso dei segmenti sani limitrofi causerà un'ulteriore riduzione dell'apporto ematico alle aree ipoperfuse miocardiche contigue da riduzione della pressione di perfusione con **meccanismo di "furto" coronarico**.

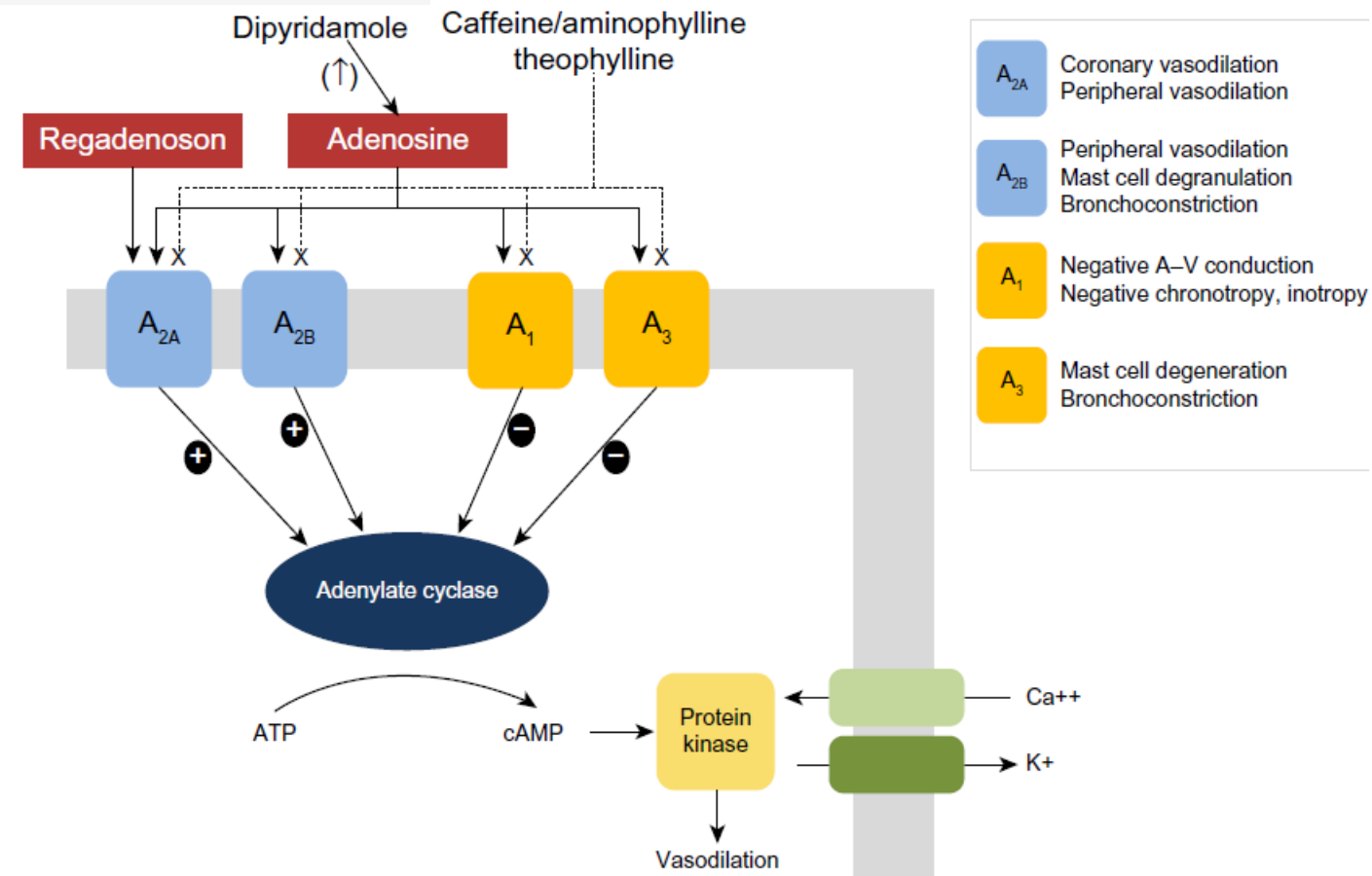




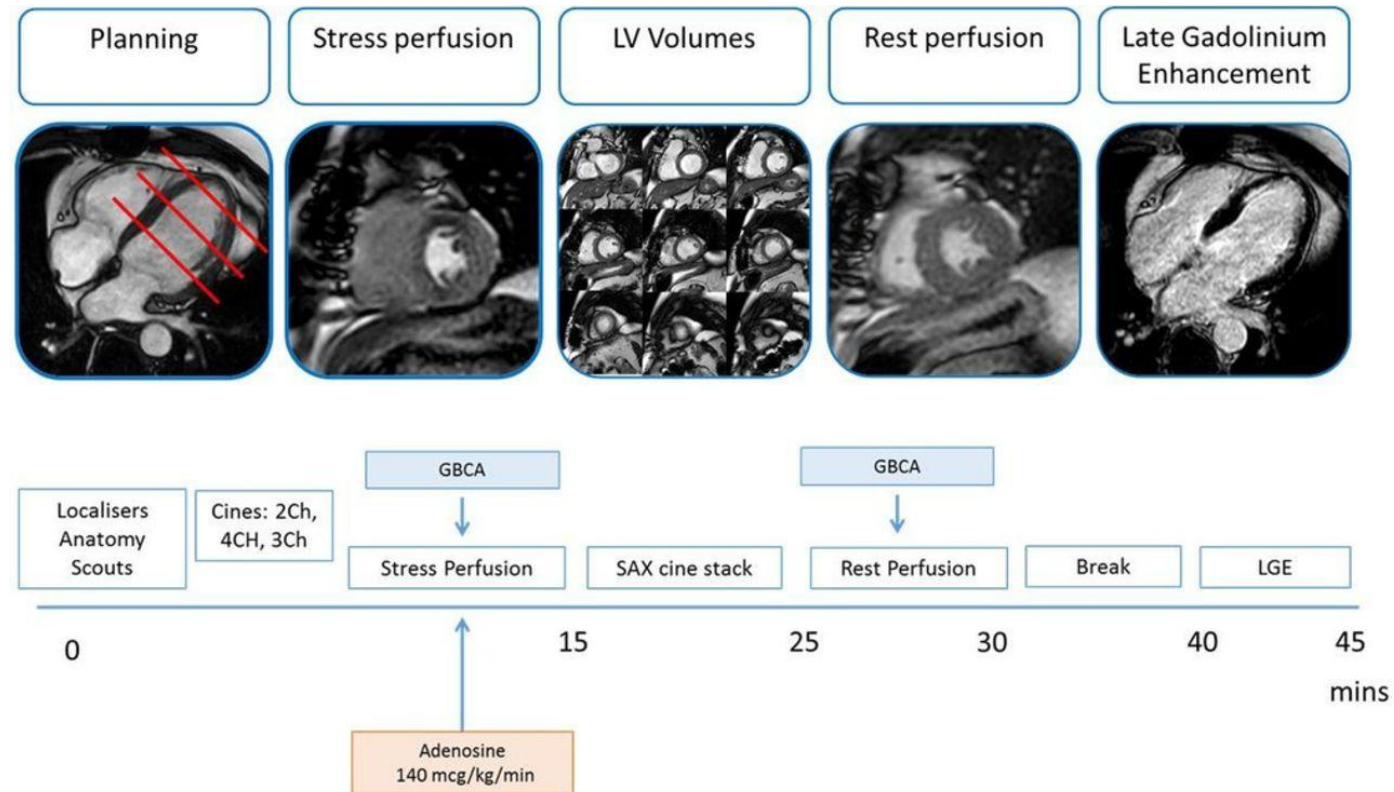
Regadenoson (n=2253)

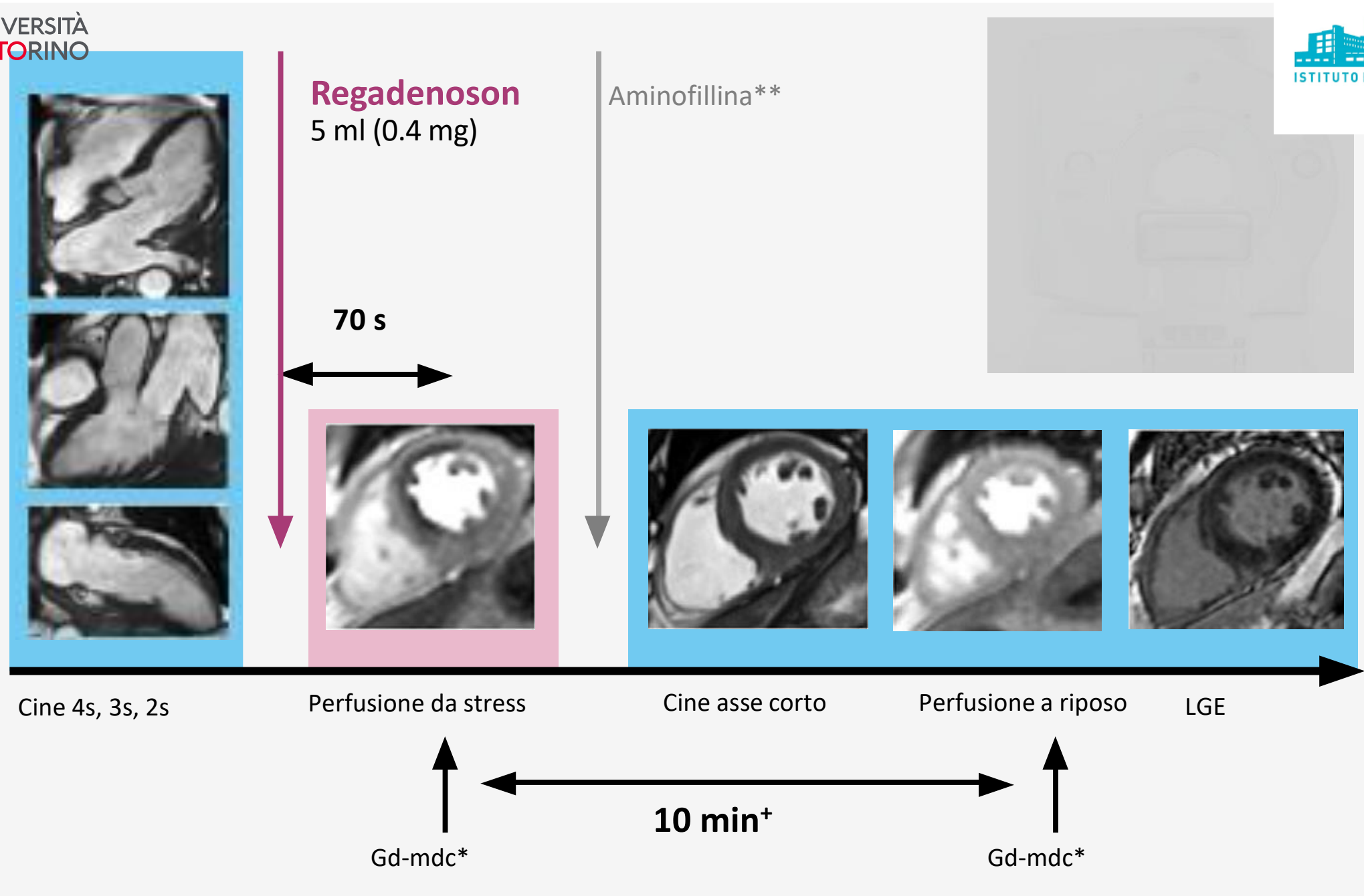
Adenosina (n=655)

Registro multicentrico prospettico,
inclusi 2908 pazienti sottoposti a
RM con stress farmacologico

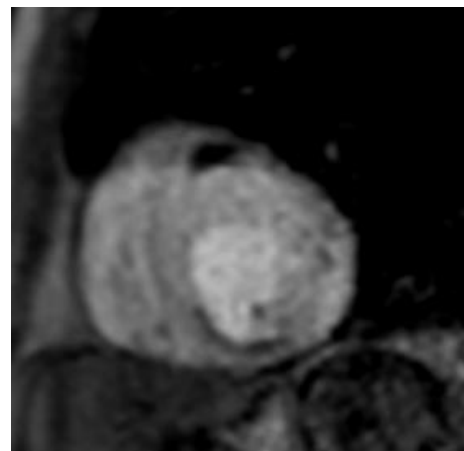


- **Adenosina - dosaggio:**
- 140 $\mu\text{g/kg/min}$ per almeno 3 minuti
- Iniezione con pompa d'infusione o manuale

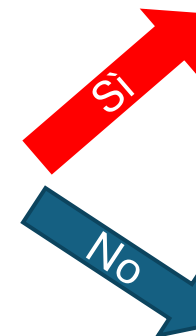
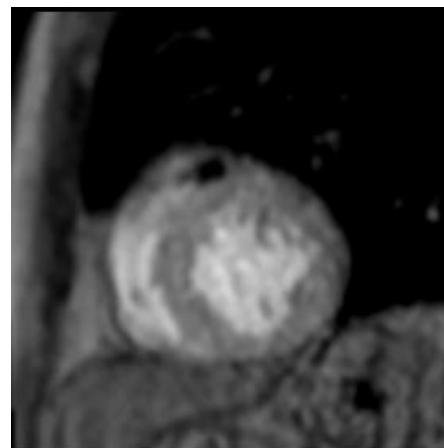
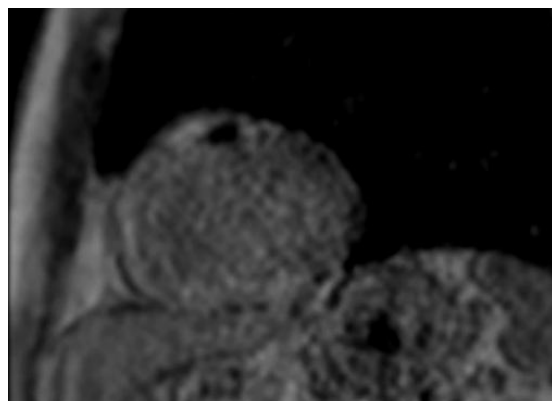




C'È ISCHEMIA INDUCIBILE?

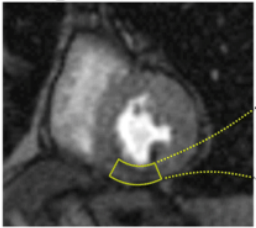


Ischemia inducibile?

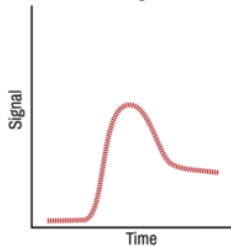


Quantification of Myocardial Perfusion

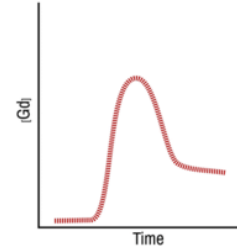
1. Identify myocardial
region of interest



2. Generate signal
intensity curve

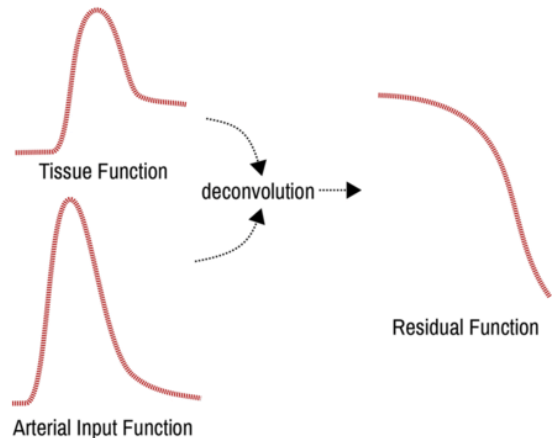


3. Convert measured signal
to contrast concentration

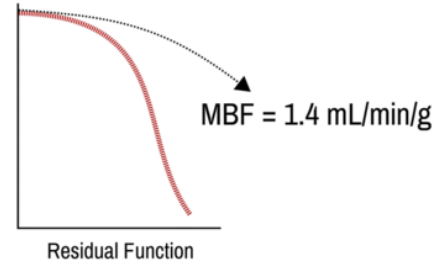


4. Deconvolve residual function from
arterial and myocardial input curves

$$\text{Arterial Input Function} \otimes \text{Residual Function} = \text{Tissue (Myocardial) Function}$$

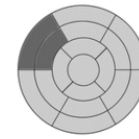


5. Calculate myocardial
blood flow from residual function



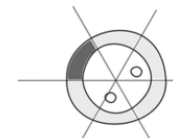
Optimizing CMR Myocardial Perfusion

Present

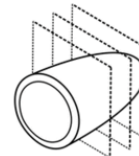


Visual

2-3 mm
Standard



Segmental Analysis

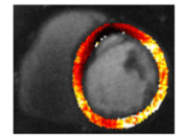


Limited



Manual

Future

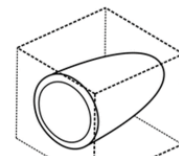


Quantitative

< 2 mm
High



Transmural Gradients



Whole Heart



Fully Automated

Analysis

Spatial
Resolution

Granularity

Coverage

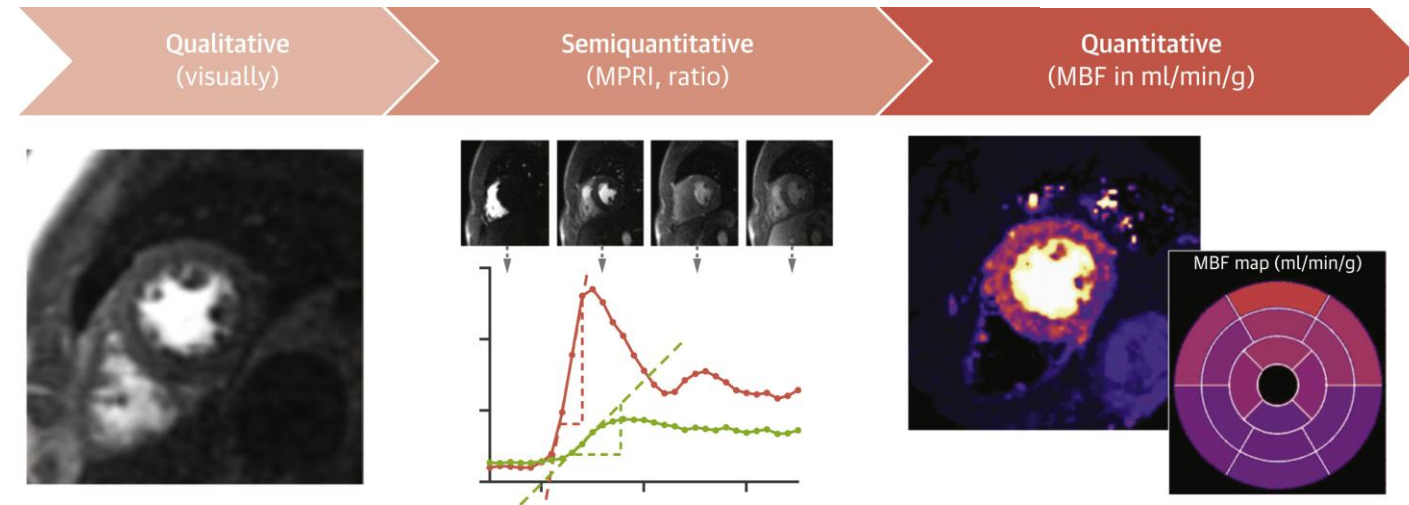
Post
Processing

EDITORIAL COMMENT

Advances in Risk Stratification of Patients With Coronary Microvascular Dysfunction

Usefulness of Stress Perfusion CMR*

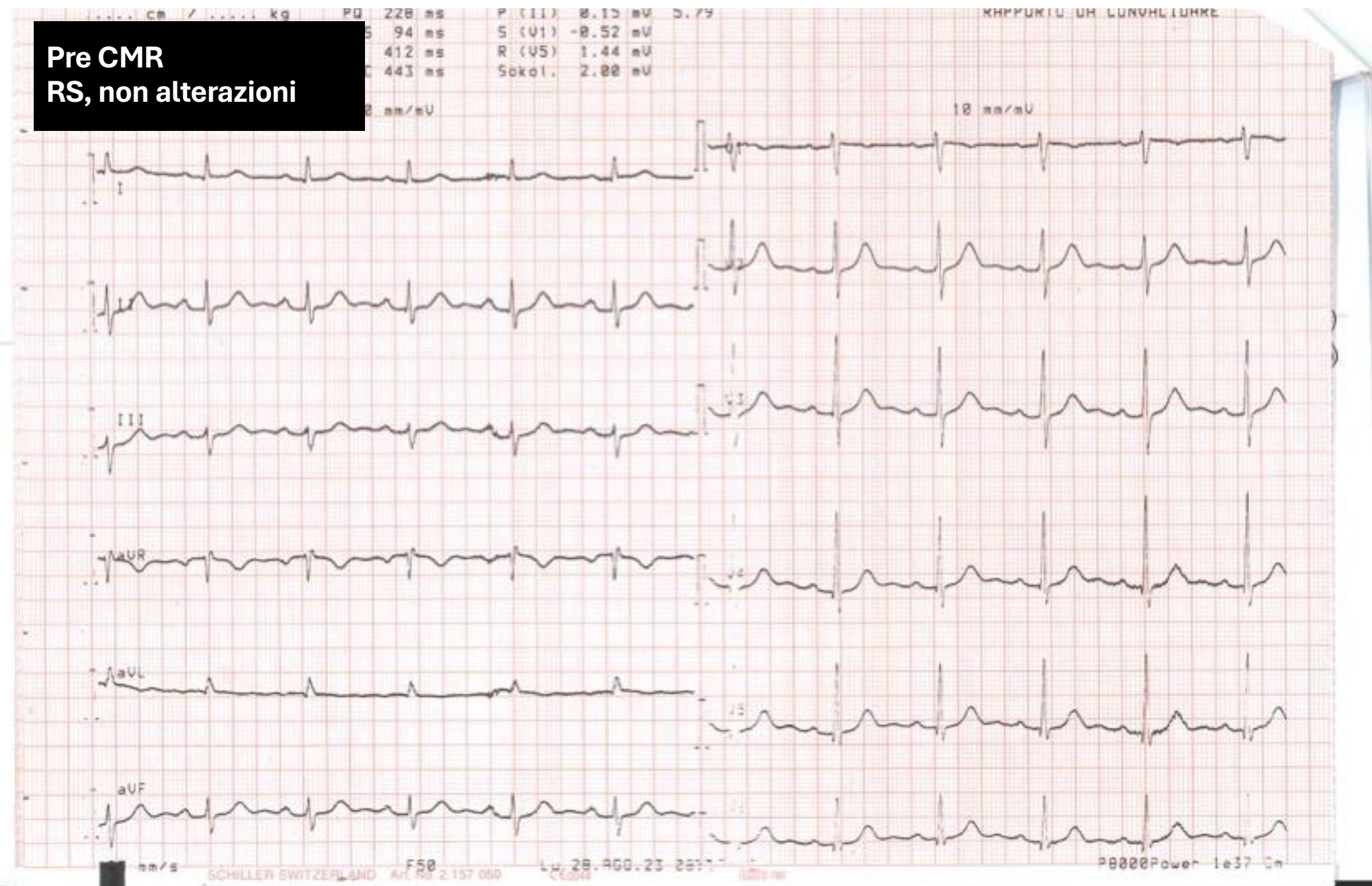
Peter Ong, MD, Andreas Seitz, MD

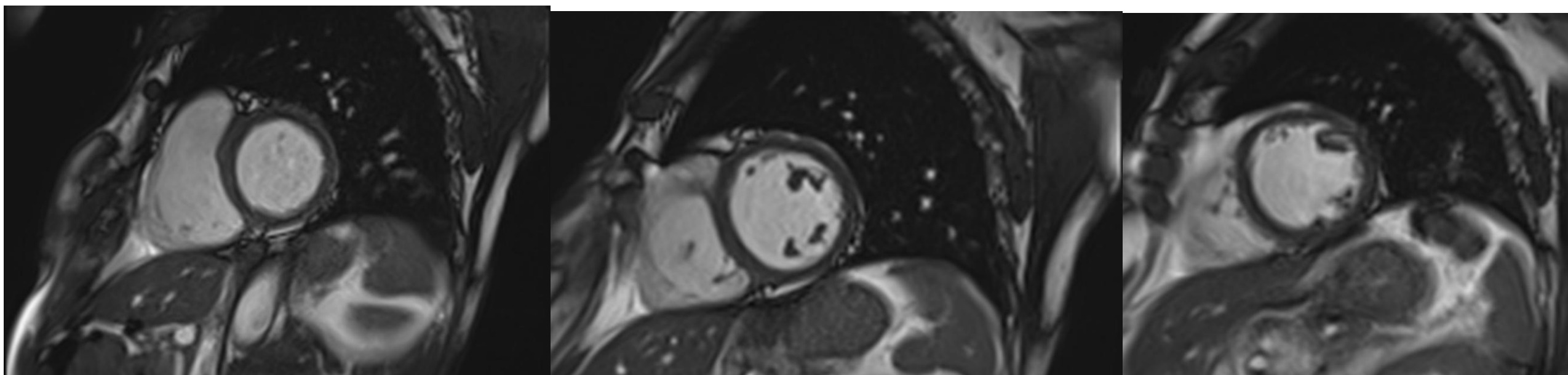
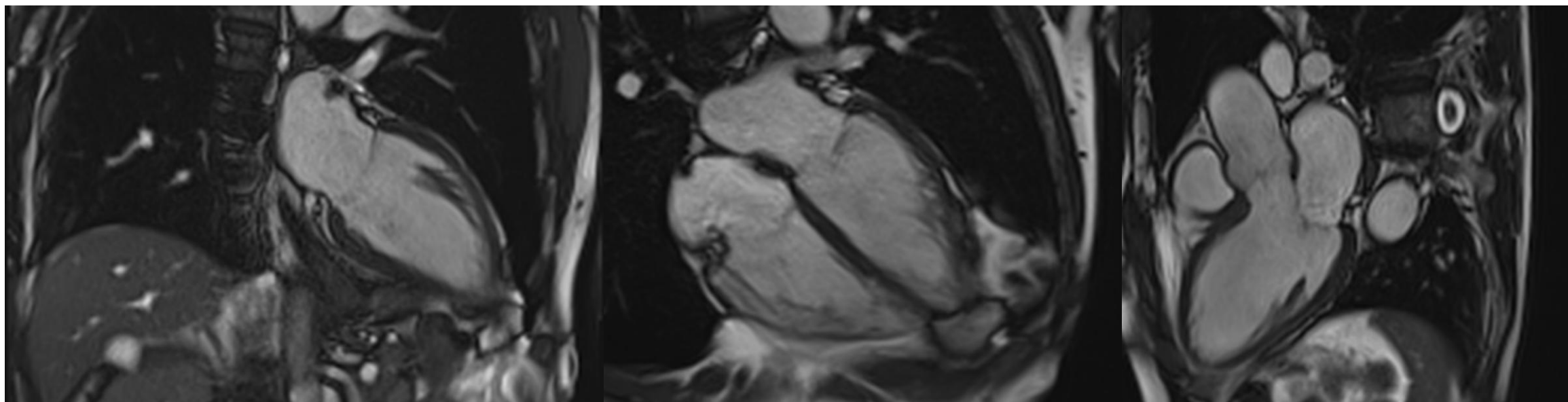


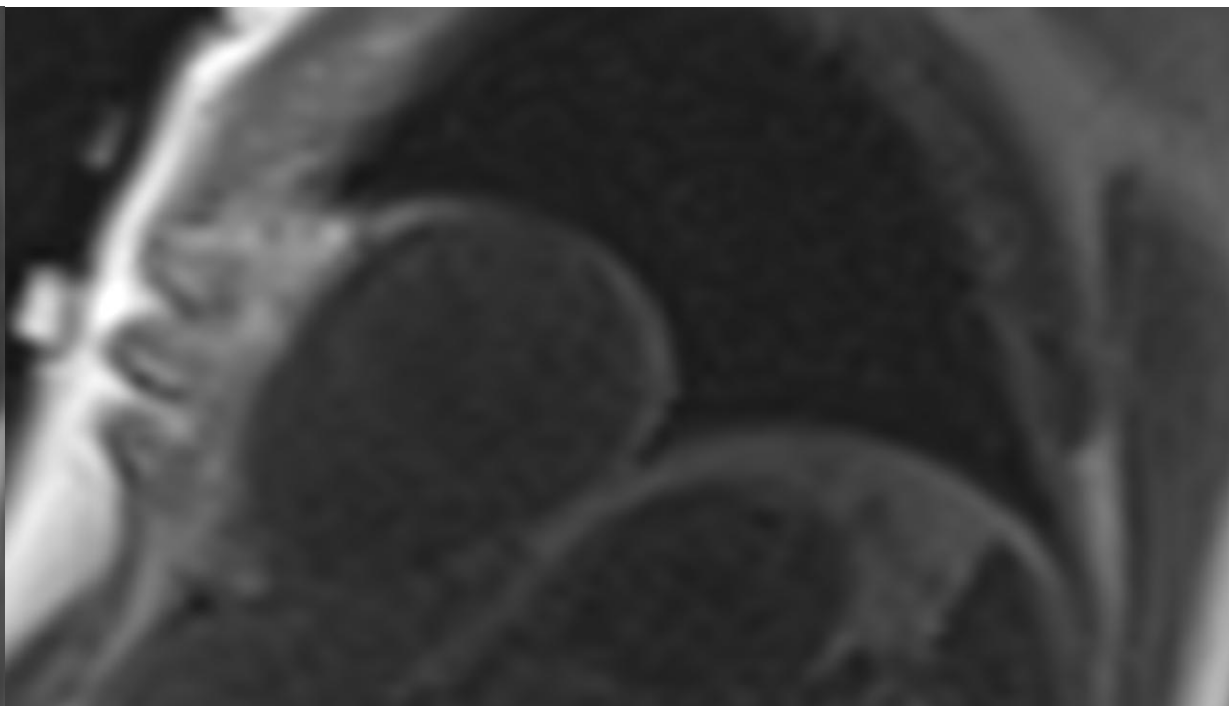
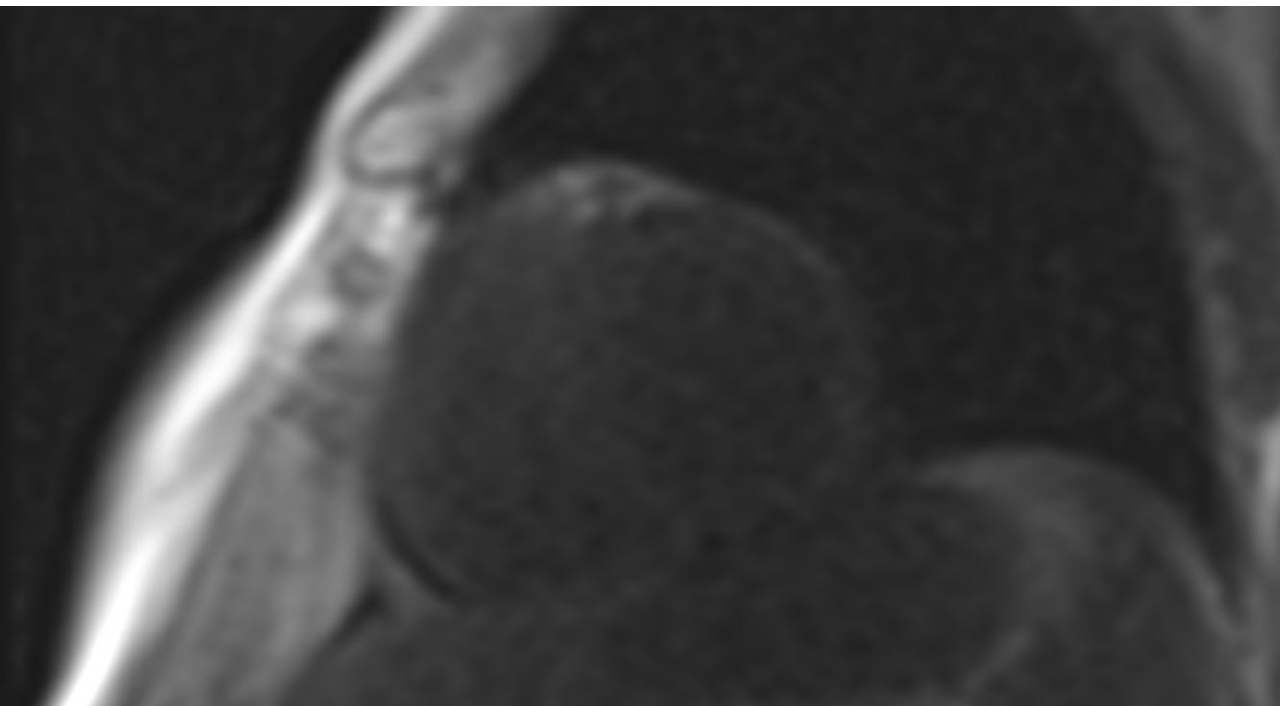
Since the introduction of stress perfusion CMR in daily clinical practice, image interpretation has focused on qualitative assessment searching for reversible regional perfusion defects as a surrogate for myocardial ischemia. Due to the lack of quantitative measures of myocardial perfusion, CMR has often been considered inferior compared to positron emission tomography (PET), which is conventionally considered the gold standard for noninvasive assessment of myocardial blood flow (MBF). However, the feasibility of semiquantitative assessment of myocardial perfusion using perfusion CMR was already demonstrated in the mid-1990s (5,6). Several studies have validated semiquantitative stress CMR against invasive and noninvasive reference standards (7,8). **Nevertheless, this technique has not made the transition to daily clinical practice so far, most likely due to a lack of commercially available post-processing tools and the time-consuming manual analysis.** As a consequence, data for the prognostic value of semiquantitative stress CMR in patients with suspected microvascular dysfunction are scarce.

- N.D. 72 aa, uomo, iperteso;
- Storia di Cardiopatia Ischemica: sottoposto nel 2015 a PTCA (DES di DA distale);
- Attualmente extrasistolia ventricolare, associata a sintomatologia aspecifica da tre mesi (epigastralgie);
- Indicazione a CRM + Stress farmacologico per tipizzazione tissutale in extrasistolia ventricolare con storia di patologia ischemica;

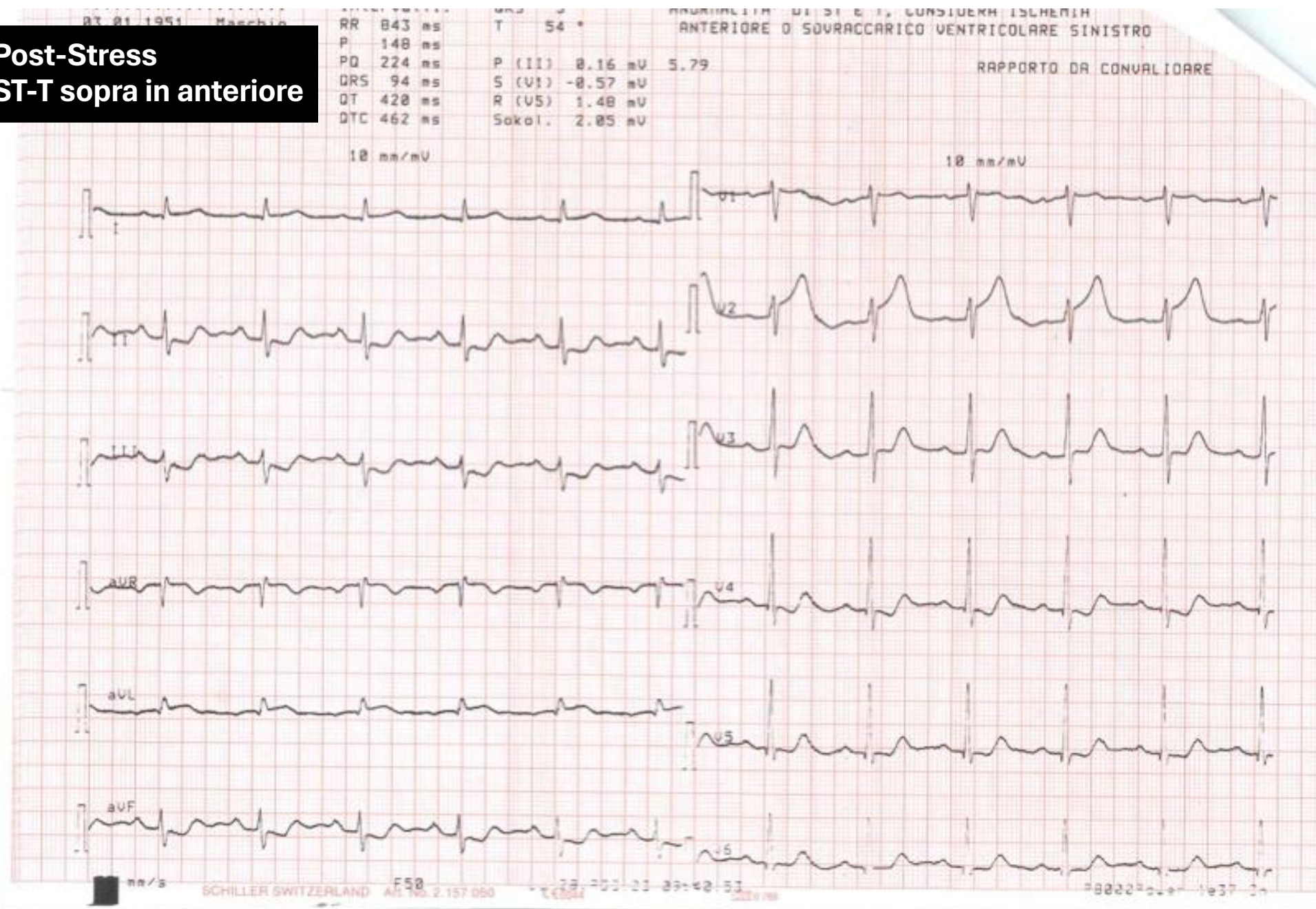
**Pre CMR
RS, non alterazioni**

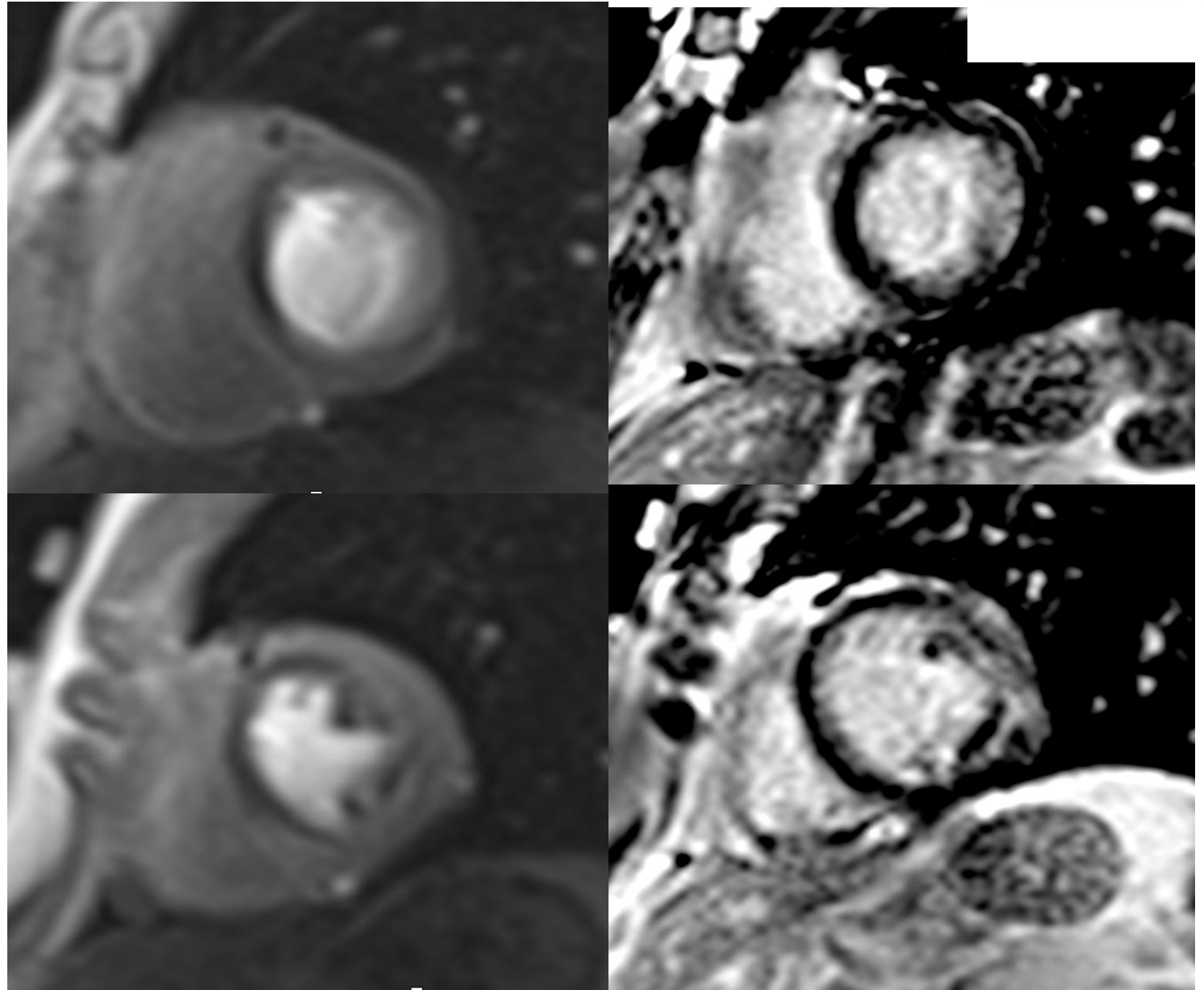




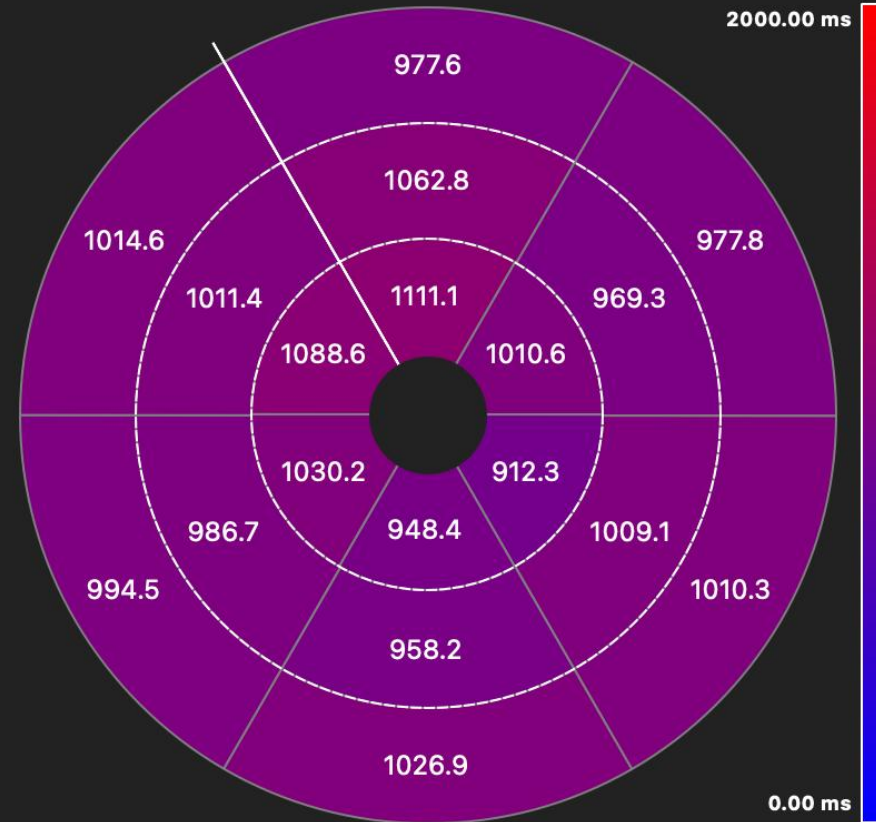
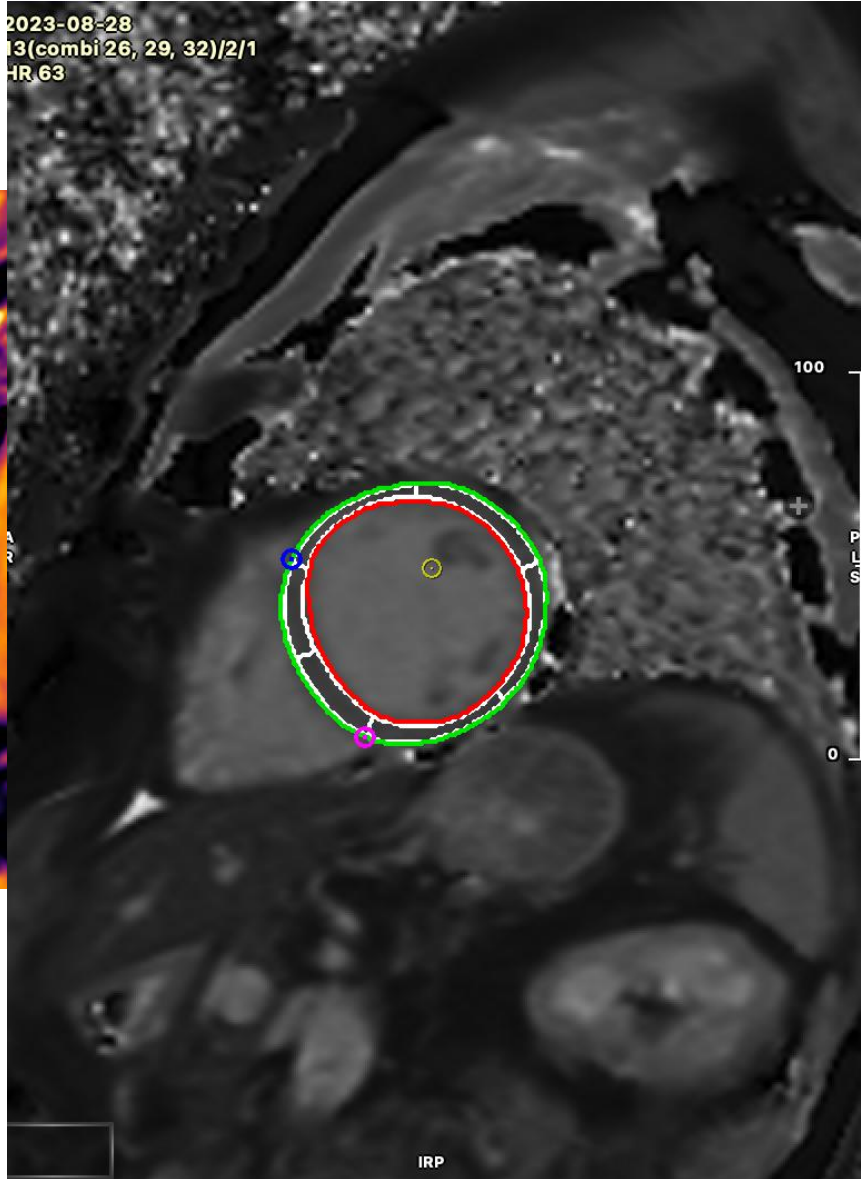


**Post-Stress
ST-T sopra in anteriore**



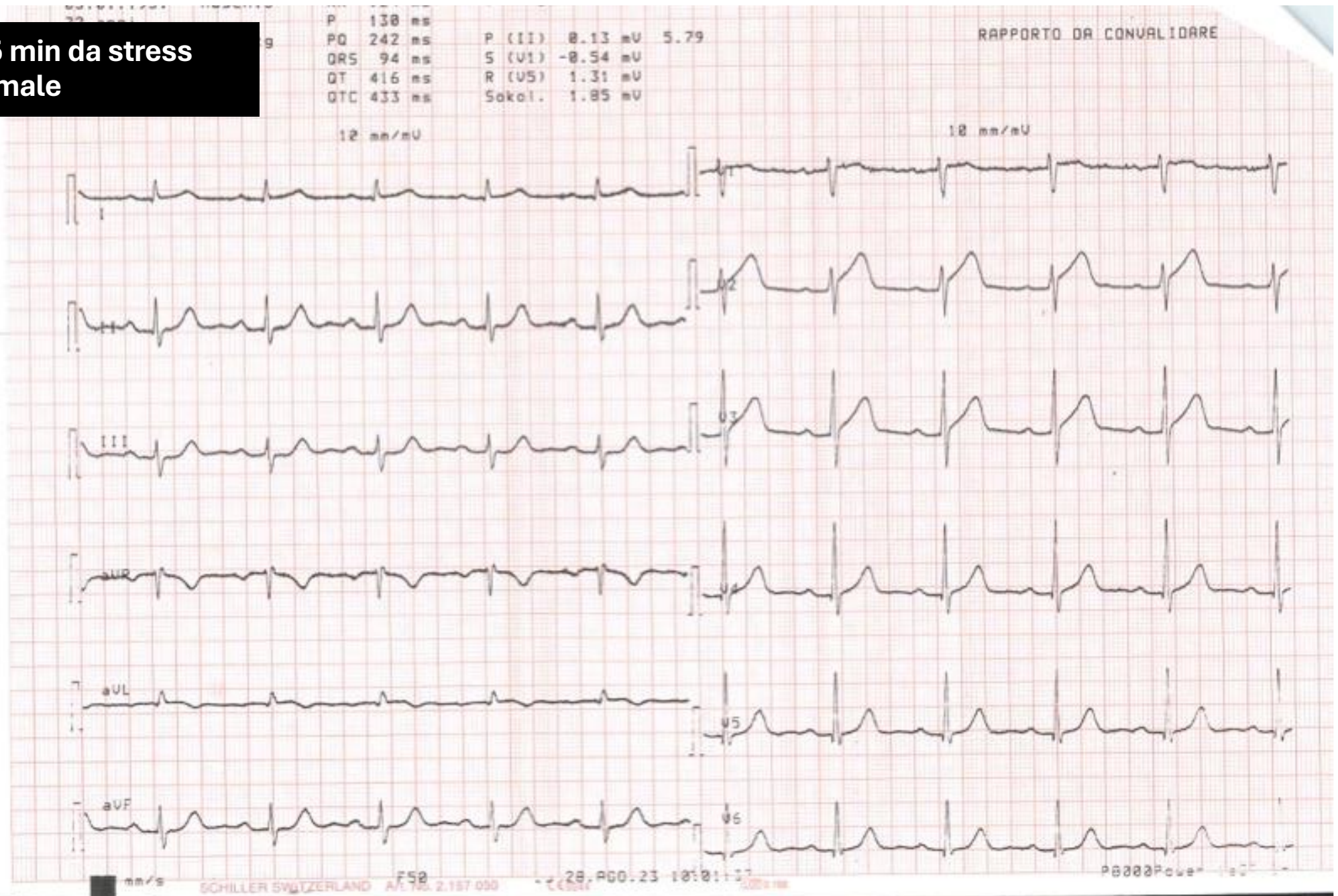


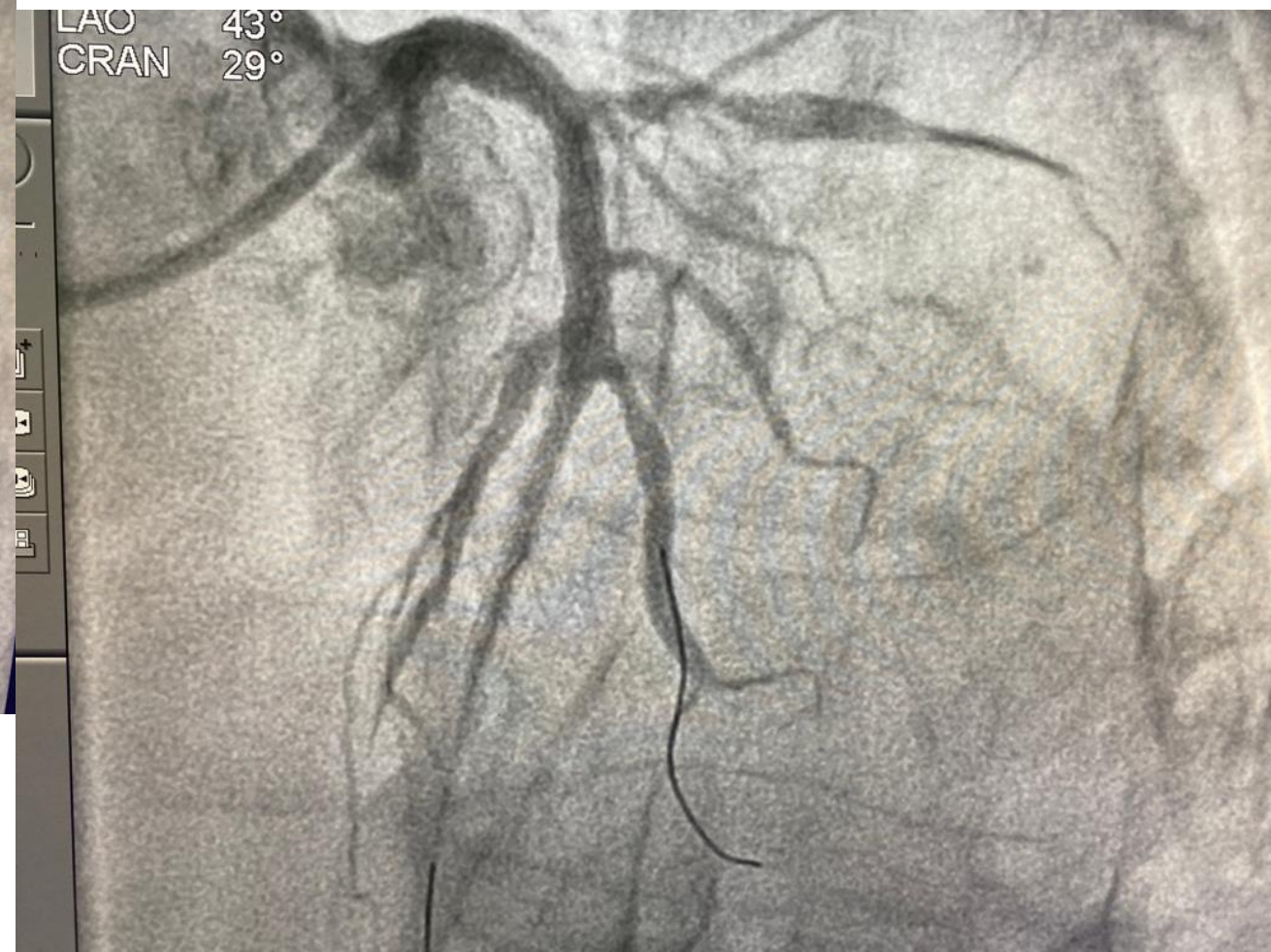
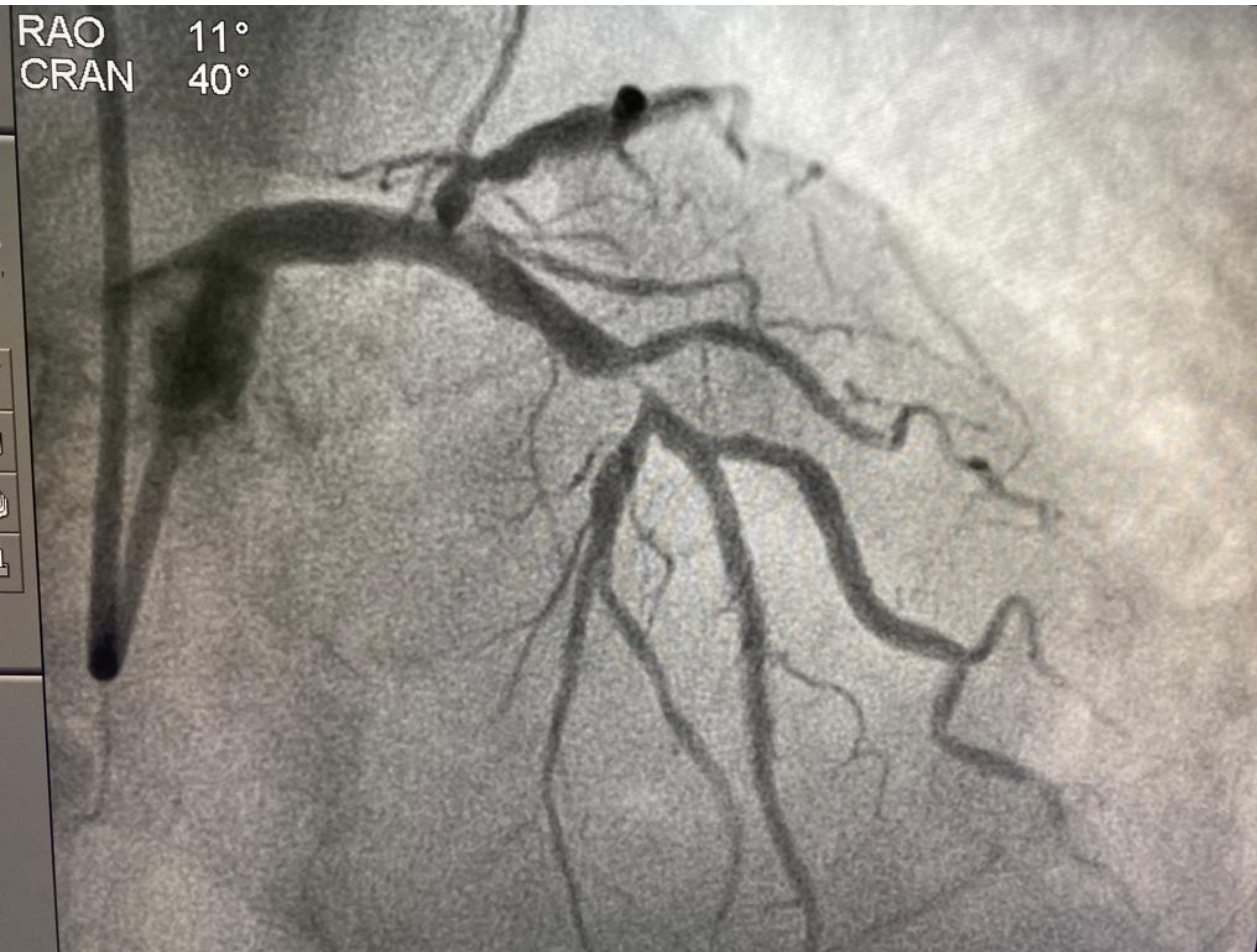
2023-08-28
13(combi 26, 29, 32)/2/1
HR 63



T1 nativo
3/3(3) sl.: 95.1(57.6) mm Spessore strato 8 mm

**A 15 min da stress
Normale**





LIE

Appropriateness criteria for the use of cardiac computed tomography, SIC-SIRM part 2: acute chest pain evaluation; stent and coronary artery bypass graft patency evaluation; planning of coronary revascularization and transcatheter valve procedures; cardiomyopathies, electrophysiological applications, cardiac masses, cardio-oncology and pericardial diseases evaluation

Nazario Carrabba^a, Gianluca Pontone^{b,c}, Daniele Andreini^{b,c}, Vitaliano Buffa^d, Filippo Cademartiri^e, Iacopo Carbone^f, Alberto Clemente^g, Andrea Igoren Guaricci^h, Marco Guglielmo^b, Ciro Indolfiⁱ, Ludovico La Grutta^j, Guido Ligabue^{k,l}, Carlo Liguori^m, Giuseppe Mercuroⁿ, Saima Mushtaq^b, Danilo Neglia^o, Anna Palmisano^{p,q}, Roberto Sciagrà^r, Sara Seitun^s, Davide Vignale^{p,q}, Marco Francone^f and Antonio Esposito^{p,q}

Table 1 Recommendation of cardiac computed tomography in acute chest pain: rule-out CAD, triple rule-out, acute myocarditis, myopericarditis and tako-tsubo

Clinical setting	Diagnostic step	Recommendation	Indication
Patients with acute chest pain, low-to-intermediate likelihood of ACS and inconclusive triage based on troponin and ECG testing	First diagnosis	B	Rule-out of CAD. Use of CCT possibly restricted in settings with older technology and low expertise.
Triple rule-out (combined rule-out of ACS, acute aortic syndromes and pulmonary embolism)	First diagnosis (during pandemic)	A	Available data generally suggest utility and advantages in using TRO CT instead of SOC in these patients. However, CT protocol standardization and large trials of validation are missing, and further research is recommended in this area. Moreover, current use of CT-based TRO could be restricted in some ED realities due to limitation in state-of-the-art scanners and fully trained operator availability
	First diagnosis	E	
Rule-out ACS combined with investigation of other cardiac causes of acute chest pain, through CT-based global and regional ventricular function assessment and myocardial characterization (LIE – ECV)	First diagnosis (during pandemic)	B	This is a very attracting and promising approach when CT is already clinically indicated or CMR contraindicated/not available but balance of benefits and harms cannot be determined at this moment because of insufficient data. Interesting field for future research
	First diagnosis	E	
	First diagnosis (during pandemic)	B	



Appropriateness criteria for the use of cardiac computed tomography, SIC-SIRM part 2: acute chest pain evaluation; stent and coronary artery bypass graft patency evaluation; planning of coronary revascularization and transcatheter valve procedures; cardiomyopathies, electrophysiological applications, cardiac masses, cardio-oncology and pericardial diseases evaluation

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Table 4 Recommendation of cardiac computed tomography for electrophysiological applications, cardiac masses, cardio-oncology and pericardial disease evaluation

Clinical setting	Diagnostic step	Recommendation	Indication
Atrial fibrillation catheter ablation	Procedural planning	A	Anatomy depiction and integration of 3D CT-derived images into electro-anatomical maps - Exclusion of left atrium or left atrial appendage thrombosis when echocardiography is inconclusive or as an alternative to transesophageal echocardiography
	Follow-up	A	Assessment of postprocedural complications (e.g. esophageal injury or pulmonary vein stenosis)
Left atrial appendage exclusion	Procedural planning	A	Evaluation of left atrial appendage morphology, device sizing, and exclusion of thrombosis
		C	Evaluation of left atrial appendage morphology and device sizing with CT-derived 3D-printed models
	Follow-up	B	Assessment of postprocedural complications (e.g. device malposition or peri-device leaks) and evaluation of treatment efficacy (i.e. appendage complete thrombosis) in order to guide antiaggregation strategy
Cardiac resynchronization therapy	Procedural planning	B	Evaluation of cardiac vein anatomy to guide LV lead placement
		C	Identification of postero-lateral LV scar when CMR is contraindicated
		B	Identification of procedural complications (e.g. perforation or dissection of coronary sinus)
Ventricular tachycardia catheter ablation	Procedural planning	A	Integration of CT-derived 3D anatomy with ventricular electro-anatomical maps especially in complex procedures (e.g. identification of coronary arteries in epicardial procedures, previous failure, large ventricular aneurysm)
		E	Preoperative myocardial substrate characterization
		B	Preoperative myocardial substrate characterization in patients with cardiac devices and contraindication to CMR
Functional evaluation of cardiomyopathies (ventricular and atrial volume quantification; wall motion abnormalities qualitative evaluation)	First diagnosis or follow-up	B	In patients with poor echocardiographic image quality and contraindication to CMR
Exclusion of CAD as concomitant or causative feature of cardiomyopathies	First diagnosis	A	Rule-out of CAD
Myocardial tissue characterization	First diagnosis	B	When CMR is contraindicated CCT could be considered as an alternative
...	...	...	...

CTP

Appropriateness criteria for the use of cardiac computed tomography, SIC-SIRM part 2: acute chest pain evaluation; stent and coronary artery bypass graft patency evaluation; planning of coronary revascularization and transcatheter valve procedures; cardiomyopathies, electrophysiological applications, cardiac masses, cardio-oncology and pericardial diseases evaluation

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Table 2 Recommendations of coronary cardiac computed tomography of at least 64 slices for evaluation of stent and graft patency

Clinical setting	Diagnostic step	Recommendation	Indication
Evaluation of ISR by last generation, whole organ high-definition CT scanner, including SAFIRE software	Follow-up	A	Several studies support the use of last generation CCT scan for the assessment of ISR, with SAFIRE software on board as it is able to maintain diagnostic accuracy, reducing radiation doses
Left main drug eluting stent in symptomatic patients or after 2 years	Follow-up	A	Patients with ostium and body LM stent
Drug eluting stent at least 3 mm in symptomatic patients or after 2 years	Follow-up	B	Patients with bifurcation LM-LAD-Circumflex stent
Multiple/long drug eluting stent less than 3 mm in symptomatic patients or after 2 years	Follow-up	A	single drug eluting stent ≥ 3 mm
		B	Multiple/long drug eluting stent ≥ 3 mm
		C	Single drug eluting stent < 3 mm
Evaluation of ISR with CCT stress perfusion	Follow-up	D	Multiple/long drug eluting stent < 3 mm
		E	This is a very attracting and promising approach, as it may increase specificity, positive-predictive value, and diagnostic accuracy over regular CTA, especially in case of suboptimal CTA quality or prior revascularization. However, current lack of methodological standardization, limited validation data, technological requirements, and dose concerns hamper widespread clinical application

CTP

SIRM–SIC appropriateness criteria for the use of Cardiac Computed Tomography. Part 1: Congenital heart diseases, primary prevention, risk assessment before surgery, suspected CAD in symptomatic patients, plaque and epicardial adipose tissue characterization, and functional assessment of stenosis

Antonio Esposito^{1,2}  · Marco Francone^{3,4} · Daniele Andreini^{5,6} · Vitaliano Buffa⁷ · Filippo Cademartiri⁸ · Iacopo Carbone⁹ · Alberto Clemente¹⁰ · Andrea Igoren Guaricci¹¹ · Marco Guglielmo⁵ · Ciro Indolfi¹² · Ludovico La Grutta¹³ · Guido Ligabue^{14,15} · Carlo Liguori¹⁶ · Giuseppe Mercurio¹⁷ · Saima Mushtaq⁵ · Danilo Neglia¹⁸ · Anna Palmisano^{1,2} · Roberto Sciagrà¹⁹ · Sara Seitun²⁰ · Davide Vignale^{1,2} · Gianluca Pontone⁵ · Nazario Carrabba²¹

Table 6 Recommendations for CT-derived Fractional Flow Reserve (FFR_{CT}) and stress-CT perfusion (stress-CTP)

Clinical setting	Diagnostic step	Recommendation	Indications
FFR _{CT} for evaluation of CAD	First diagnosis	E	Very promising in: CAD with suspected functional significance at CCTA CAD with uncertain functional significance at CCTA (especially intermediate or calcified lesions) Evaluation of hemodynamic significance of triple vessel disease However, current limited availability of validated analysis platforms hampers widespread clinical application
Stress-CTP for evaluation of CAD	First diagnosis	E	Very promising in: CAD with suspected functional significance at CCTA CAD with uncertain functional significance at CCTA Evaluation of hemodynamic significance of triple vessel disease However, current lack of methodological standardization, limited validation data, technological requirements, and dose concerns hamper widespread clinical application

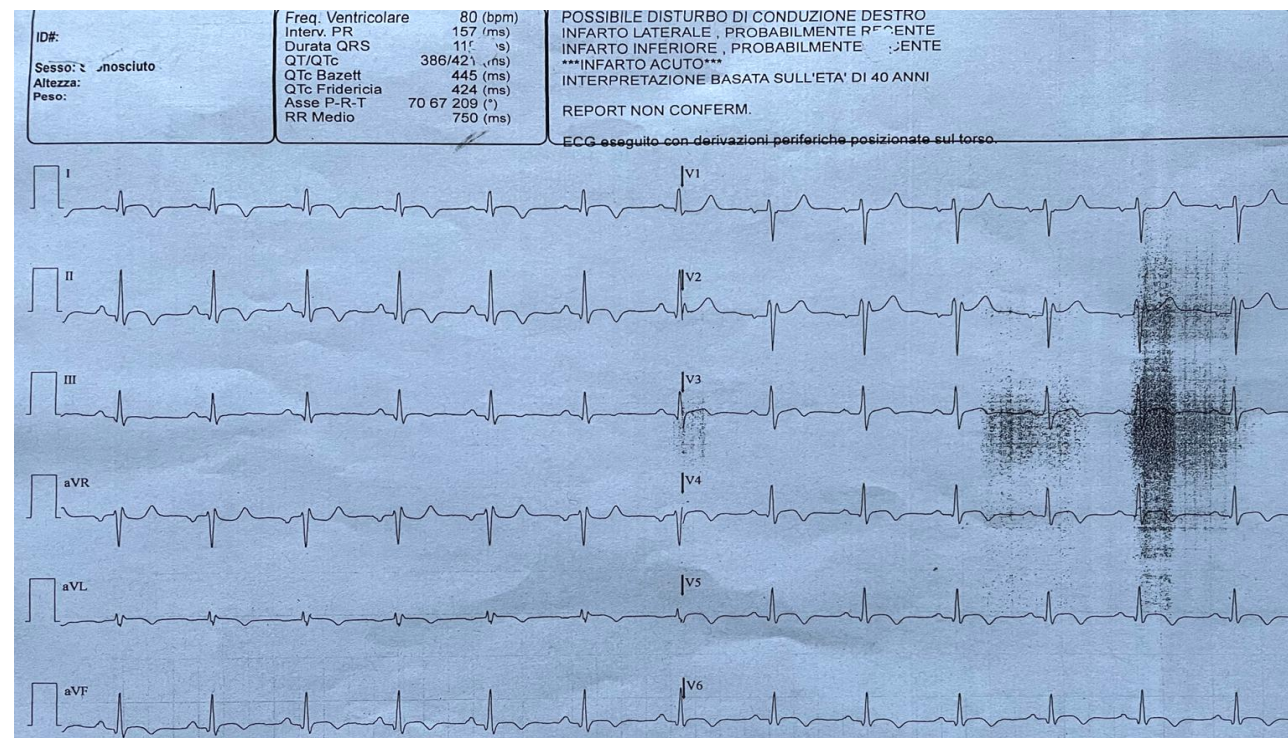
New recommendations (8)

Recommendations	Class	Level
<i>Selection of individual diagnostic tests in individuals with suspected chronic coronary syndrome</i>		
To rule out obstructive CAD in individuals with low or moderate (>5%–50%) pre-test likelihood, CCTA is recommended as the preferred diagnostic modality.	I	B
CCTA is recommended in individuals with low or moderate (>5%–50%) pre-test likelihood of obstructive CAD if functional imaging for myocardial ischaemia is not diagnostic.	I	B
Invasive coronary angiography with the availability of invasive functional assessment is recommended to confirm or exclude the diagnosis of obstructive CAD or ANOCA/INOCA in individuals with an uncertain diagnosis on non-invasive testing.	I	B
In patients with a known intermediate coronary artery stenosis in a proximal or mid coronary segment on CCTA, CT-based FFR may be considered.	IIb	B

New recommendations (8)

Recommendations	Class	Level
<i>Selection of individual diagnostic tests in individuals with suspected chronic coronary syndrome</i>		
To rule out obstructive CAD in individuals with low or moderate (>5%–50%) pre-test likelihood, CCTA is recommended as the preferred diagnostic modality.	I	B
CCTA is recommended in individuals with low or moderate (>5%–50%) pre-test likelihood of obstructive CAD if functional imaging for myocardial ischaemia is not diagnostic.	I	B
Invasive coronary angiography with the availability of invasive functional assessment is recommended to confirm or exclude the diagnosis of obstructive CAD or ANOCA/INOCA in individuals with an uncertain diagnosis on non-invasive testing.	I	B
In patients with a known intermediate coronary artery stenosis in a proximal or mid coronary segment on CCTA, CT-based FFR may be considered.	IIb	B

- Ragazzo di 20 aa, fumatore attivo (20/die), con familiarità per CAD (nonno 65 aa), senza precedenti di rilievo.
- Il 9/11/2020, nella notte, avverte dolore toracico irradiato al giugulo e al braccio sinistro, che regredisce con l'assunzione di paracetamolo.
- Recidiva dopo qualche ora, dunque si reca in DEA a Chieri nel tardo pomeriggio dello stesso giorno.
- Tnt = 2241 e CK-MB 48.9
- EcoTT (9/11/20): FE 50% con ipocinesia inferiore e del setto apicale, cavità destra di norma, IM 1+, incremento iperrifrangenza pericardica senza versamento, VCI non dilatata e collabente





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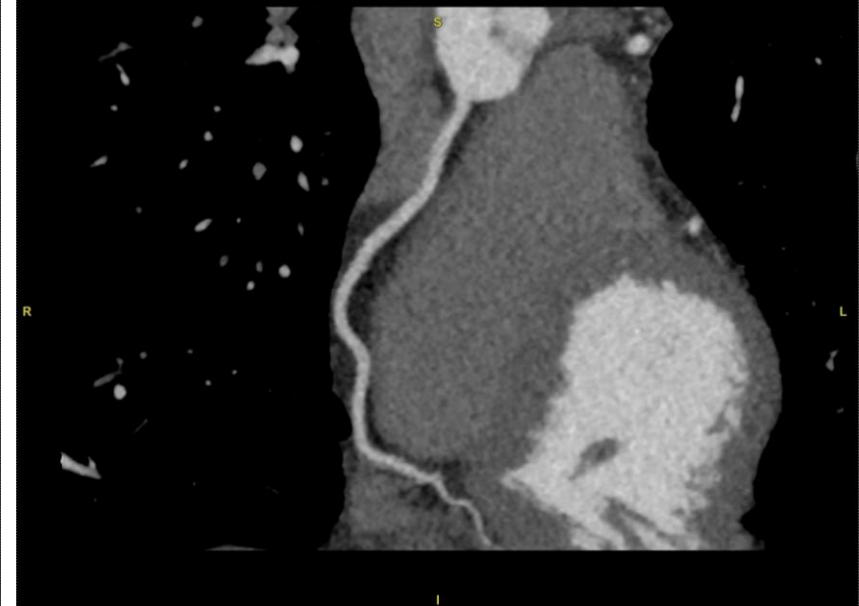
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M 20 9002704888
Se:302 +c DoB: Aug 04 2000
Arteria discendente anteriore sx Angle:259.0 Ex:Nov 13 2020
DFOV17.3x12.4cm
STND/AR60 Ph:80%
BPM:65

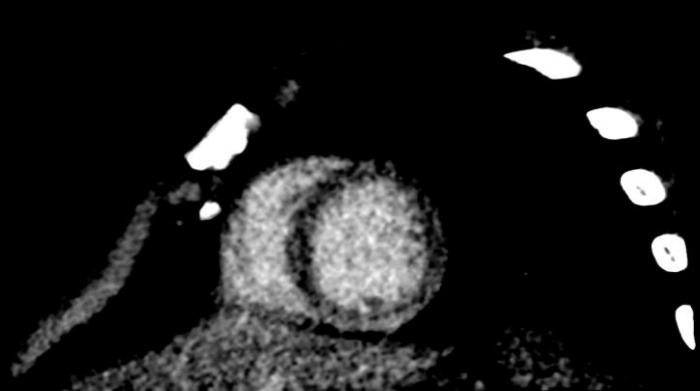
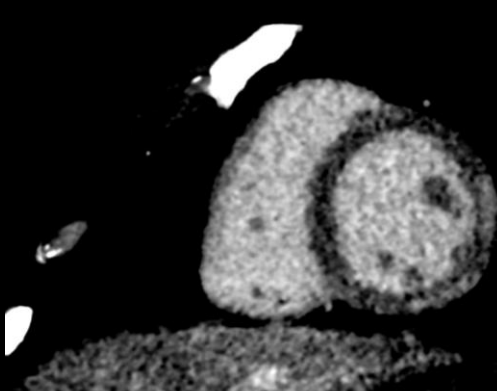
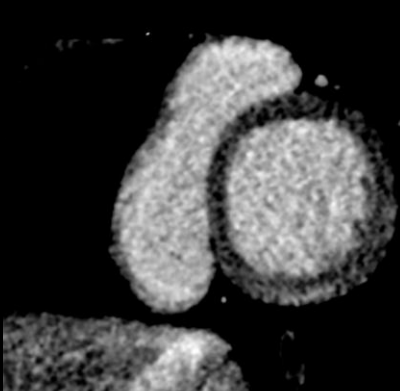
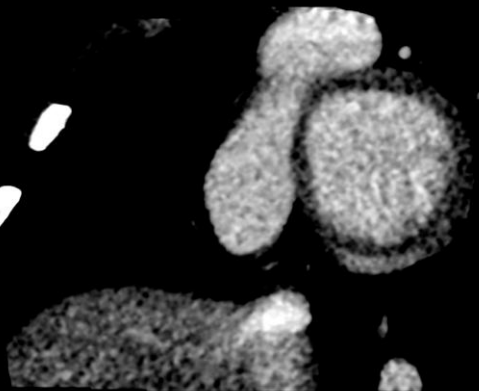
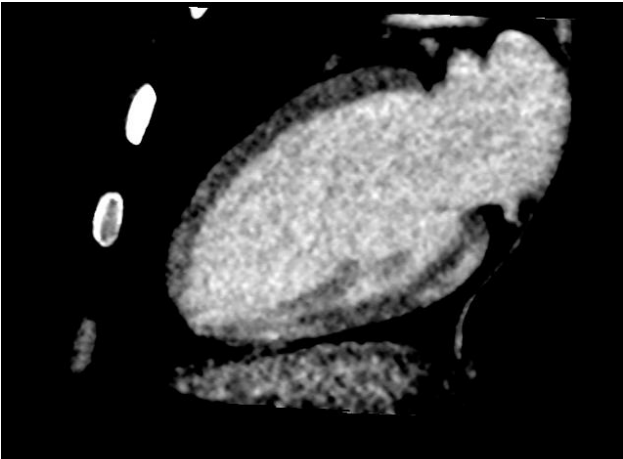
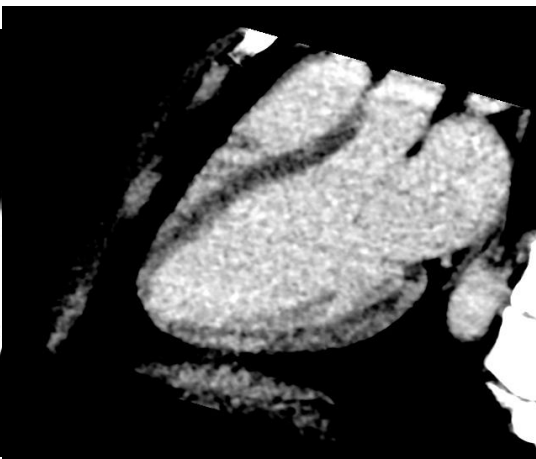
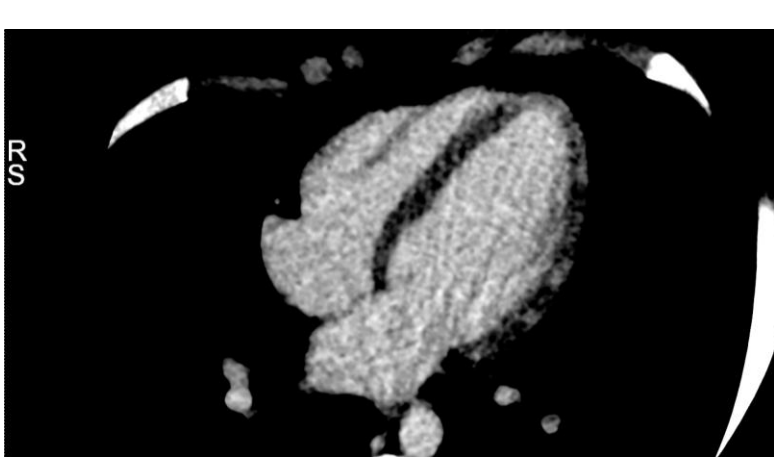


Ex:19784 IST. RADIOL. UNIV. TORINO
M 20 9002704888
Se:302 +c DoB: Aug 04 2000
Arteria circonflessa sinistra Angle:-286.9 Ex:Nov 13 2020
DFOV19.8x14.2cm
STND/AR60 Ph:80%
BPM:65

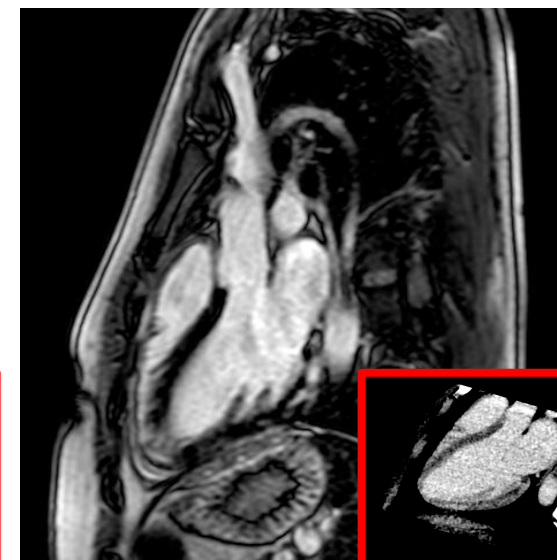
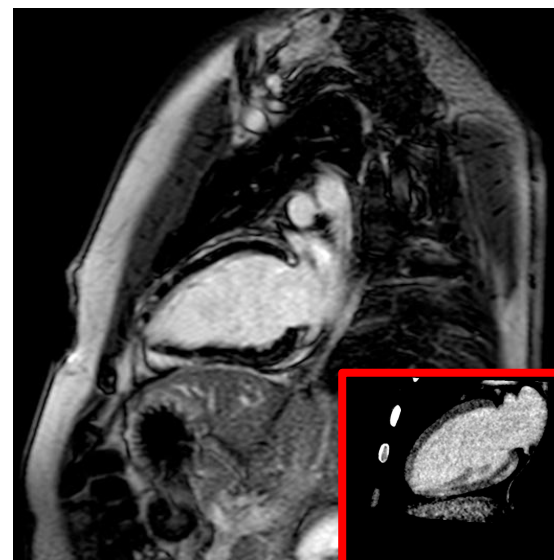
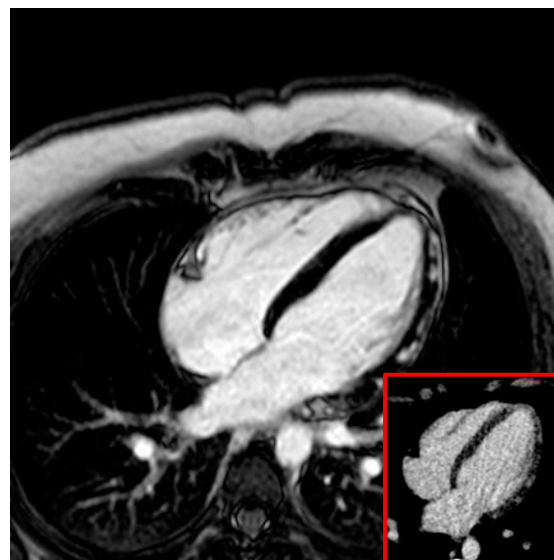
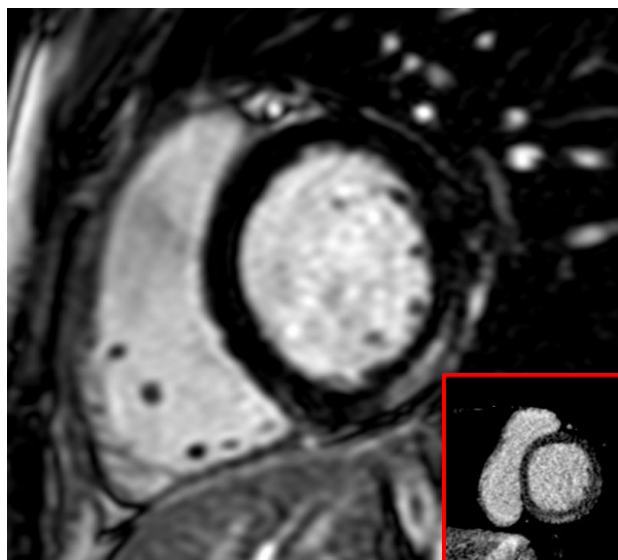
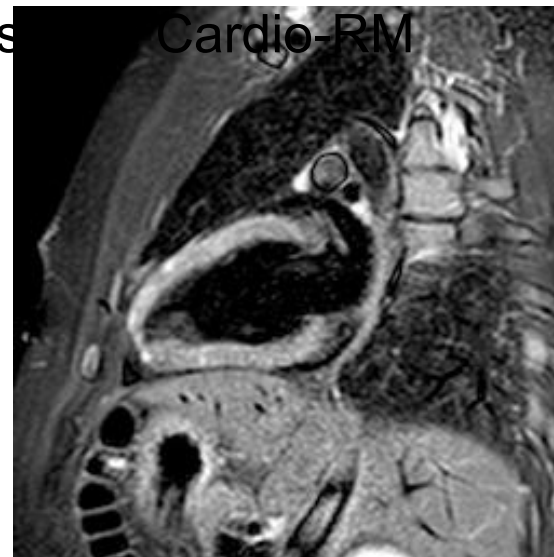
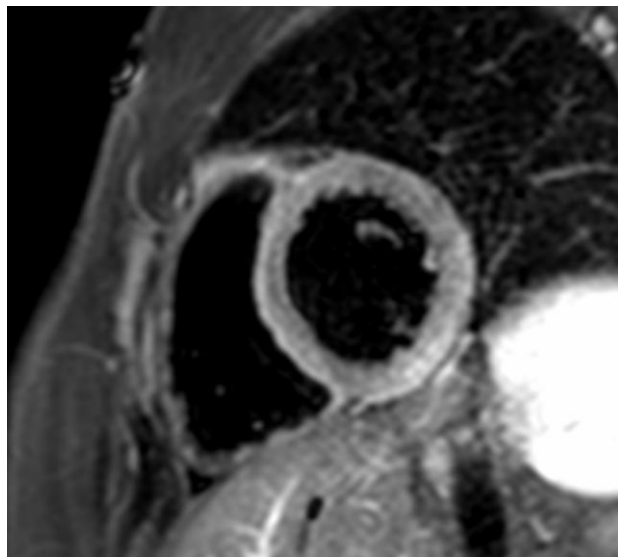


Ex:19784 IST. RADIOL. UNIV. TORINO
M 20 9002704888
Se:302 +c DoB: Aug 04 2000
Arteria discendente posteriore Angle:104.0 Ex:Nov 13 2020
DFOV21.1x15.1cm
STND/AR60 Ph:80%
BPM:65





es Cardio-RM





M 60 anni

FDR: ex-fumatore (stop nel 2010), ipertensione

Familiarità per CAD

2010 → PTCA+ DES su Cdx

2012 → PTCA+ DES su IVA II-III.

2021 test funzionale → negativo



Terapia domiciliare

cardioASA 100 mg

Rosuva/eze 10/10 mg

metoprololo 100 mg

pantoprazolo 20 mg

febuxostat 120 mg



 Mentre passeggiava col cane, insorgenza di dolore retrosternale irradiato posteriormente al giugulo con sensazione di costrizione nei



Conclusioni

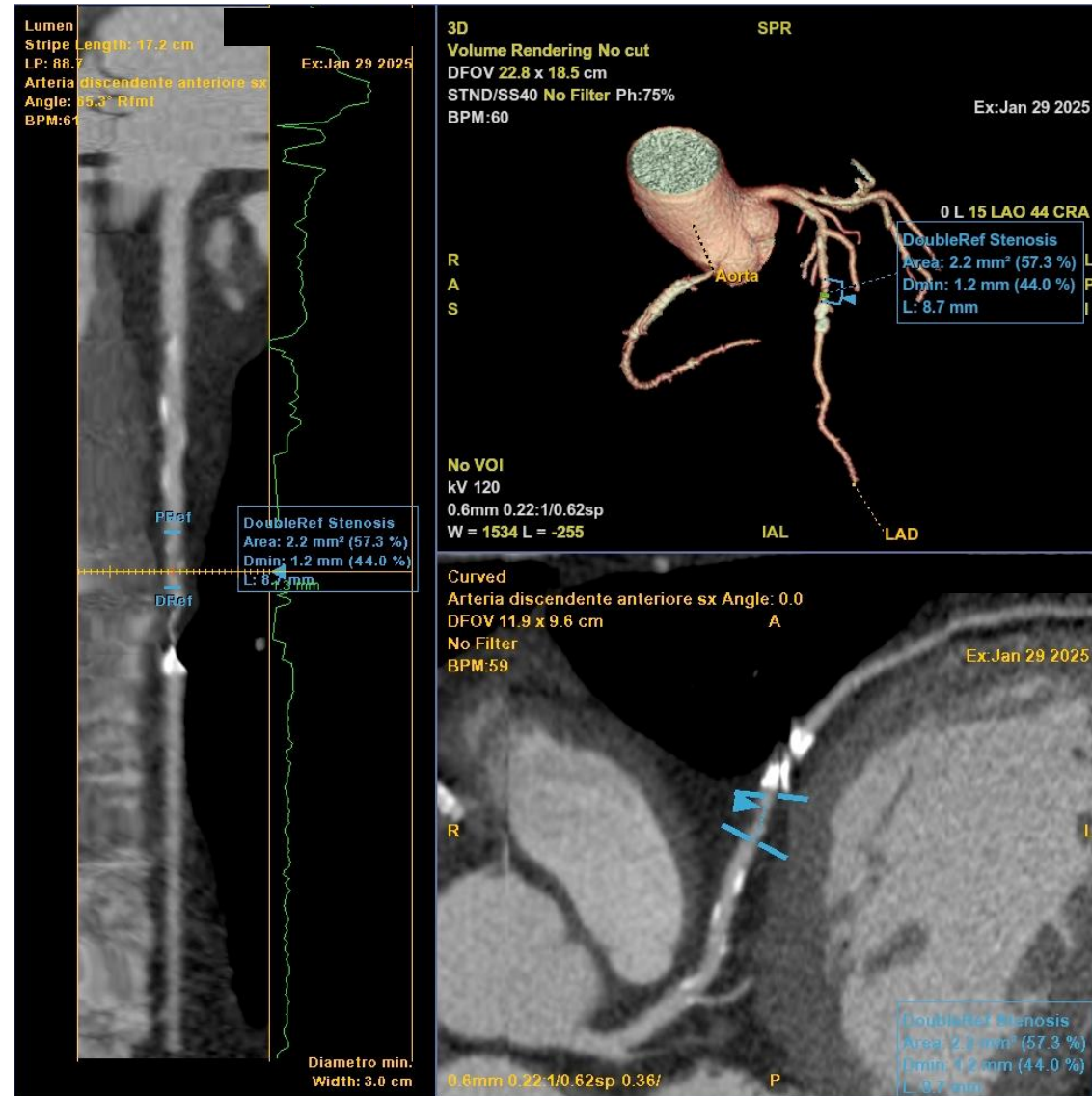
Dolore toracico analogo ai precedenti anginosi in soggetto con elevato profilo di rischio cardiovascolare e precedente rivascolarizzazione su CDx e IVA II-III. Troponina negativa. Compenso buono.

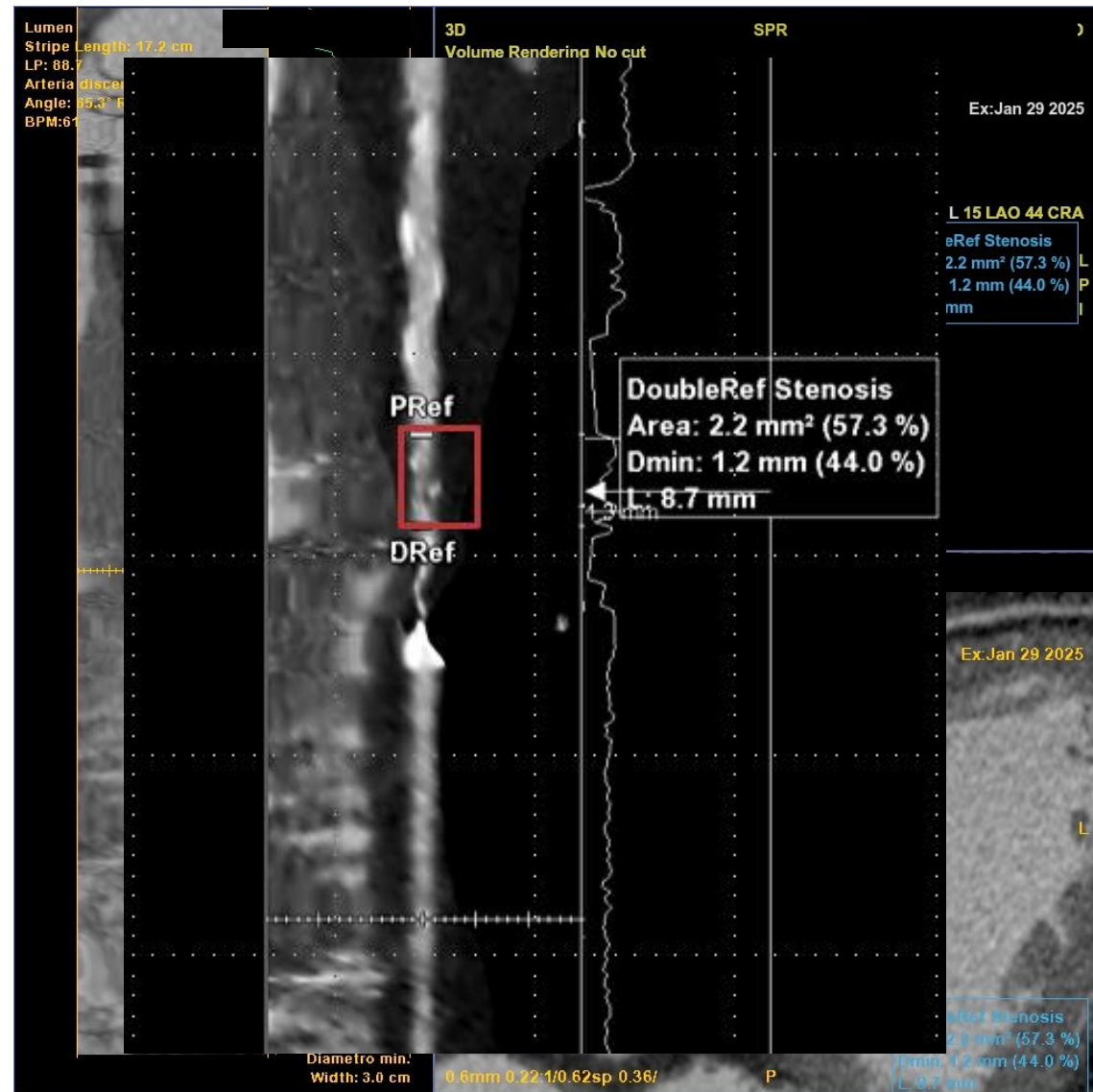
Utile eseguire Tc coronarica pre dimissione. Se negativa, successiva rivalutazione con Curante.

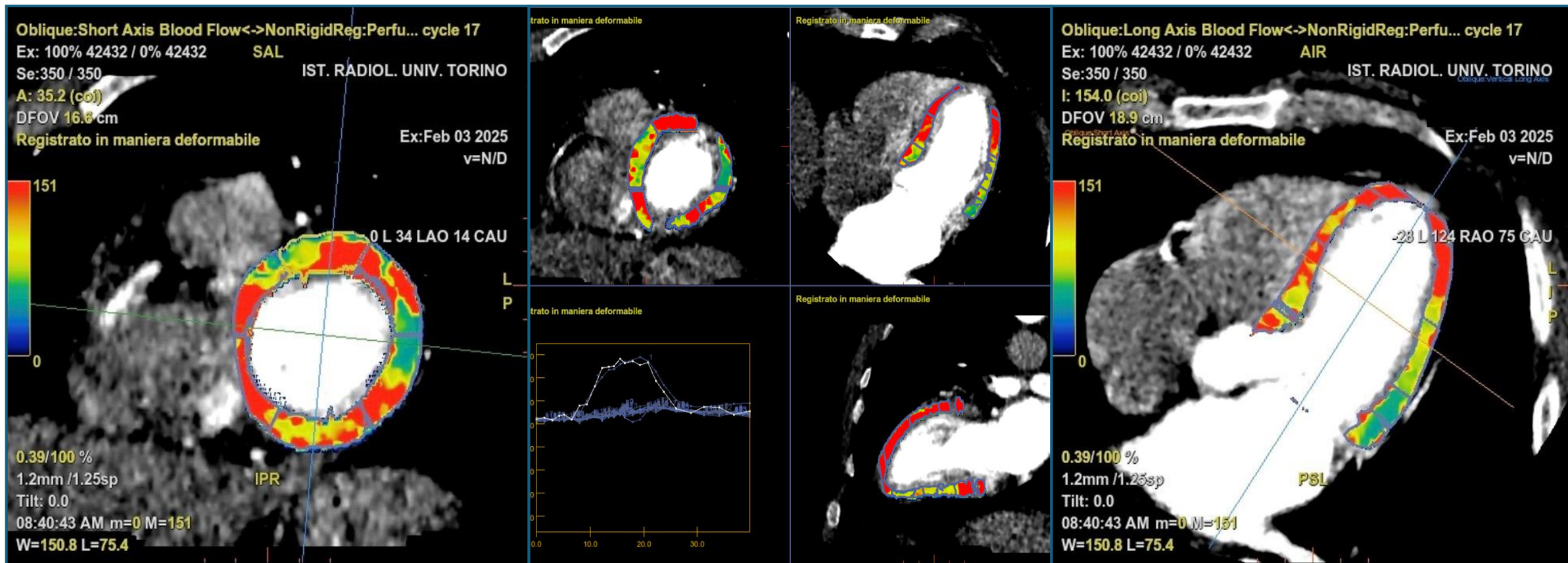
0.91

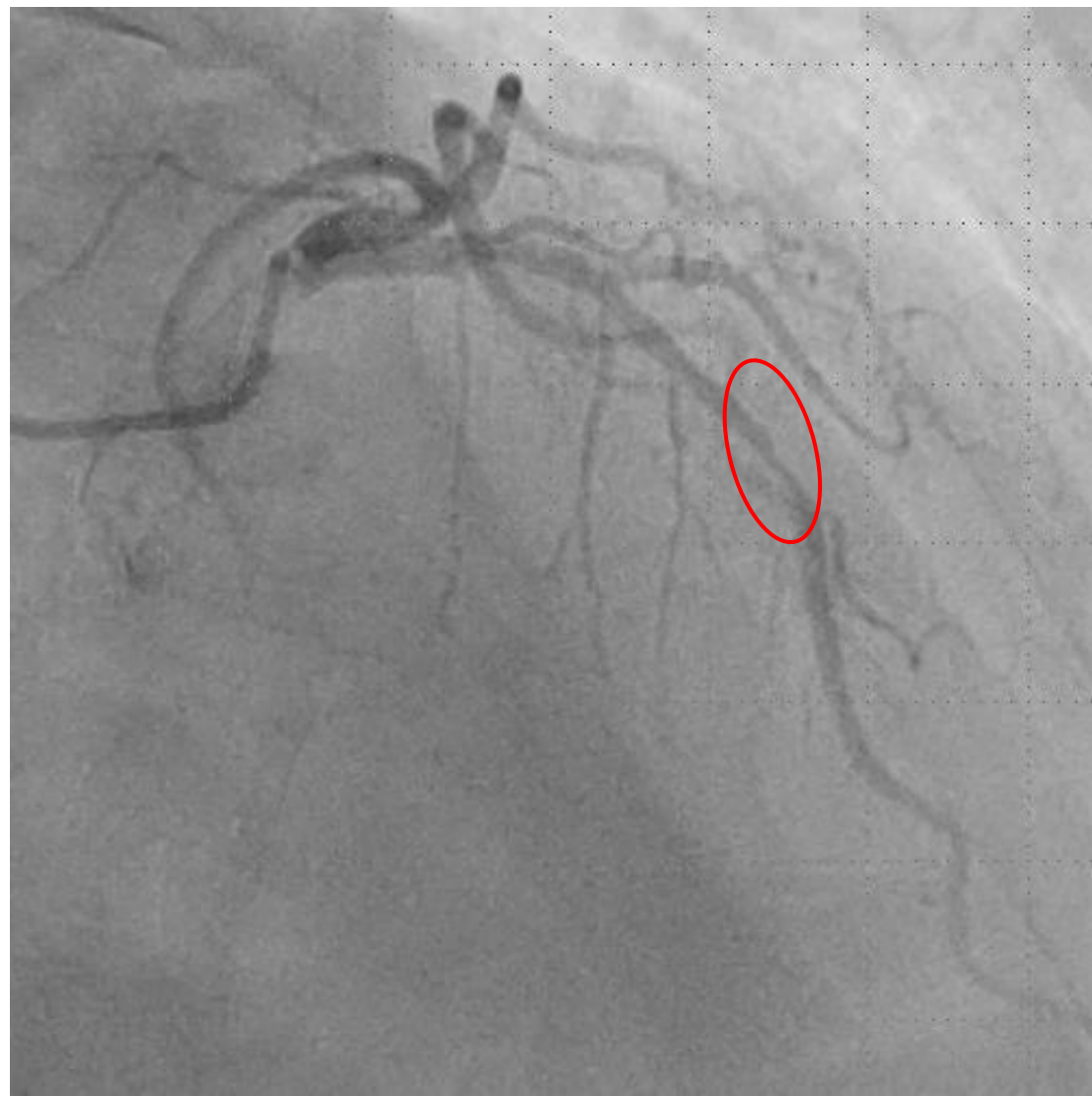
 ECG: RS 62/min, asse intermedio, atipie
Ecocardiografia: VS non dilatato, assenza di aspecifiche ST grossolane alterazioni della cinesi segmentaria; assenti vizi valvolari di rilievo; assente versamento pericardico.













Eseguiva in data 27/3/2025 studio coronarografico per via radiale sx con riscontro di **stenosi critica (90%) di IVA II** sottoposta a **PCI + 1 DES** a monte del pregresso. Buon esito pregressi stent. Restante albero coronarico libero da stenosi significative. Assenti complicanze peri e post-procedurali.
Per evidenza di PA 80/60 durante la procedura si sospende terapia anti-ipertensiva con HCT.



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Donna, 66 aa

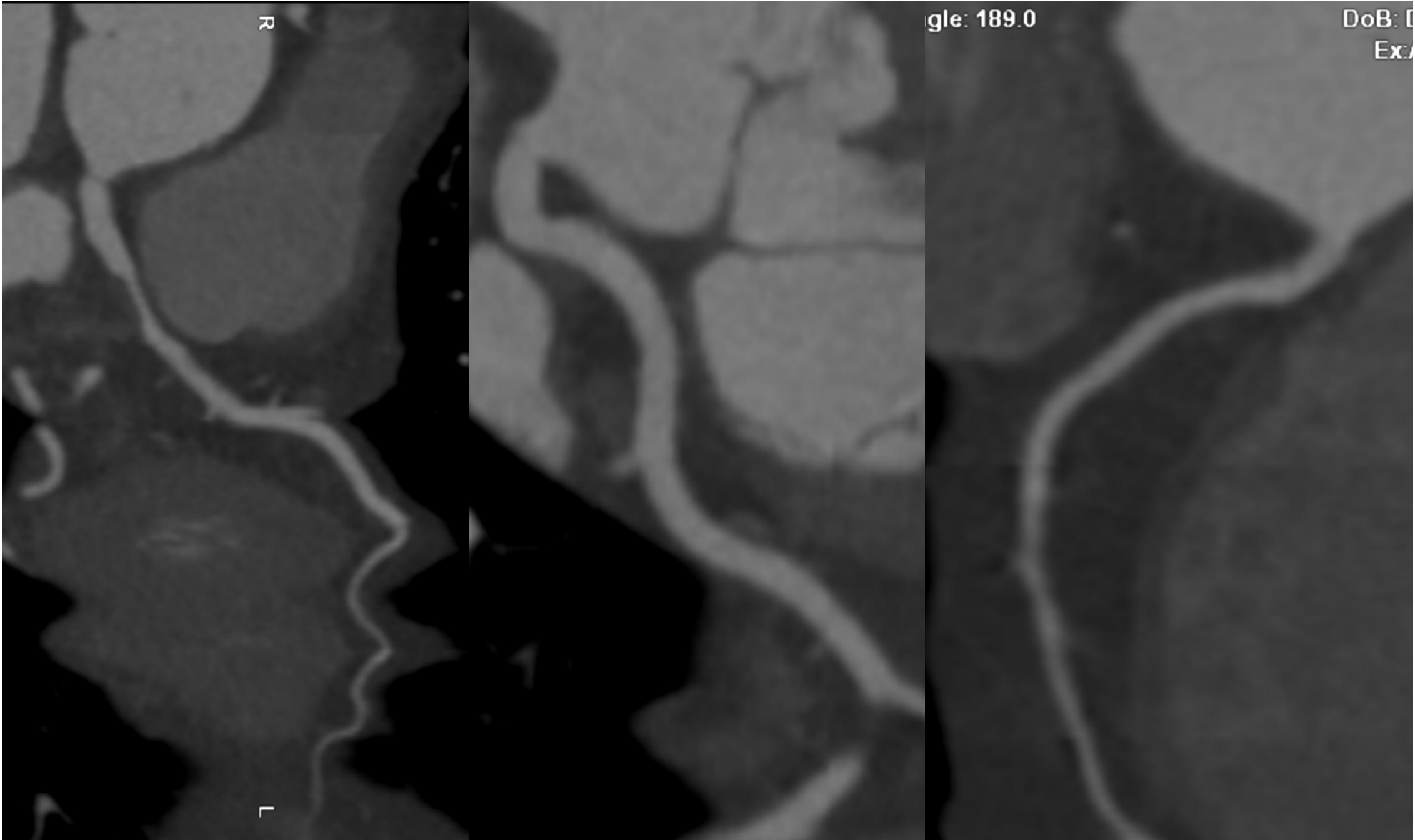
Assenti FDR CV

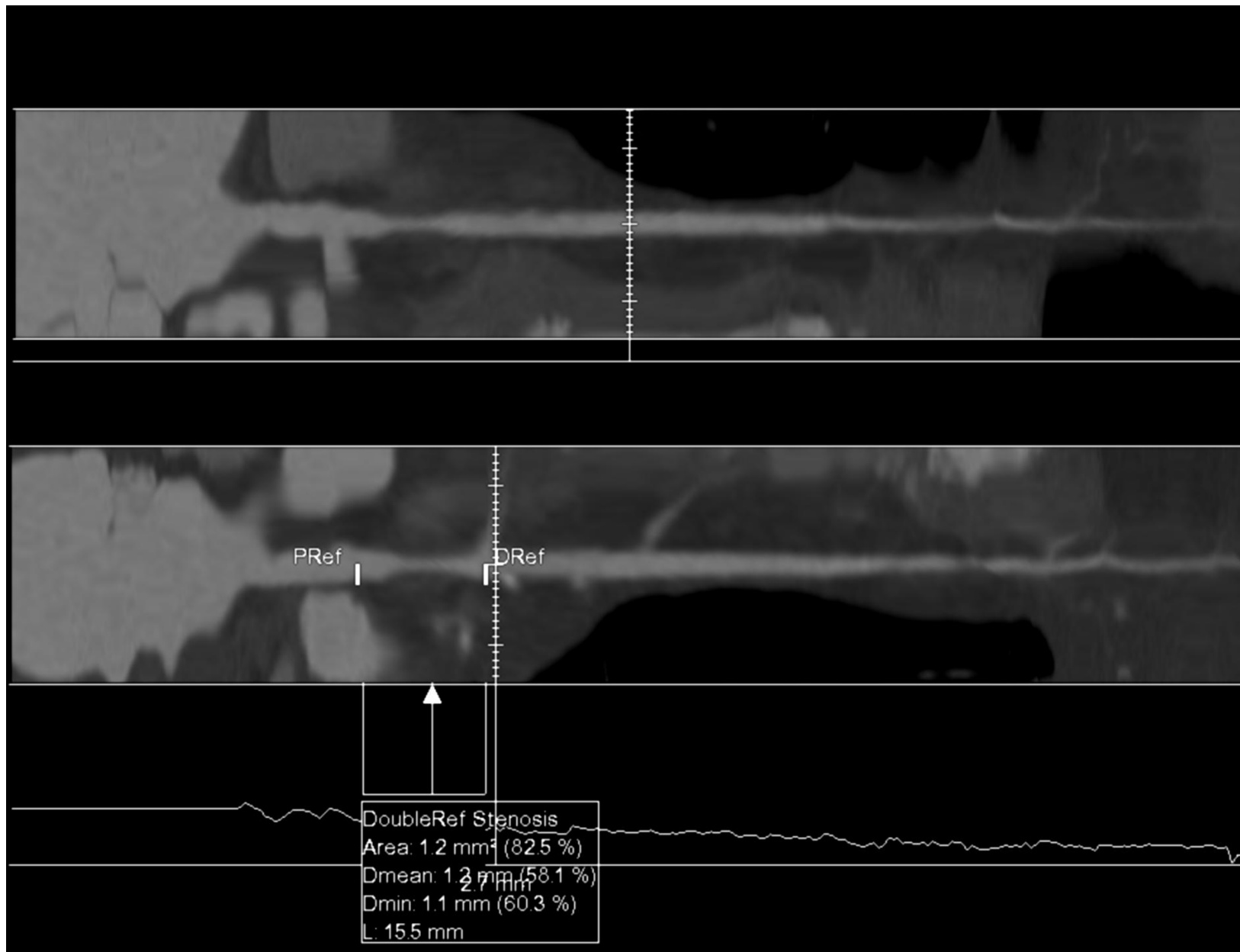
Recente episodio di dolore toracico non correlato allo sforzo in quadro di MRGE

Eseguito PES, negativo per angore ed ischemia, con alterazioni della ripolarizzazione nella fase di recupero



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DoubleRef Stenosis
Area: 6.5 mm² (73.5 %)
Dmean: 2.9 mm (47.7 %)
Dmin: 2.6 mm (50.5 %)
L: 11.9 mm



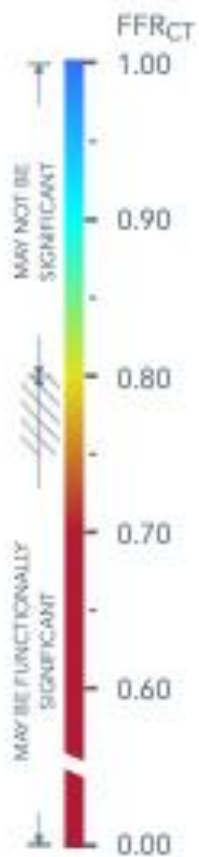
on

CORONARY SYSTEMS

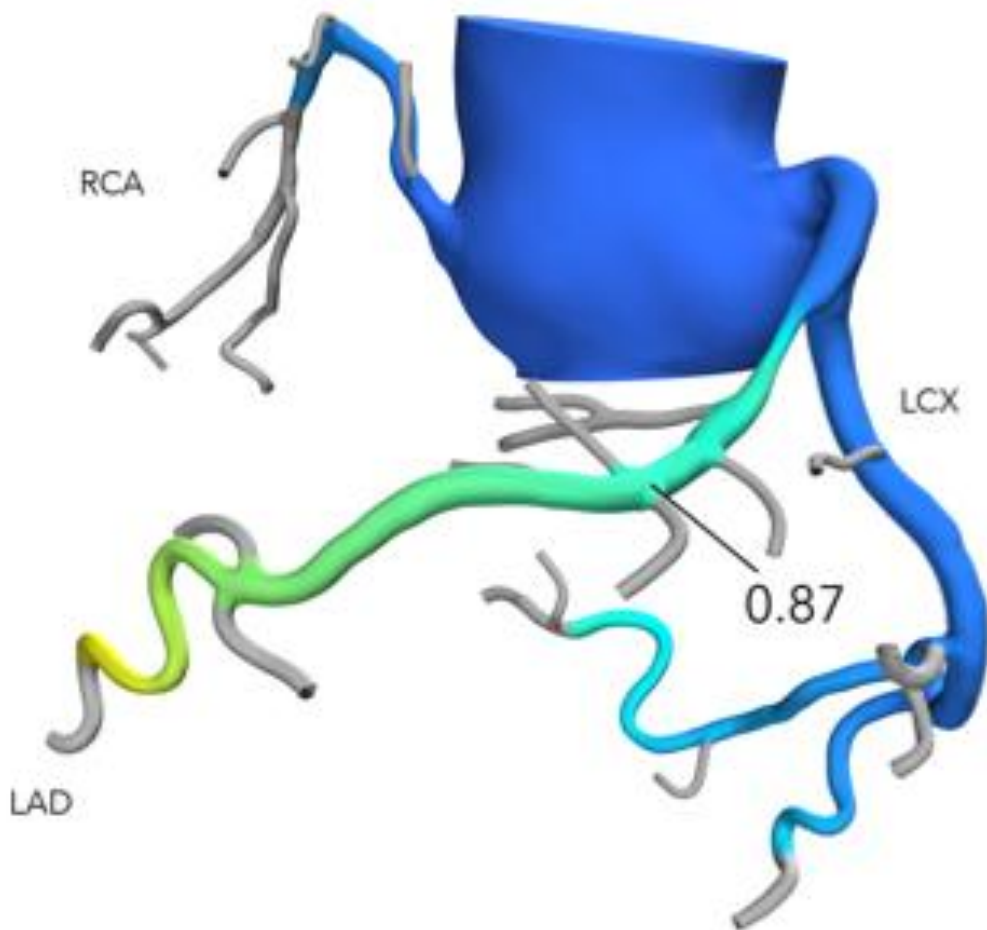
Left Anterior Descending

Left Circumflex

Right Coronary



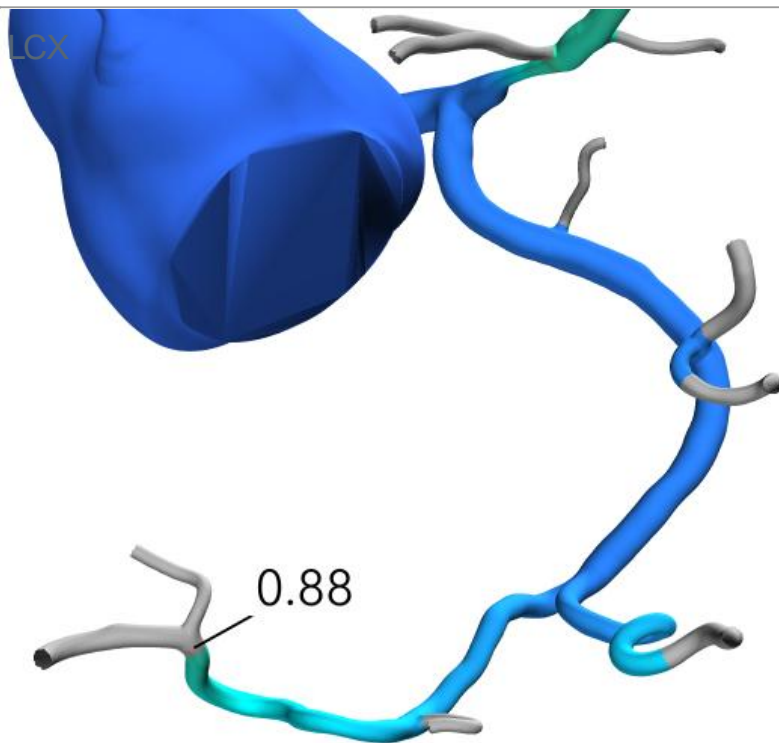
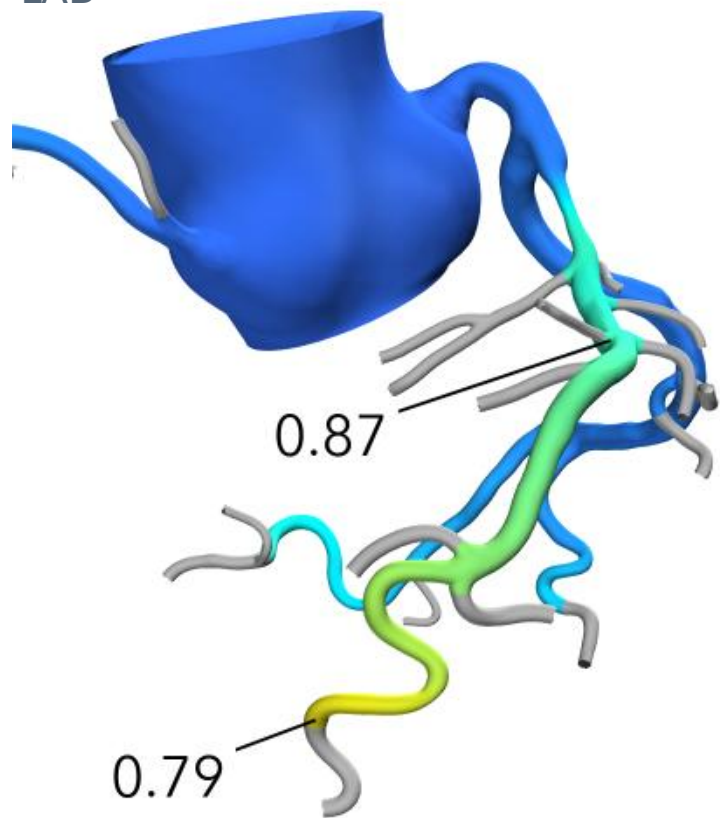
modeled as total
occlusion



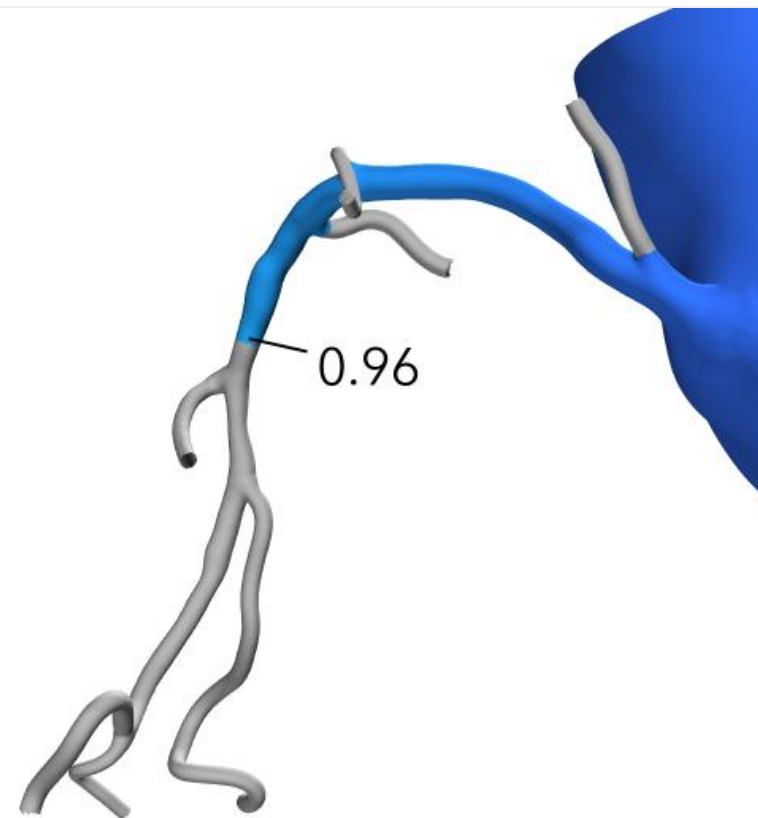


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LAD



RCA





Navigation Snapshot



Vessel	Myoc.	Note
✓ LAD	a	39,7%
> S1	b	10,1%

Analysis Results Vessel Δ1

Vessel CT-μFR
0,73

DS (Diameter Stenosis)
52,2%

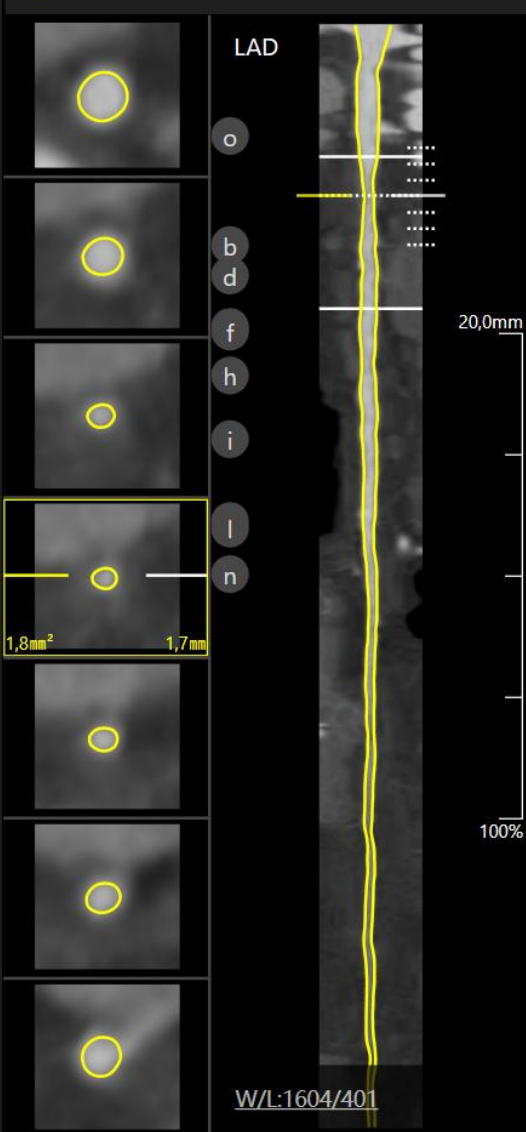
Residual CT-μFR : 0,96
 ΔCT-μFR : 0,23
 Stent Length : 25,57mm
 Lesion Length : 24,4mm
 AS (Area Stenosis) : 77,2%
 MLD (Mini. Lumen Diameter) : 1,51mm
 MLA (Minimum Lumen Area) : 1,80mm²

Plaque Burden : **72,4%**
 Plaque Volume : **102,63 mm³**

☒ Calcification : 0,70mm³ (0,7%)
☐ Fibroatheroma : 88,83mm³ (86,6%)
☒ Lipid-rich : 13,10mm³ (12,8%)

REPORT EDITOR

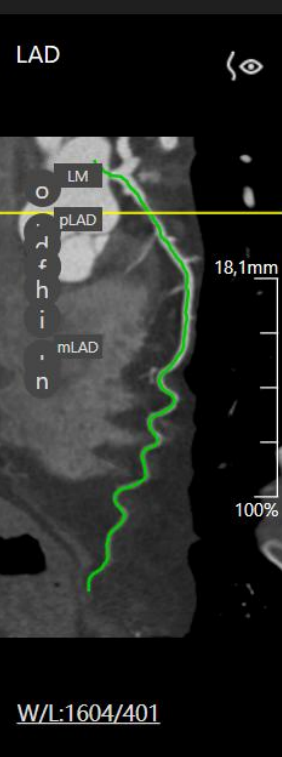
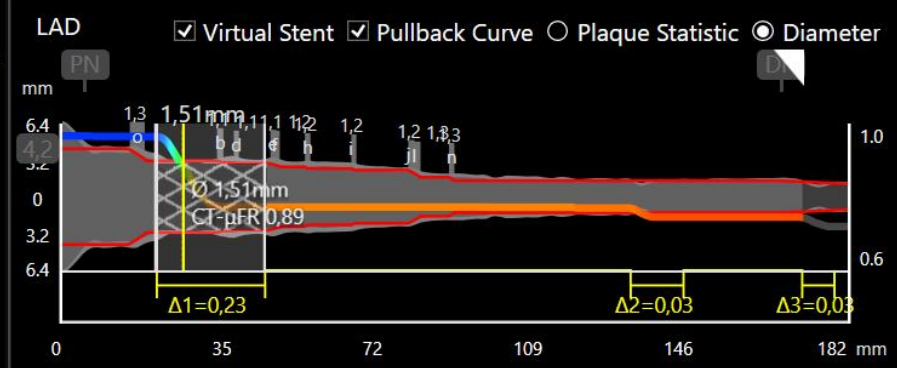
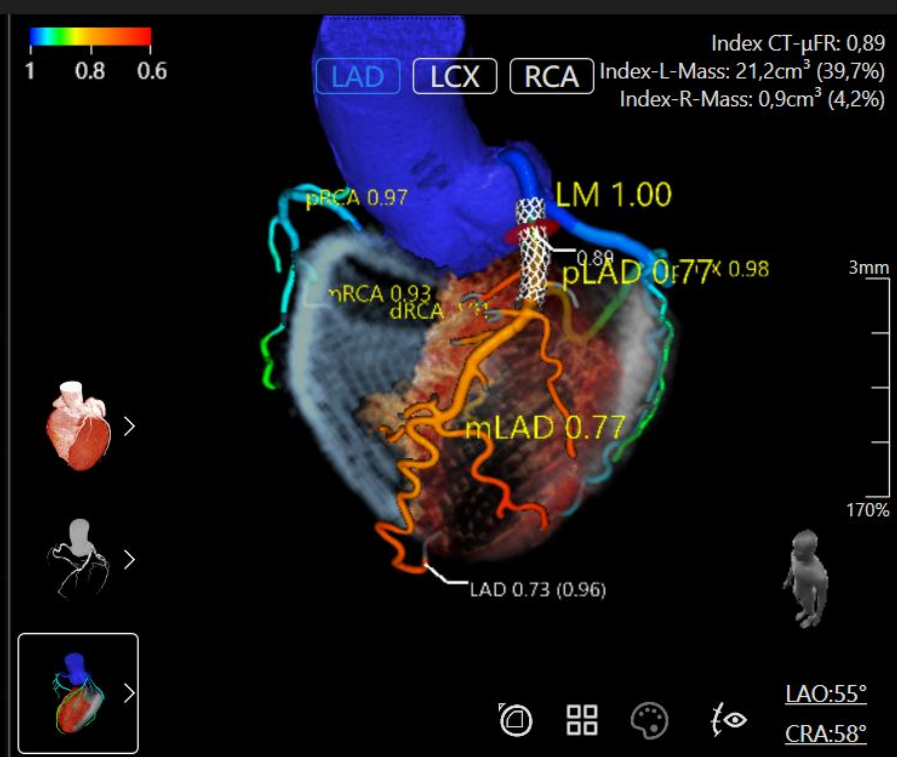
✓ Vessel



✓ CT-μFR

✓ Stenosis

✓ Lumen



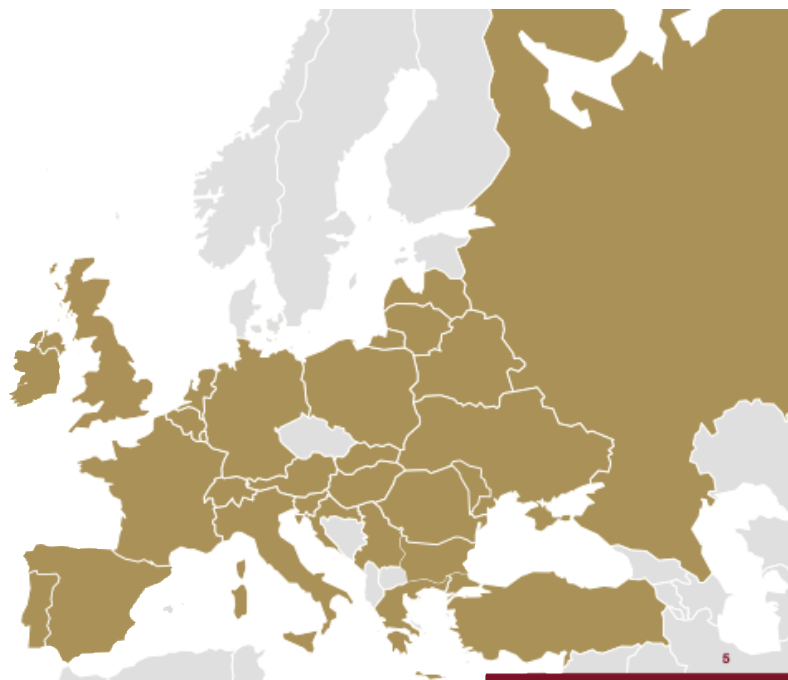


European
MR/CT Registry

ESCR
EUROPEAN SOCIETY OF
CARDIOVASCULAR
RADIOLOGY

MR/CT-Registry in Europe 2023

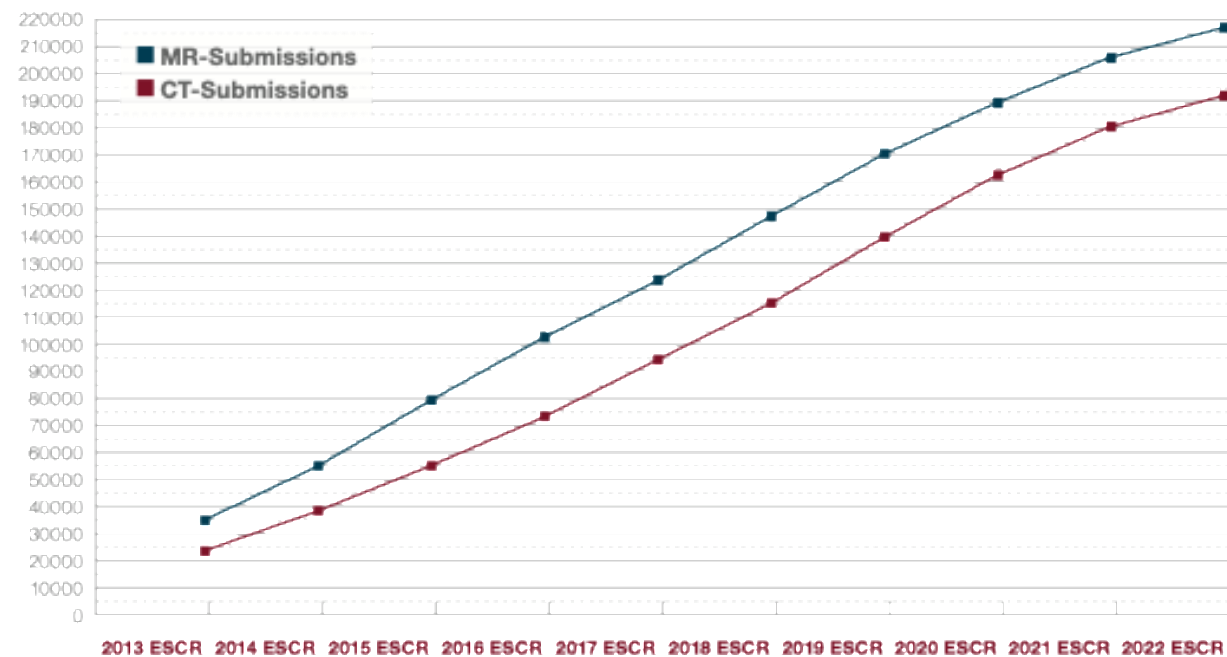
... be a part of it!
www.mrct-registry.org



ESCR Cardiac MR/CT Registry

MR & CT Submissions

(15/01/2023)





MR/CT-Registry in Europe 2023

... be a part of it!
www.mrct-registry.org

RF
2010-2025
Circa 12000 CMR
967 CMR stress (<10%)

ESCR Cardiac MR/CT Registry Main MR Indications

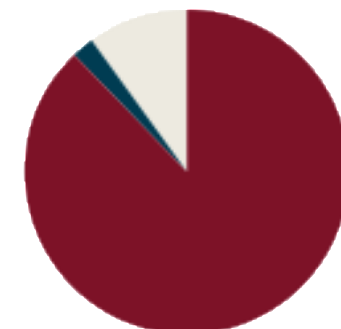
(15/01/2023)

Suspected Myocarditis	55591
Suspected CAD	46427
Suspected Cardiomyopathy	42112
Known CAD	35297
Other Indication	23425
Known Valve Disease	7205
Known Congenital Heart Disease (CHD)	6846
Known Cardiomyopathy	5440
Visualisation of Pulmonary Veins	4185
Suspected Valve Disease	4155
Known Myocarditis	3816
Suspected Cardiac Tumour	3617
Suspected Congenital Heart Disease (CHD)	2272
Known Cardiac Tumour	
Visualisation of Coronary Veins	
Suspected HTx Rejection	
Suspected HTx Allograft Vasculopathy	

ESCR Cardiac MR/CT Registry Stress-MR (n=46849)

(15/01/2023) 40

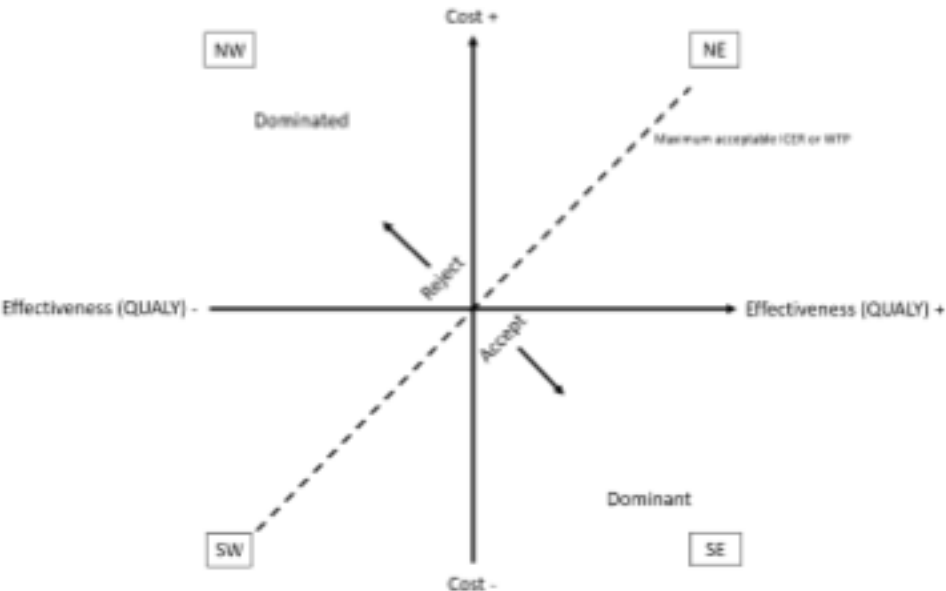
■ Stress-Adenosin (88 %)
■ Stress-Dobutamin (2%)
■ Stress-Regadenoson (10%)



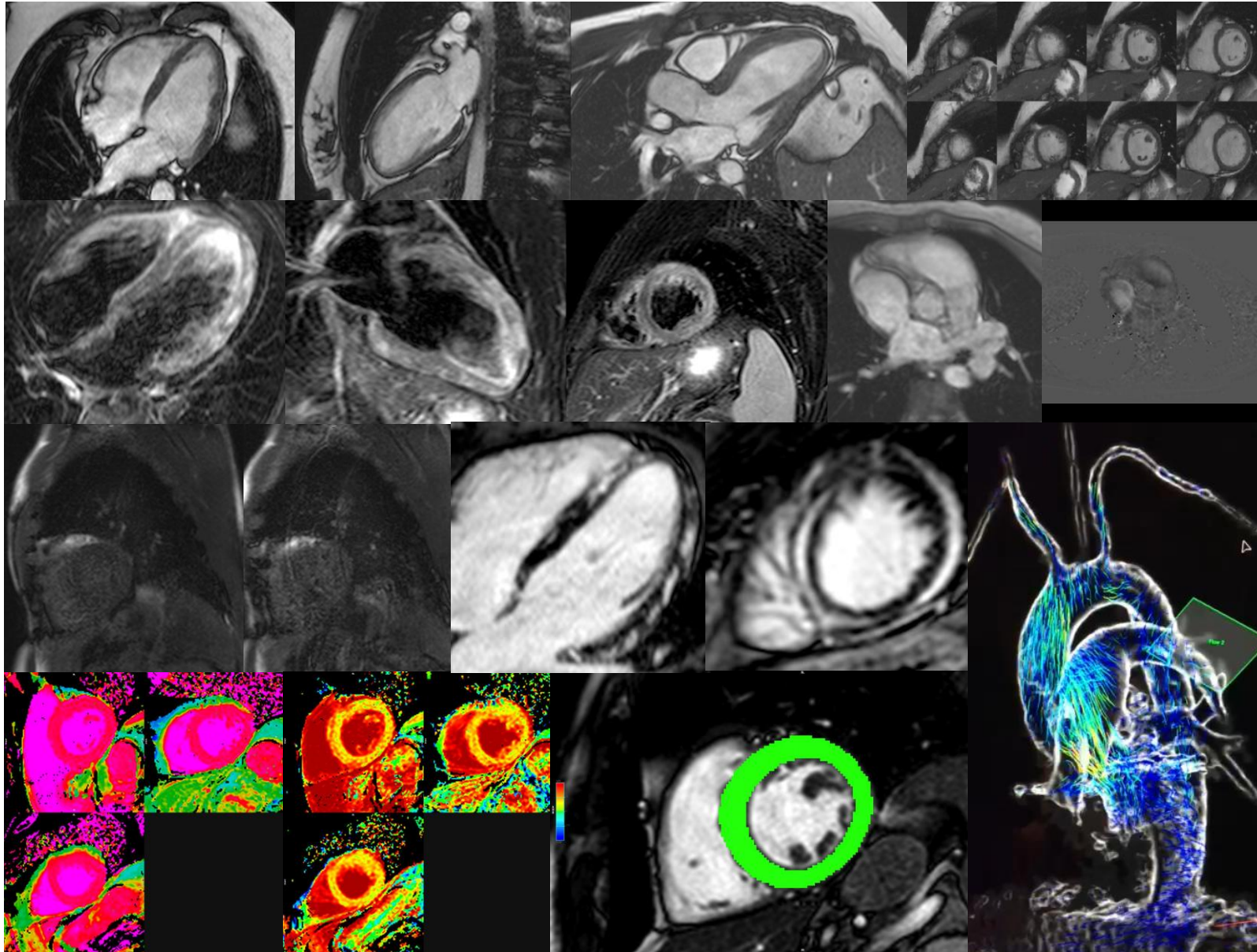


Cardiac-CT and cardiac-MR cost-effectiveness: a literature review

Maurizio Centonze¹ · Stephanie Steidler² · Giulia Casagrande¹ · Ugolino Alfonsi¹ · Federica Spagnolli¹ · Umberto Rozzanigo¹ · Diego Palumbo^{2,3} · Riccardo Faletti⁴ · Francesco De Cobelli^{2,3}



Although the topic is beyond the aim of this review, few words regarding the **fully cardiological use of CT and MR equipment**: considering the favorable cost-effectiveness ratio, it remains to assess whether an exclusive use of CT and MR equipments for cardiac imaging could be really economically convenient. As far as we know, currently in Italy, there is a single center in which these equipments are completely dedicated to cardiac imaging and also in other western countries there are few similar examples. A recent Italian survey established that only **on the basis of costs and clinical indications, their exclusive use is anti-economic**, likely increasing both the inappropriate examinations and either health expenditure.





Grazie!

