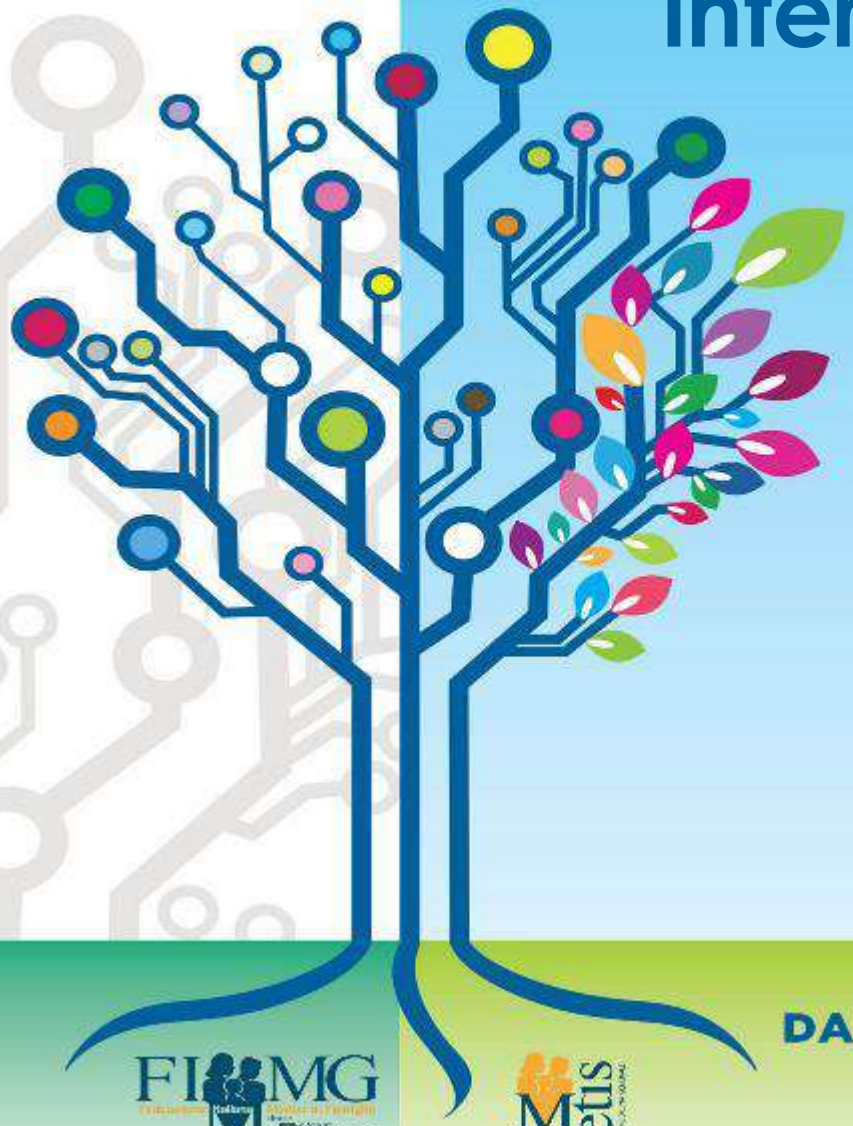
CIC dal sospetto alla diagnosi: interventi coordinati tra MMG e Specialisti



Francesco Perticone

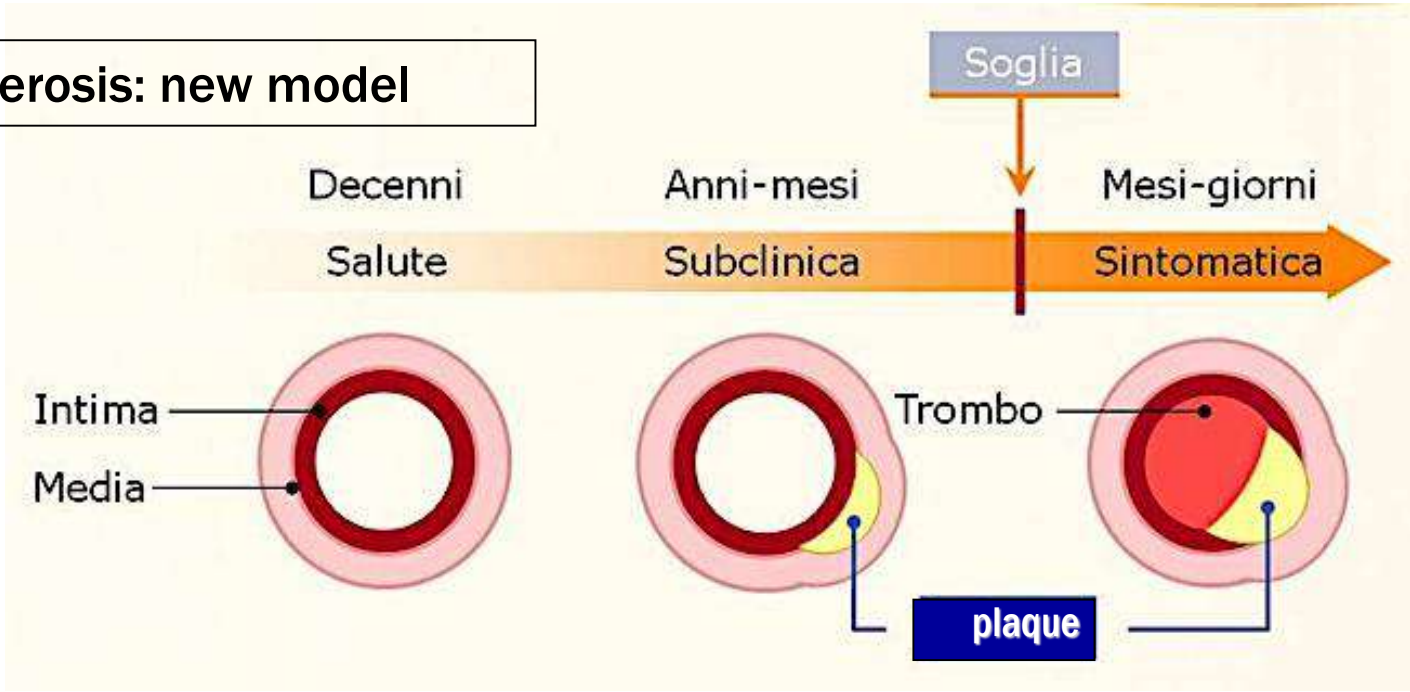
Università Magna Graecia di Catanzaro

DALLA PRESTAZIONE ALLA PERFORMANCE

74° Congresso Nazionale

2-7 ottobre 2017

Atherosclerosis: new model



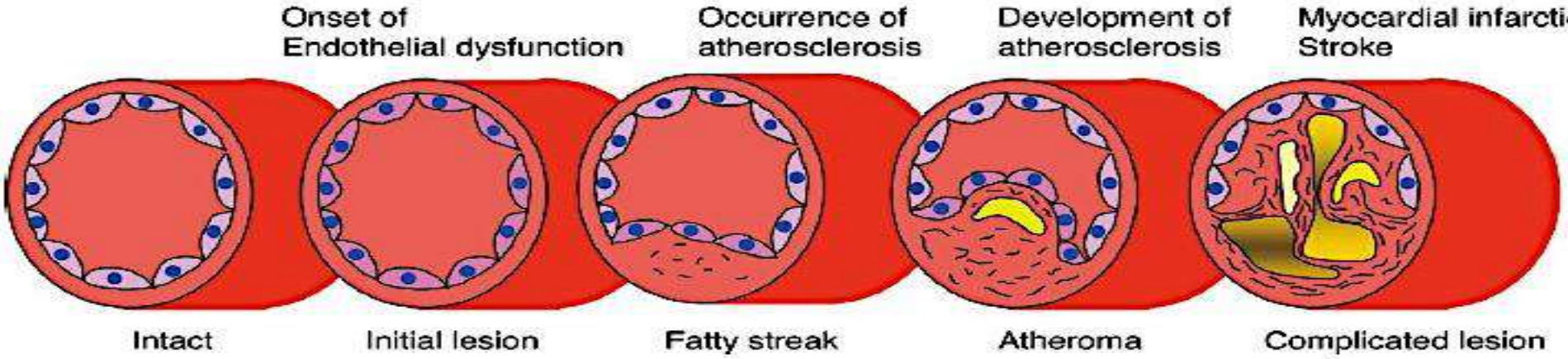
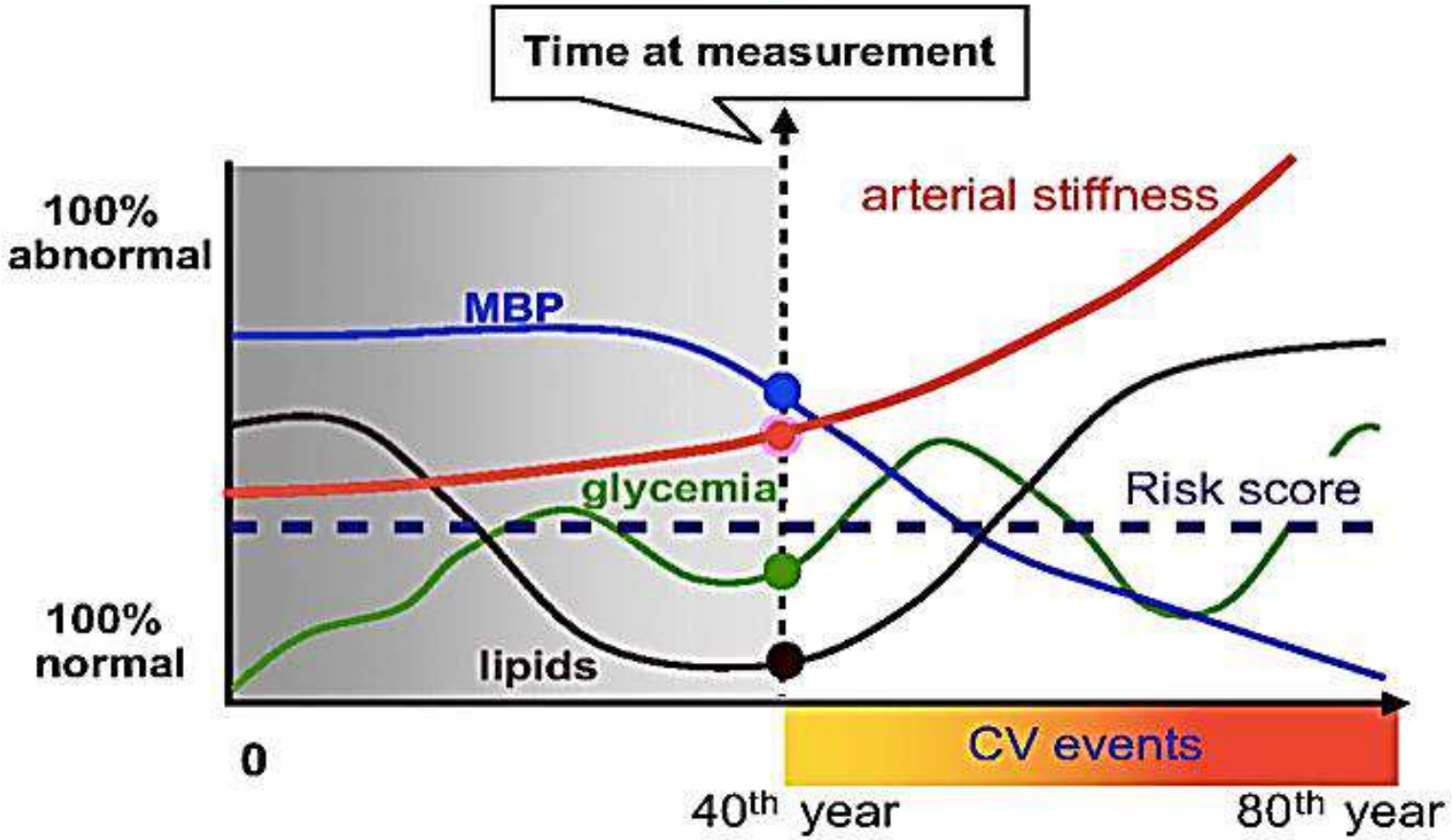
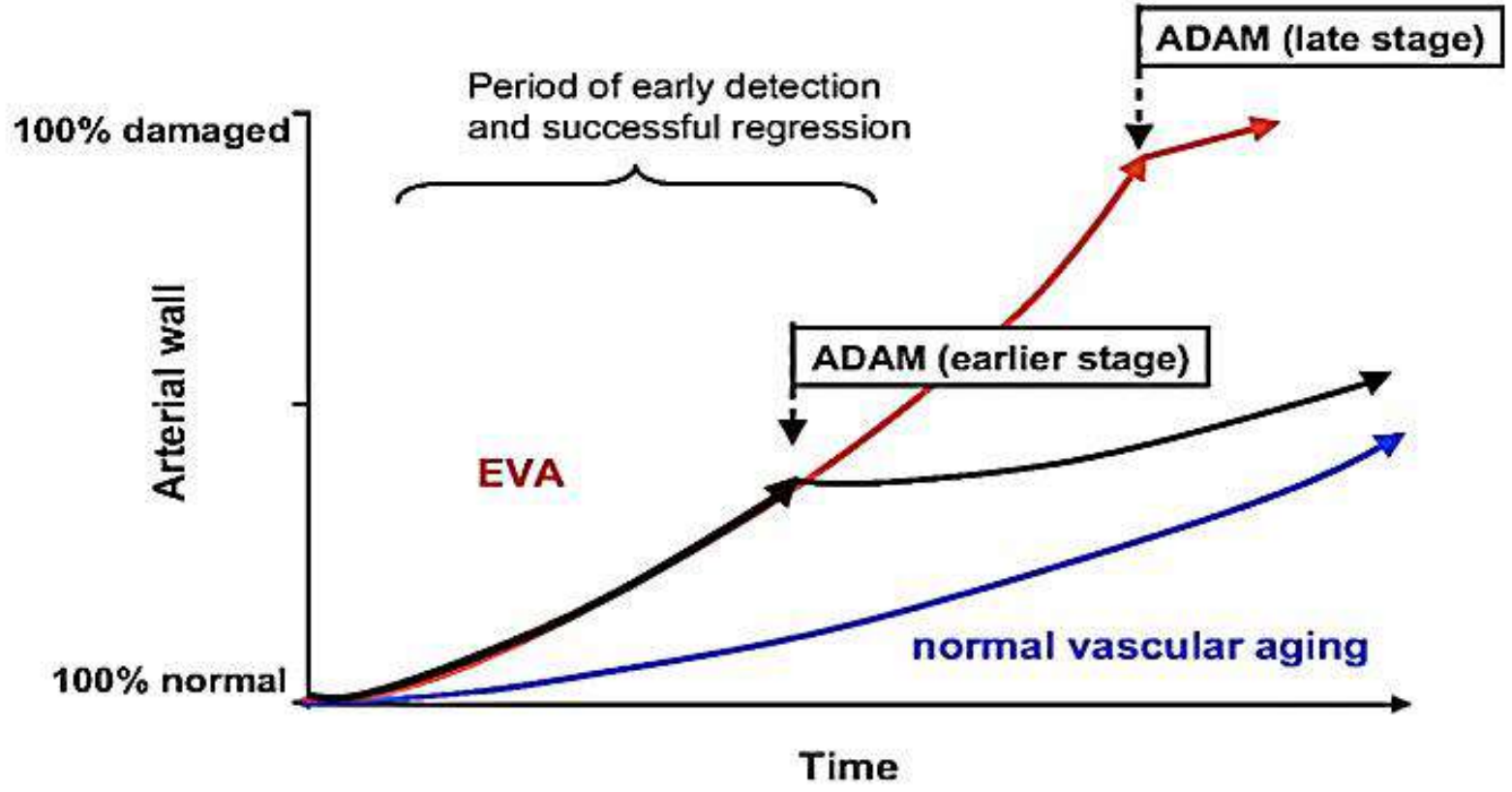


Figure 1. Arterial stiffness is a cumulative measure of the damaging effects of CV risk factors on the arterial wall with aging.



Nilsson P M et al. Hypertension 2009;54:3-10

Figure 3. Time course for the development of EVA and start of intervention with ADAM in patients at increased cardiovascular risk.



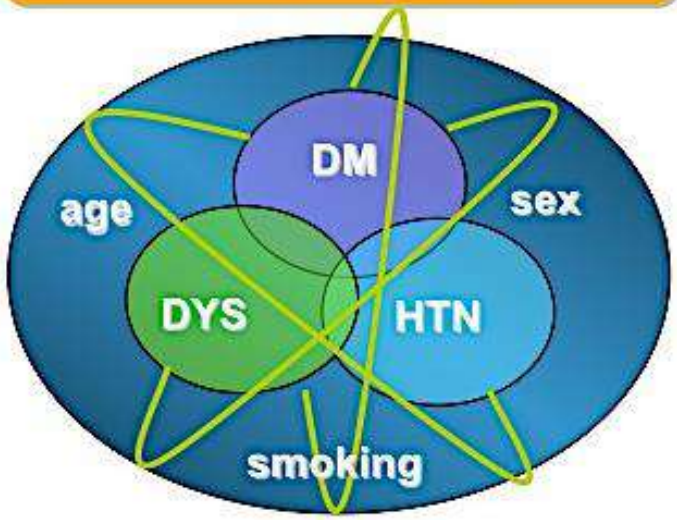
Nilsson P M et al. Hypertension 2009;54:3-10

Evolution in Understanding of CVD

Traditional Cardiovascular Disease Perspective

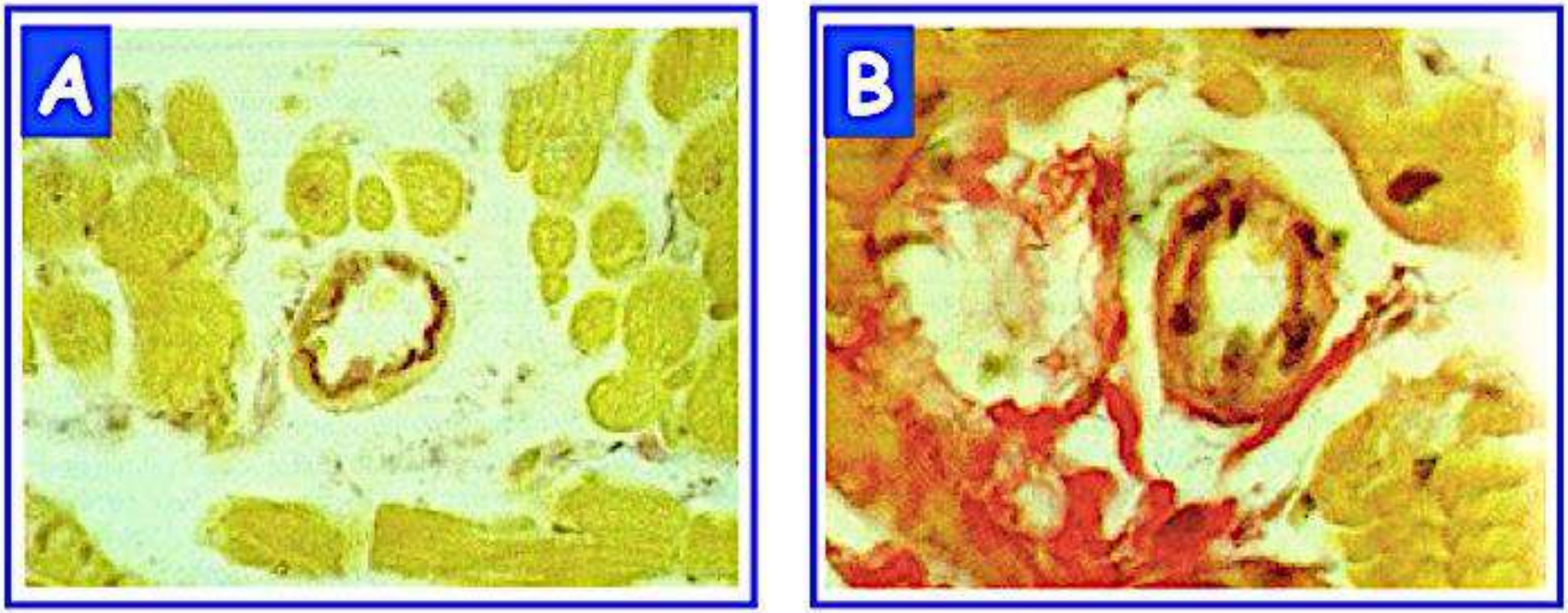
Multiple Independent RF (Silo Approach)

New Cardiovascular Risk Perspective



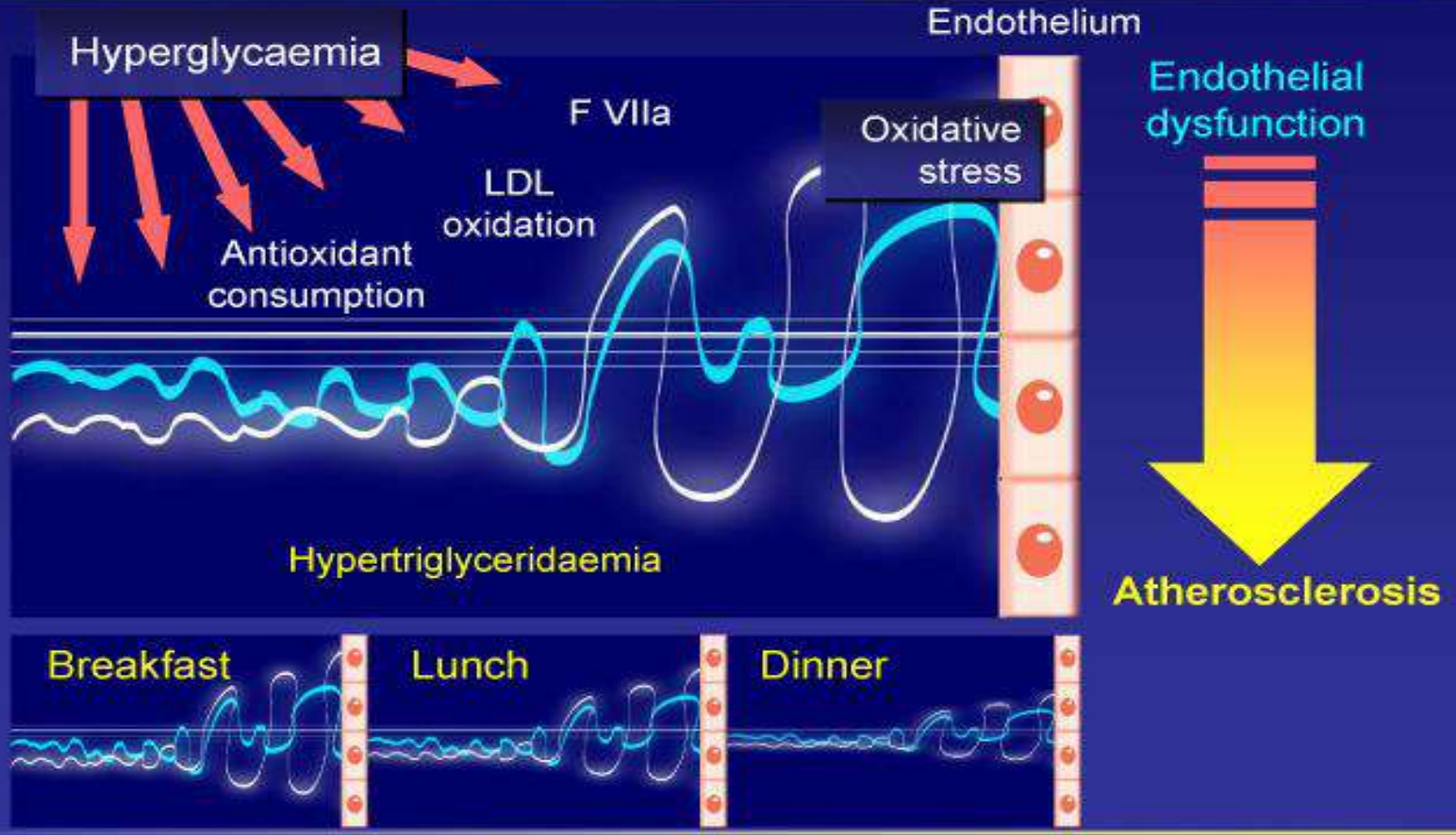
Cardiovascular Disease RF (Global Approach)

Intramyocardial Arteriole in Normotensive (A) and in Hypertensive (B)

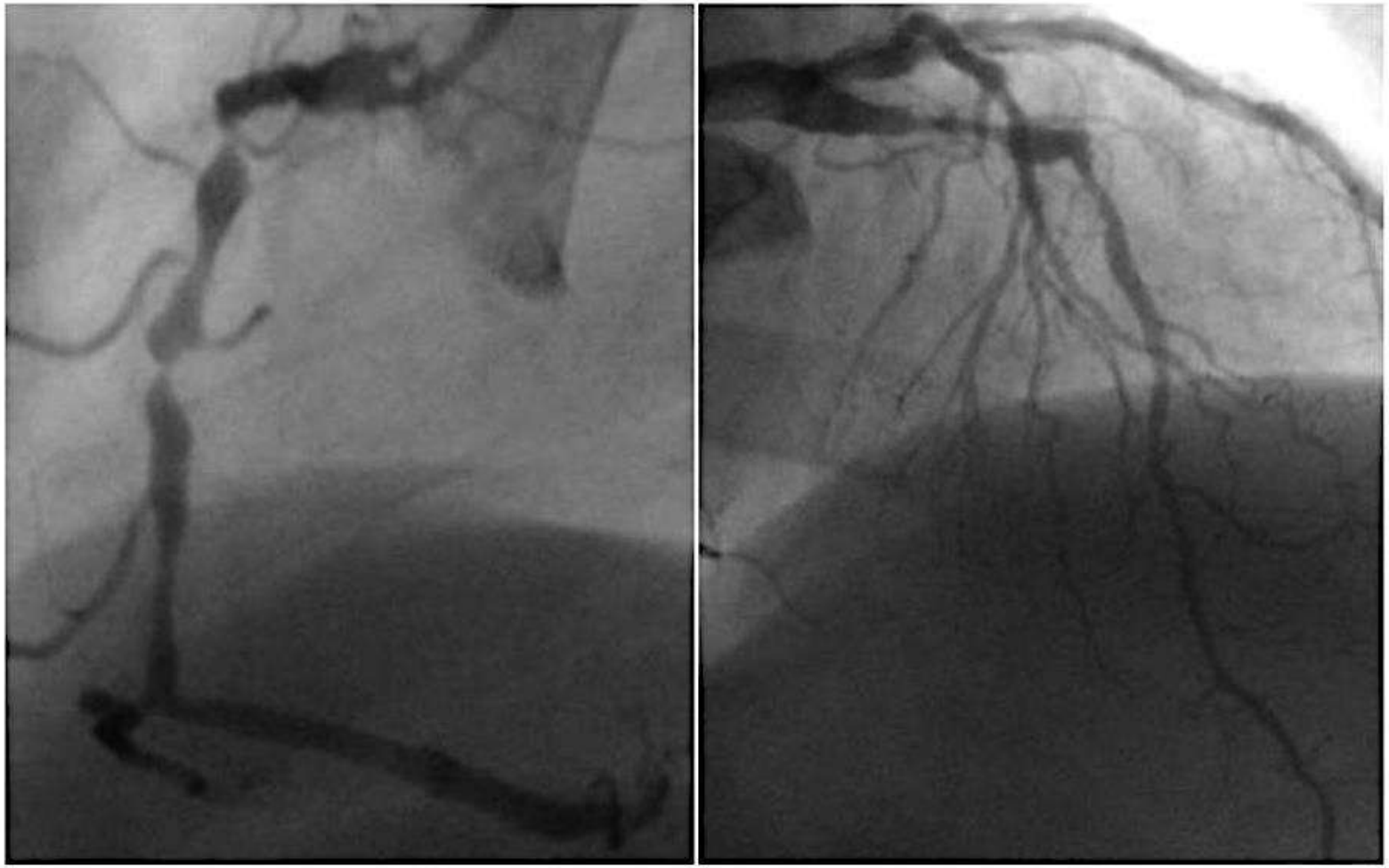


Schwartzkopff B et al. - Circulation 1993; 88:993-1003

The oxidative stress wave

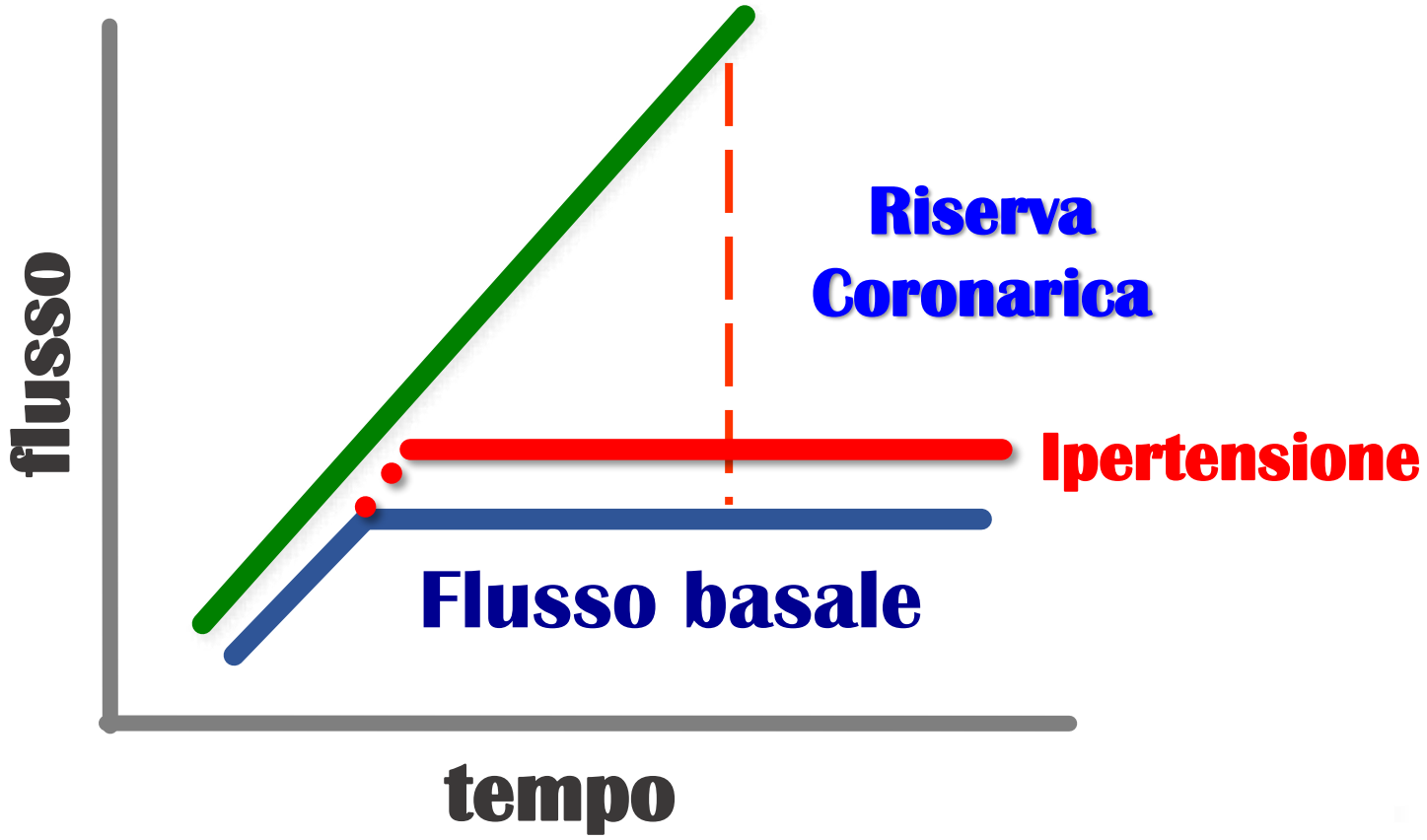


Coronaropatia del paziente diabetico

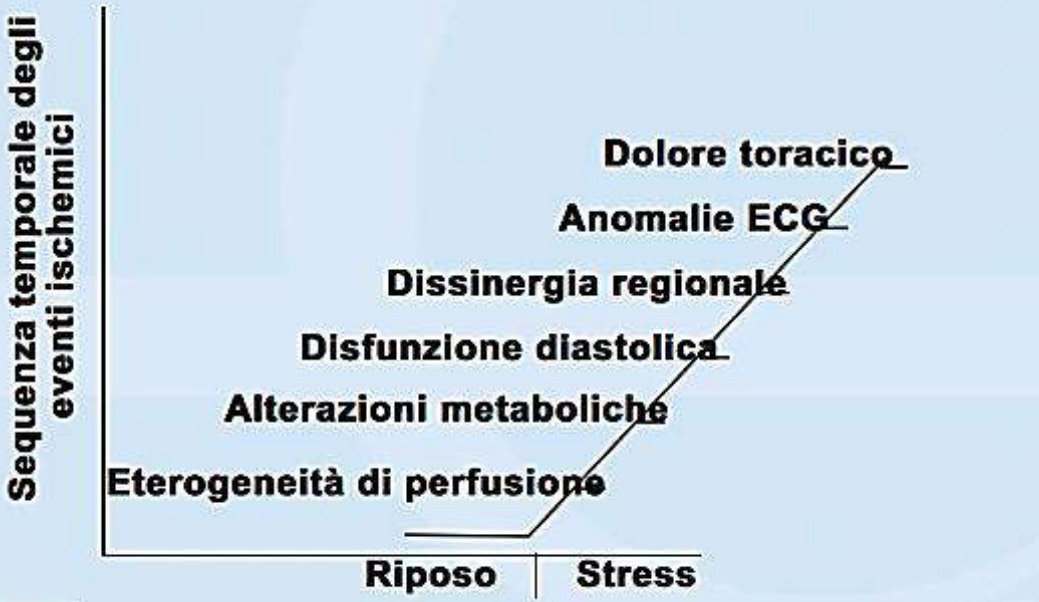


ha delle proprie peculiarità

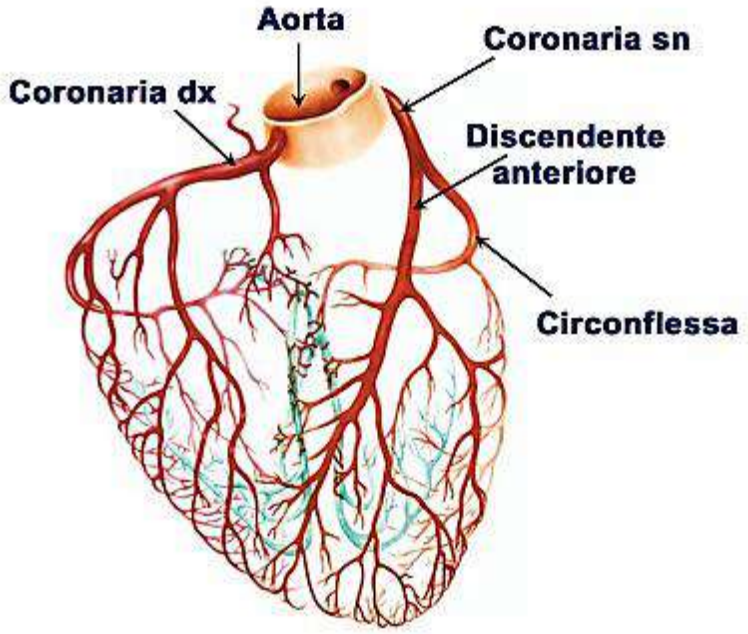
Ipertensione Arteriosa e Riserva Coronarica



La cascata ischemica



Vasospasmo coronarico, Stenosi epicardiche



Cascata Ischemica

1 - Occlusione coronarica
2 - Alterazioni diastoliche
3 - Alterazioni sistoliche
4 - Modificazioni emodinamiche
5 - Alterazioni ECG
6 - Angina

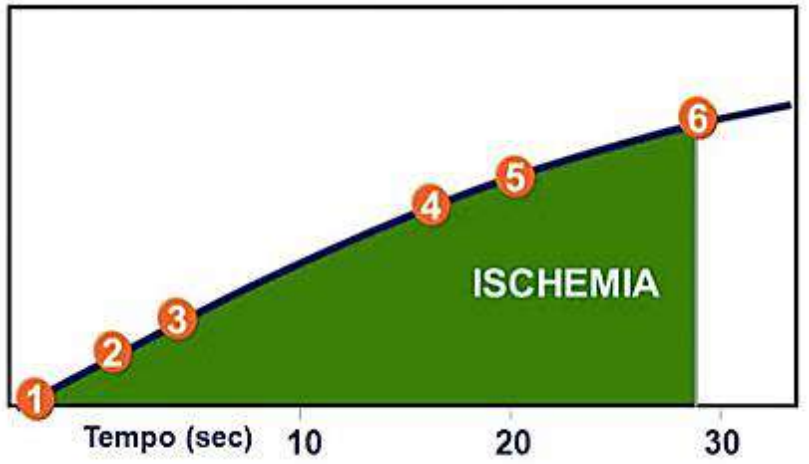


Table 3 Main features of stable coronary artery disease

Pathogenesis
Stable anatomical atherosclerotic and/or functional alterations of epicardial vessels and/or microcirculation
Natural history
Stable symptomatic or asymptomatic phases which may be interrupted by ACS
Mechanisms of myocardial ischaemia
Fixed or dynamic stenoses of epicardial coronary arteries;
Microvascular dysfunction;
Focal or diffuse epicardial coronary spasm;
The above mechanisms may overlap in the same patient and change over time.
Clinical presentations
Effort induced angina caused by: • epicardial stenoses; • microvascular dysfunction; • vasoconstriction at the site of dynamic stenosis; • combination of the above.
Rest angina caused by: • Vasospasm (focal or diffuse) • epicardial focal; • epicardial diffuse; • microvascular; • combination of the above.
Asymptomatic: • because of lack of ischaemia and/or of LV dysfunction; • despite ischaemia and/or LV dysfunction.
Ischaemic cardiomyopathy

ACS = acute coronary syndrome; LV = left ventricular; SCAD = stable coronary artery disease.

Table 5 Classification of angina severity according to the Canadian Cardiovascular Society

Class I	Ordinary activity does not cause angina such as walking and climbing stairs. Angina with strenuous or rapid or prolonged exertion at work or recreation.
Class II	Slight limitation of ordinary activity. Angina on walking or climbing stairs rapidly, walking or stair climbing after meals, or in cold, wind or under emotional stress, or only during the first few hours after awakening. Walking more than two blocks on the level and climbing more than one flight of ordinary stairs at a normal pace and in normal conditions.
Class III	Marked limitation of ordinary physical activity. Angina on walking one to two blocks[a] on the level or one flight of stairs in normal conditions and at a normal pace.
Class IV	Inability to carry on any physical activity without discomfort' – angina syndrome may be present at rest'.

[a]Equivalent to 100–200 m.

Chi sono i pazienti con CIC?

Tabella 1. Definizione operativa di cardiopatia ischemica cronica.

- Pazienti sintomatici con angina pectoris (o suoi equivalenti) stabile.
- Pazienti asintomatici, ma con evidenza clinico-strumentale di pregresso infarto miocardico o sindrome coronarica acuta (da oltre 1 anno).
- Pazienti asintomatici ma portatori di patologia ostruttiva coronarica accertata (es. pazienti già sottoposti a procedura coronarica percutanea o intervento di bypass aortocoronarico o con riscontro coronarografico di stenosi significative o con evidenza di ischemia ai test provocativi).

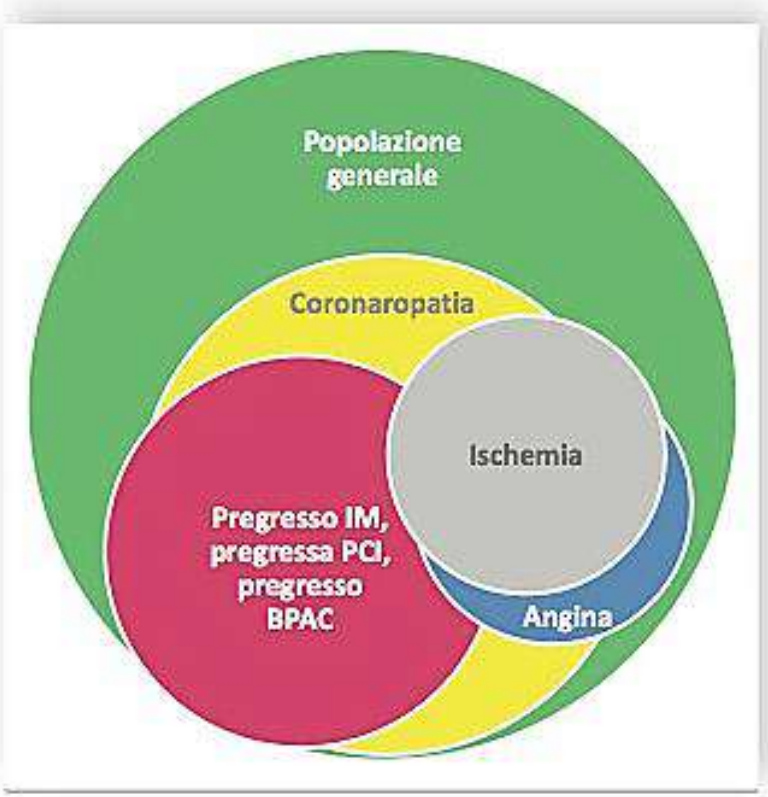


Figura 1. Le complesse interrelazioni tra le diverse componenti della cardiopatia ischemica cronica. BPAC, bypass aortocoronarico; IM, infarto miocardico; PCI, angioplastica coronarica.

Table 8 Resting electrocardiogram for initial diagnostic assessment of stable coronary artery disease

Recommendations	Class [a]	Level [b]	Ref. [c]
A resting ECG is recommended in all patients at presentation.	I	C	-
A resting ECG is recommended in all patients during or immediately after an episode of chest pain suspected to indicate clinical instability of CAD.	I	C	-

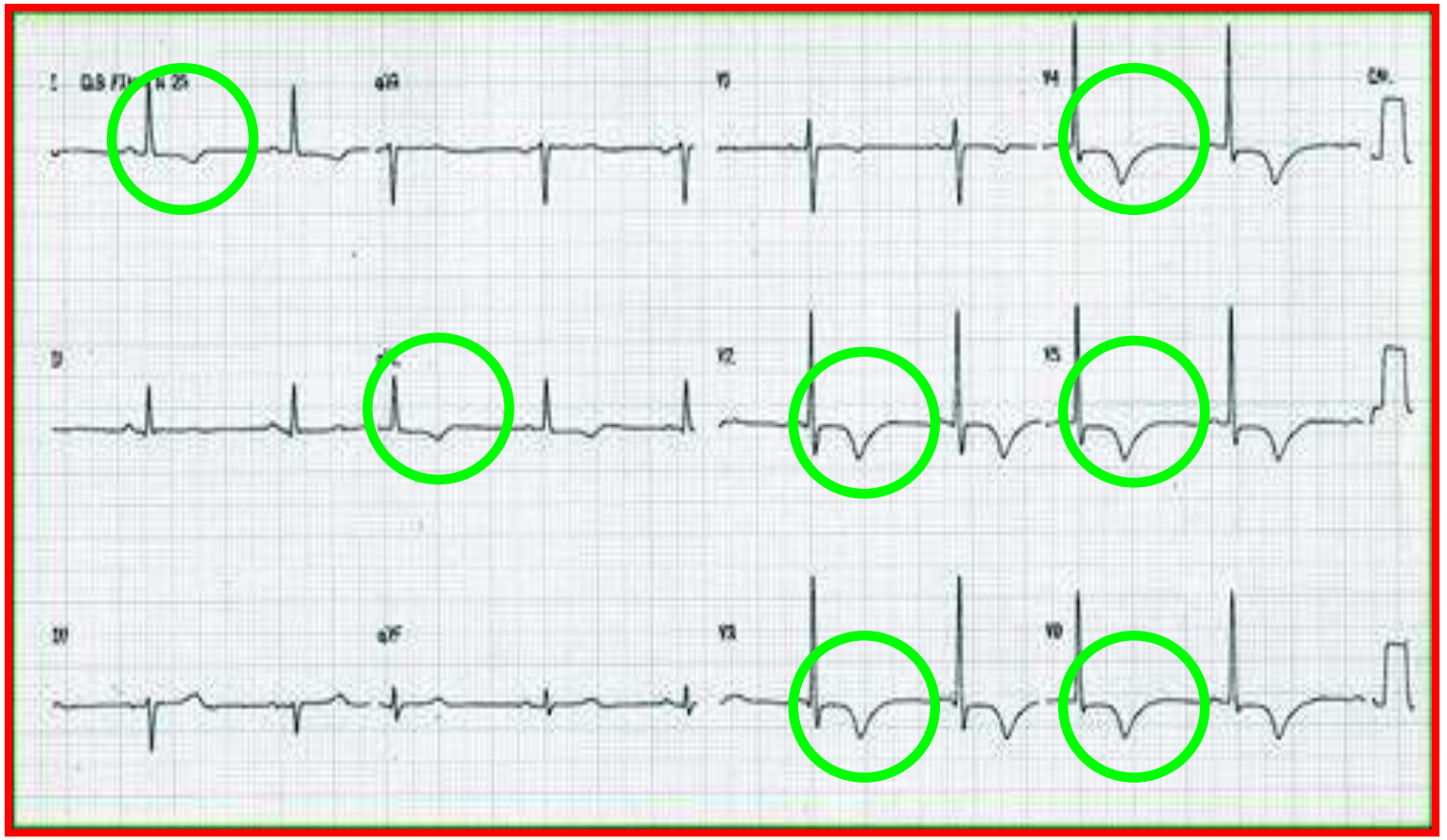
ECG = electrocardiogram; SCAD = stable coronary artery disease.
[a] Class of recommendation.
[b] Level of evidence.
[c] Reference(s) supporting class I (A + B) and IIa + IIb (A + B) recommendations.

Table 9 Echocardiography

Recommendations	Class [a]	Level [b]	Ref. [c]
A resting transthoracic echocardiogram is recommended in all patients for: a) exclusion of alternative causes of angina; b) identification of regional wall motion abnormalities suggestive of CAD; c) measurement of LVEF for risk stratification purpose; d) evaluation of diastolic function.	I	B	27, 79, 80
Ultrasound of the carotid arteries should be considered to be performed by adaequately trained clinicians to detect increased IMT and/or plaque in patients with suspected SCAD without known atherosclerotic disease.	IIa	C	-

CAD = coronary artery disease; IMD = Intima-media thickness; LVEF = left ventricular ejection fraction; SCAD = stable coronary artery disease.
[a] Class of recommendation.
[b] Level of evidence.
[c] Reference(s) supporting class I (A + B) and IIa + IIb (A + B) recommendations.

CIC: pregresso NSTEMI



Cardiopatia ischemica cronica

Pregressa necrosi anteriore con aneurisma apicale

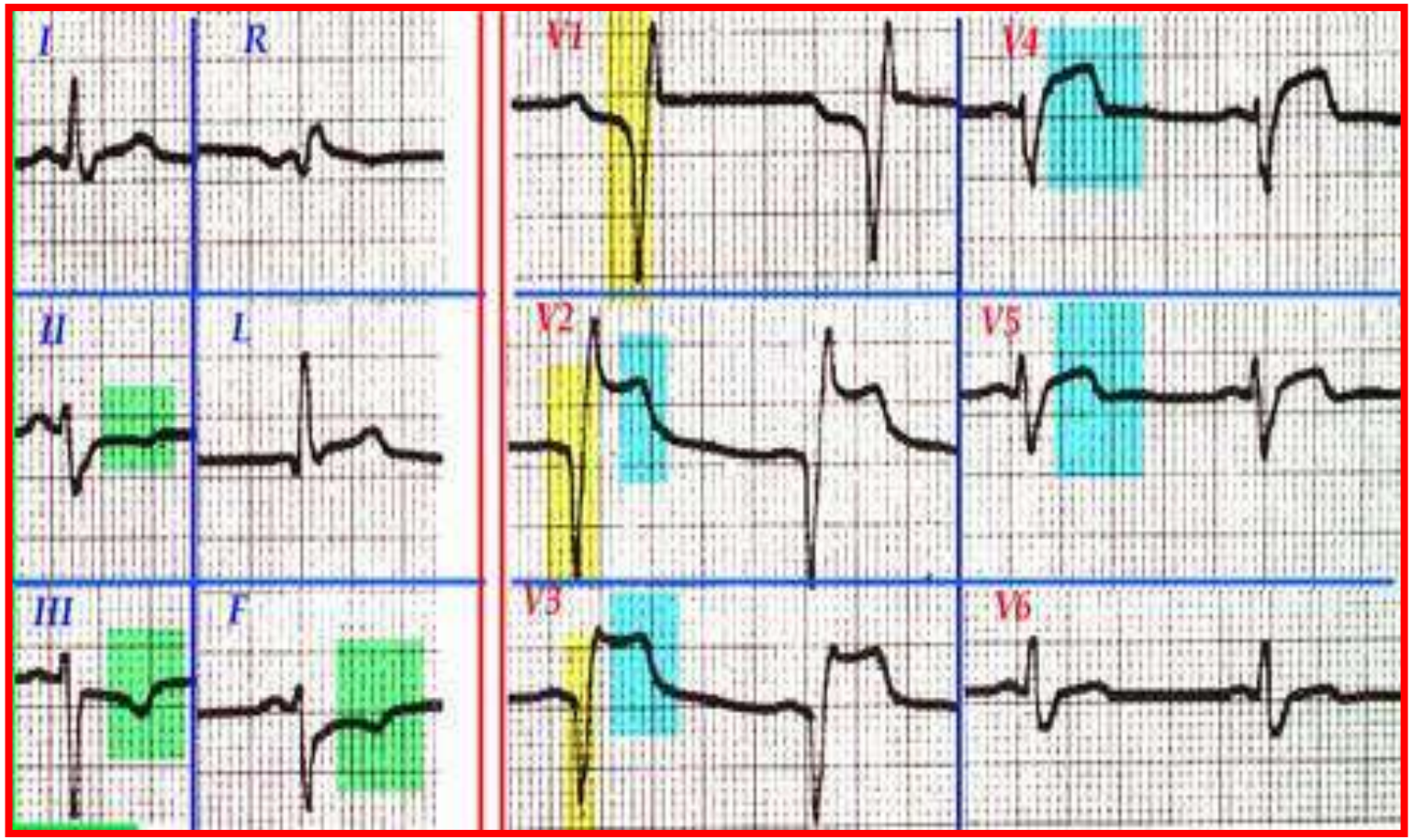


Table 14 **Performing an exercise electrocardiogram for initial diagnostic assessment of angina or evaluation of symptoms**

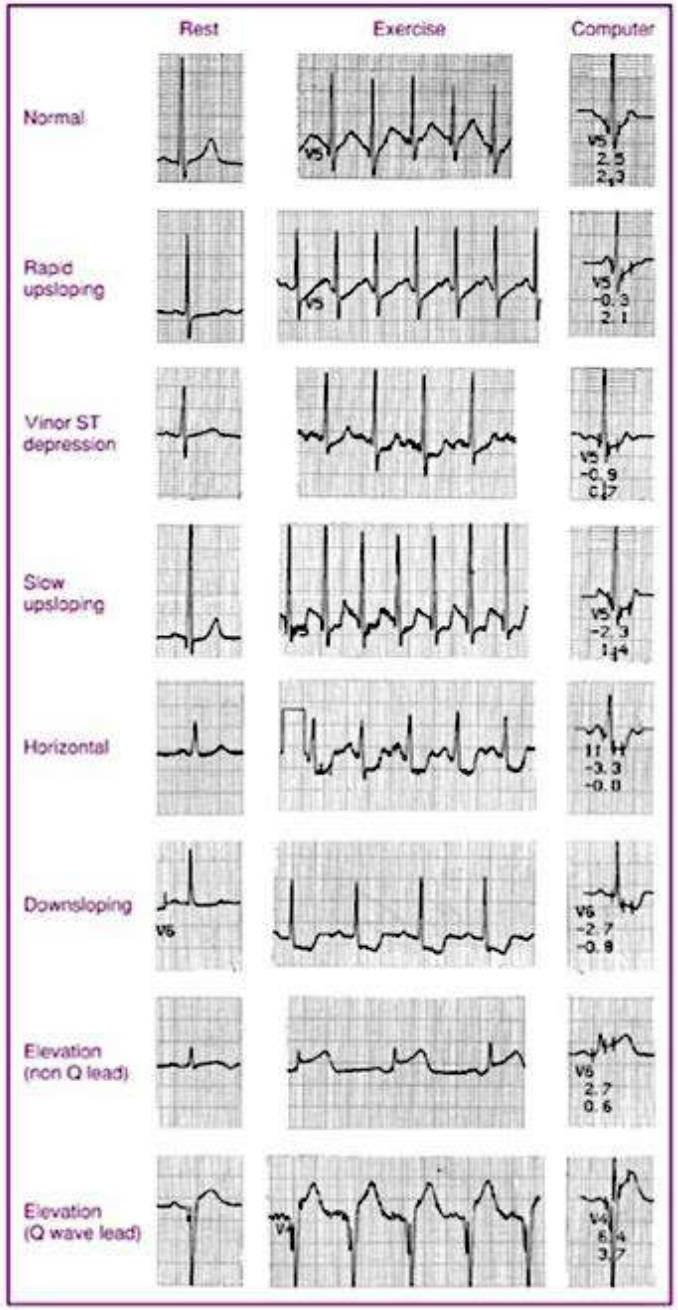
Recommendations	Class [a]	Level [b]	Ref. [c]
Exercise ECG is recommended as the initial test for establishing a diagnosis of SCAD in patients with symptoms of angina and intermediate PTP of CAD (Table 13, 15–65%), free of anti-ischaemic drugs, unless they cannot exercise or display ECG changes which make the ECG non evaluable.	I	B	115, 116
Stress imaging is recommended as the initial test option if local expertise and availability permit.	I	B	117–120
Exercise ECG should be considered in patients on treatment to evaluate control of symptoms and ischaemia.	IIa	C	-
Exercise ECG in patients with ≥0,1 mV ST-depression on resting ECG or taking digitalis is not recommended for diagnostic purposes.	III	C	-

CAD = coronary artery disease; ECG = electrocardiogram; PTP = pre-test probability; SCAD = stable coronary artery disease.
[a] Class of recommendation.
[b] Level of evidence.
[c] Reference(s) supporting levels of evidence.

Table 15 **Use of exercise or pharmacologic stress testing in combination with imaging**

Recommendations	Class [a]	Level [b]	Ref. [c]
An imaging stress test is recommended as the initial test for diagnosing SCAD if the PTP is between 66–85% or if LVEF is <50% in patients without typical angina.	I	B	143, 144
An imaging stress test is recommended in patients with resting ECG abnormalities which prevent accurate interpretation of ECG changes during stress.	I	B	117, 145
Exercise stress testing is recommended rather than pharmacologic testing whenever possible.	I	C	-
An imaging stress test should be considered in symptomatic patients with prior revascularization (PCI or CABG).	IIa	B	146, 147
An imaging stress test should be considered to assess the functional severity of intermediate lesions on coronary arteriography.	IIa	B	148, 149

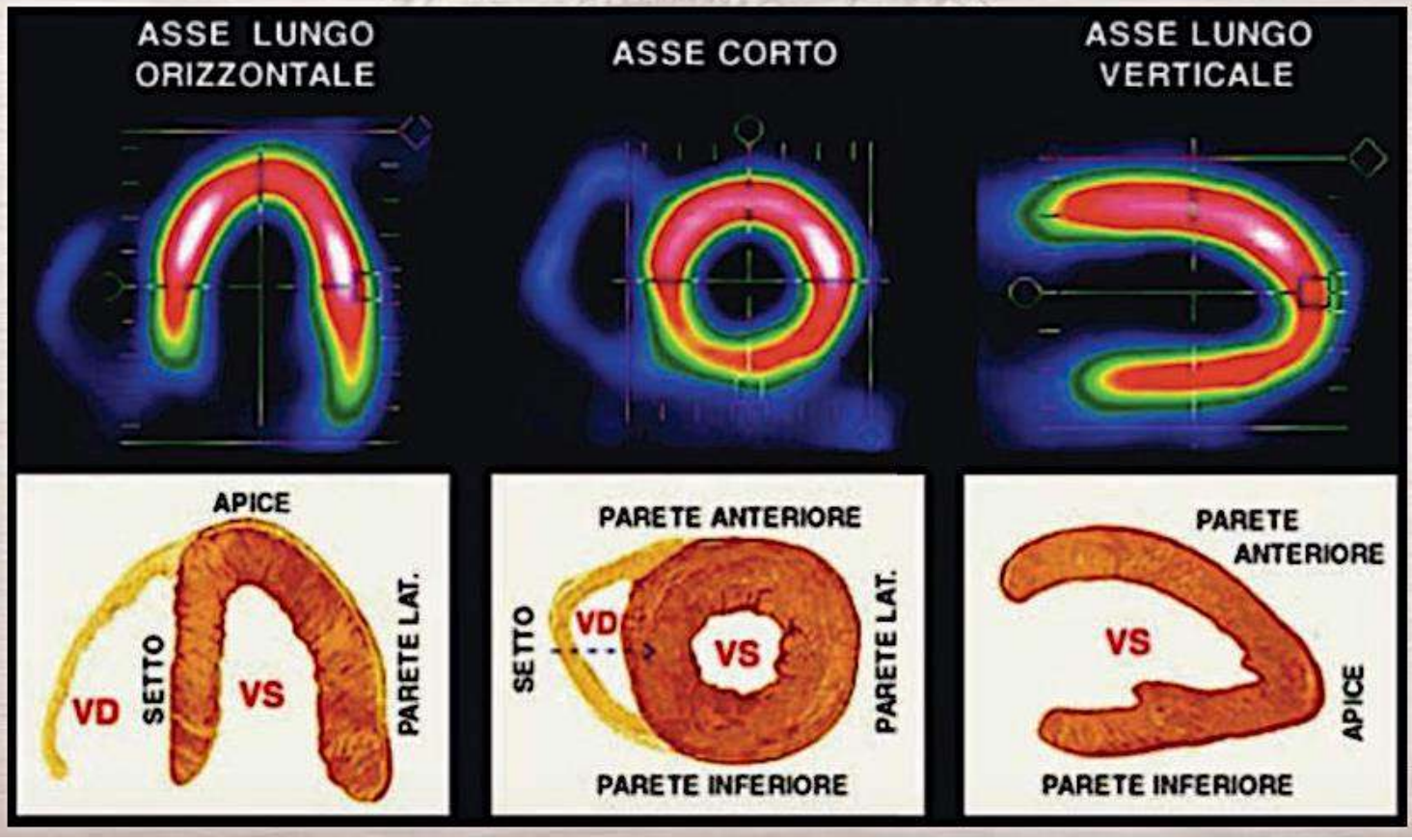
CABG = coronary artery bypass graft; ECG = electrocardiogram; PCI = percutaneous coronary intervention; PTP = pre-test probability.; SCAD = stable coronary artery disease.
[a] Class of recommendation.
[b] Level of evidence.
[c] Reference(s) supporting levels of evidence.



Stress ECG test

Che immagini si ottengono ?

I dati acquisiti con tecnica tomoscintigrafica (SPET) vengono elaborati in modo da ottenere tre serie di immagini:



Che informazioni fornisce ?

SFORZO

RIPOSO

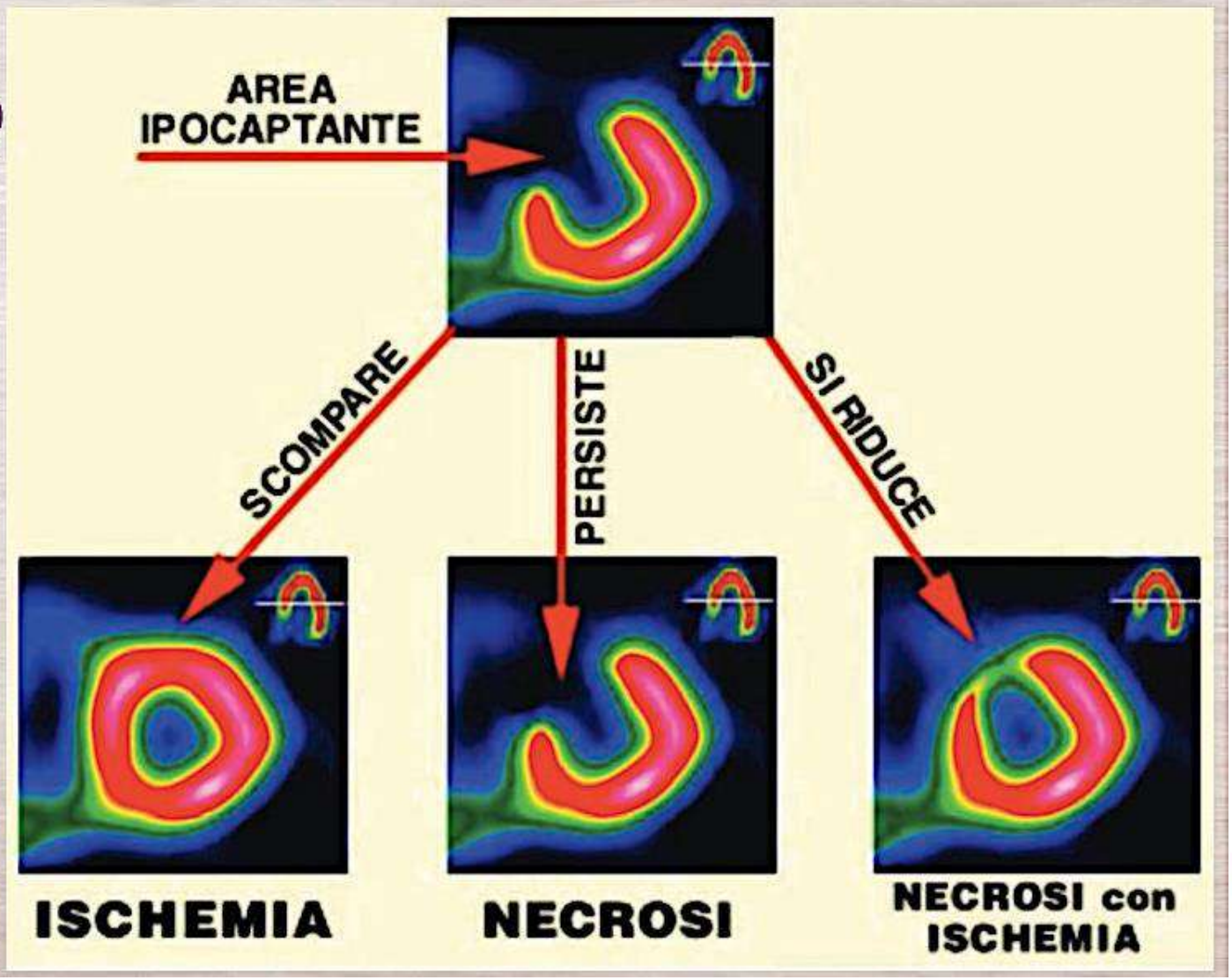


Table 10 Ambulatory electrocardiogram monitoring for initial diagnostic assessment of stable coronary artery disease

Recommendations	Class [a]	Level [b]	Ref. [c]
Ambulatory ECG monitoring is recommended in patients with SCAD and suspected arrhythmia.	I	C	-
Ambulatory ECG monitoring should be considered in patients with suspected vasospastic angina.	IIa	C	-

ECG = electrocardiogram; SCAD = stable coronary artery disease.
[a] Class of recommendation.
[b] Level of evidence.
[c] Reference(s) supporting class I (A + B) and IIa + IIb (A + B) recommendations.

Table 11 Chest X-ray for initial diagnostic assessment of SCAD

Recommendations	Class [a]	Level [b]	Ref. [c]
CXR is recommended in patients with atypical presentation or suspicion of pulmonary disease.	I	C	-
CXR should be considered in patients with suspected heart failure.	IIa	C	-

CXR = chest X-ray.
[a] Class of recommendation.
[b] Level of evidence.
[c] Reference(s) supporting class I (A + B) and IIa + IIb (A + B) recommendations.

Table 16 **Use of coronary computed tomography angiography for the diagnosis of stable coronary artery disease**

Recommendations	Class [a]	Level [b]
Coronary CTA should be considered as an alternative to stress imaging techniques for ruling out SCAD in patients within the lower range of intermediate PTP for SCAD in whom good image quality can be expected.	IIa	C
Coronary CTA should be considered in patients within the lower range of intermediate PTP for SCAD after a non conclusive exercise ECG or stress imaging test or who have contraindications to stress testing in order to avoid otherwise necessary invasive coronary angiography if fully diagnostic image quality of coronary CTA can be expected.	IIa	C
Coronary calcium detection by CT is not recommended to identify individuals with coronary artery stenosis.	III	C
Coronary CTA is not recommended in patients with prior coronary revascularization.	III	C
Coronary CTA is not recommended as a 'screening' test in asymptomatic individuals without clinical suspicion of coronary artery disease.	III	C

CTA = computed tomography angiography; ECG = electrocardiogram; PTP = pre-test probability; SCAD = stable coronary artery disease.

[a] Class of recommendation.

[b] Level of evidence.

Table 12 Characteristics of tests commonly used to diagnose the presence of coronary artery disease

	Diagnosis of CAD	
	Sensitivity (%)	Specificity (%)
Exercise ECG [a, 91, 94, 95]	45–50	85–90
Exercise stress echocardiography[96]	80–85	80–88
Exercise stress SPECT[96-99]	73–92	63–87
Dobutamine stress echocardiography[96]	79–83	82–86
Dobutamine stress MRI[b,100]	79–88	81–91
Vasodilator stress echocardiography[96]	72–79	92–95
Vasodilator stress SPECT[96, 99]	90–91	75–84
Vasodilator stress MRI[b,98, 100-102]	67–94	61–85
Coronary CTA[c,103-105]	95–99	64–83
Vasodilator stress PET[97, 99, 106]	81–97	74–91

CAD = coronary artery disease; CTA = computed tomography angiography; ECG = electrocardiogram; MRI = magnetic resonance imaging; PET = positron emission tomography; SPECT = single photon emission computed tomography.
[a] Results without/with minimal referral bias.
[b] Results obtained in populations with medium-to-high prevalence of disease without compensation for referral bias.
[c] Results obtained in populations with low-to-medium prevalence of disease.

Table 13 Clinical pre-test probabilities[a] in patients with stable chest pain symptoms[108]

	Typical angina		Atypical angina		Non-anginal pain	
Age	Men	Women	Men	Women	Men	Women
30–39	59	28	29	10	18	5
40–49	69	37	38	14	25	8
50–59	77	47	49	20	34	12
60–69	84	58	59	28	44	17
70–79	89	68	69	37	54	24
>80	93	76	78	47	65	32

ECG = electrocardiogram; PTP = pre-test probability; SCAD = stable coronary artery disease.
[a] Probabilities of obstructive coronary disease shown reflect the estimates for patients aged 35, 45, 55, 65, 75 and 85 years.
- Groups in white boxes have a PTP <15% and hence can be managed without further testing.
- Groups in blue boxes have a PTP of 15–65%. They could have an exercise ECG if feasible as the initial test. However, if local expertise and availability permit a non-invasive imaging based test for ischaemia this would be preferable given the superior diagnostic capabilities of such tests. In young patients radiation issues should be considered.
- Groups in light red boxes have PTPs between 66–85% and hence should have a non-invasive imaging functional test for making a diagnosis of SCAD.
- In groups in dark red boxes the PTP is >85% and one can assume that SCAD is present. They need risk stratification only.

Table 17 Definitions of risk for various test modalities[a]

Exercise stress ECG[b]	High risk Intermediate risk Low risk	CV mortality >3%/year. CV mortality between 1 and 3%/year. CV mortality <1%/year.
Ischaemia imaging	High risk Intermediate risk Low risk	Area of ischaemia >10% (>10% for SPECT; limited quantitative data for CMR – probably ≥2/16 segments with new perfusion defects or ≥3 dobutamine-induced dysfunctional segments; ≥ 3 segments of LV by stress echo). Area of ischaemia between 1 to 10% or any ischaemia less than high risk by CMR or stress echo. No ischaemia.
Coronary CTA[c]	High risk Intermediate rick Low risk	Significant lesions of high risk category (three-vessel disease with proximal stenoses, LM, and proximal anterior descending CAD). Significant lesion(s) in large and proximal coronary artery(ies) but not high risk category. Normal coronary artery or plaques only.

CAD = coronary artery disease; CMR = cardiac magnetic resonance; CTA = computed tomography angiography; CV = cardiovascular; ECG = electrocardiogram; ICA = invasive coronary angiography; LM = left main; PTP = pre-test probability; SPECT = single photon emission computed tomography.

[a] For detailed explanation on rationale for risk stratification scheme see web addenda.

[b] From nomogram (see web addenda, Figure W1) or http://www.cardiology.org/tools/medcalc/duke/

[c] See Fig 2 consider possible overestimation of presence of significant multivessel disease by coronary CTA in patients with high intermediate PTP (≥50%) and/or severe diffuse or focal coronary calcifications and consider performing additional stress testing in patients without severe symptoms before ICA.

Table 7 Blood tests for routine re-assessment in patients with chronic stable coronary artery disease

Recommendations	Class [a]	Level [b]	Ref. [c]
Annual control of lipids, glucose metabolism (see recommendation 3 in Table 6) and creatinine is recommended in all patients with known SCAD.	I	C	-

SCAD = stable coronary artery disease.

[a] Class of recommendation.

[b] Level of evidence.

[c] Reference(s) supporting class I (A + B) and IIa + IIb (A + B) recommendations.

Table 22 Re-assessment in patients with stable coronary artery disease

Recommendations	Class [a]	Level [b]
Follow-up visits are recommended every 4–6 months in the first year following institution of therapy for SCAD which may be extended to 1 year afterwards. Visits should be to the general practitioner who may refer to the cardiologist in case of uncertainty. These visits should include a careful history and biochemical testing as clinically appropriate.	I	C
An annual resting ECG is recommended and an additional ECG if a change in anginal status occurred or symptoms suggesting an arrhythmia appeared or medication has been changed which might alter electrical conduction.	I	C
An exercise ECG or stress imaging if appropriate is recommended in the presence of recurrent or new symptoms once instability has been ruled out.	I	C
Reassessment of the prognosis using stress testing may be considered in asymptomatic patients after the expiration of the period for which the previous test was felt to be valid ("warranty period").	IIb	C
Repetition of an exercise ECG may only be considered after at least 2 years following the last test (unless there is a change in clinical presentation).	IIb	C

ECG = electrocardiogram; SCAD = stable coronary artery disease.
[a] Class of recommendation.
[b] Level of evidence.

Table 23 Investigation in patients with suspected coronary microvascular disease

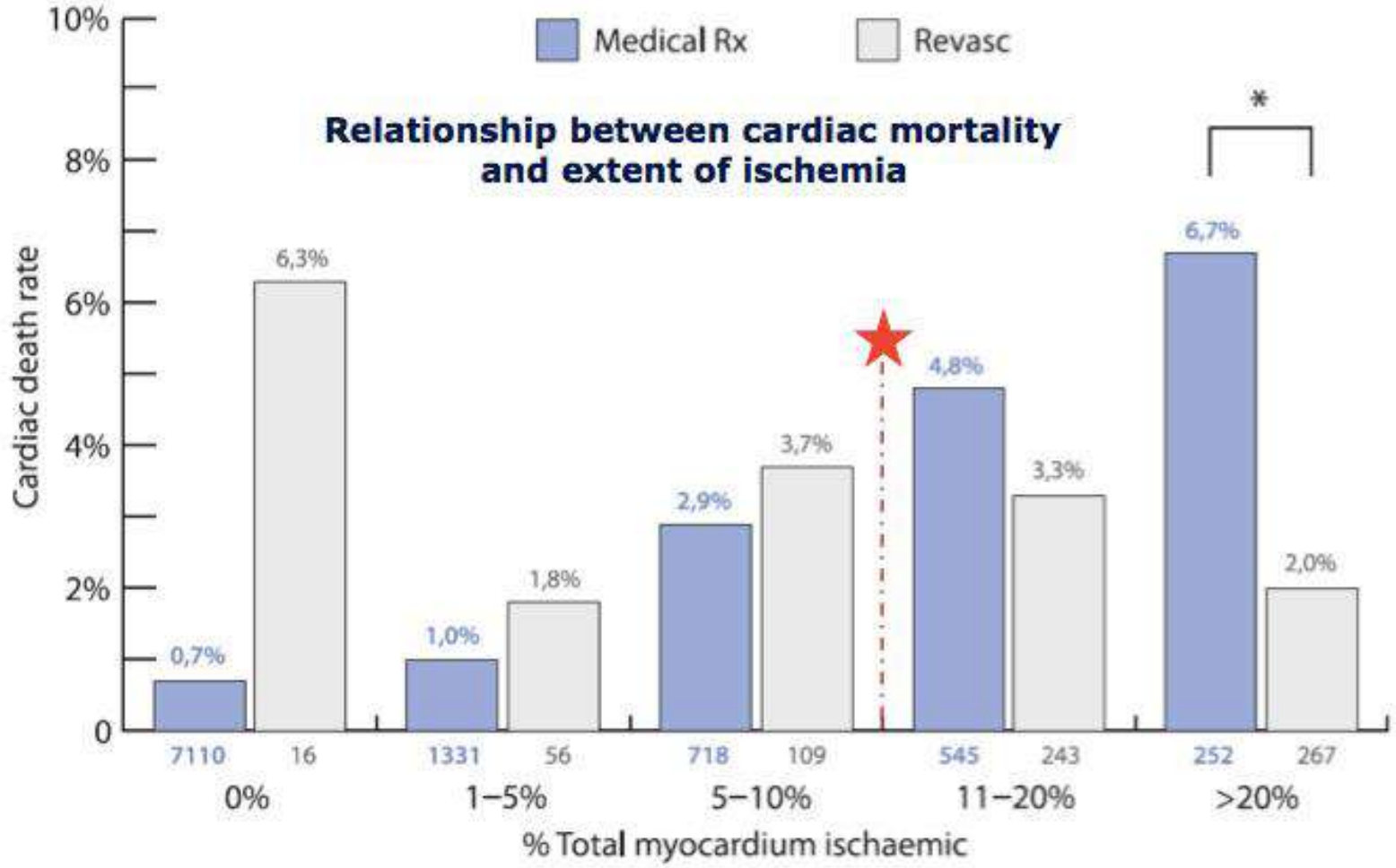
Recommendations	Class [a]	Level [b]
Exercise or dobutamine echocardiography should be considered in order to establish whether regional wall motion abnormalities occur in conjunction with angina and ST-changes.	IIa	C
Transthoracic doppler echocardiography of the LAD with measurement of diastolic coronary blood flow following intravenous adenosine and at rest may be considered for non invasive measurement of coronary flow reserve.	IIb	C
Intracoronary acetylcholine and adenosine with Doppler measurements may be considered during coronary arteriography, if the arteriogram is visually normal, to assess endothelium dependent and non-endothelium dependent coronary flow reserve, and detect microvascular/epicardial vasospasm.	IIb	C

FFR = fractional flow reserve; LAD = left anterior descending.
[a] Class of recommendation.
[b] Level of evidence.

Tabella 2. Il Cardiotest ANMCO.

	Cardiotest ANMCO	Punteggio	
1.	**Nel corso delle sue abituali attività, le è capitato di avere negli ultimi 3 mesi una sensazione di oppressione al torace, dolore al petto o affanno:**		
	▪ quando si vestiva o faceva il bagno	NO ☐ 0	SI ☐ 3
	▪ mentre camminava o faceva piccole attività domestiche	NO ☐ 0	SI ☐ 2
	▪ solo se saliva le scale, o portava pesi, o camminava a passo veloce	NO ☐ 0	SI ☐ 1
2.	**Nell'ultimo mese le sensazioni di oppressione al torace, dolore al petto o affanno:**		
	▪ sono state più frequenti che in passato	NO ☐ 0	SI ☐ 2
	▪ i disturbi si sono presentati più volte nelle ultime due settimane	NO ☐ 0	SI ☐ 3
3.	**Ha dovuto assumere le medicine sotto la lingua (Carvasin, Trinitrina, Natispray) a causa di questi disturbi?**	NO ☐ 0	SI ☐ 2
4.	**Ha avuto necessità di assumere queste medicine nelle ultime due settimane?**	NO ☐ 0	SI ☐ 3
	TOTALE PUNTEGGIO	_____	
	N.B. Un **punteggio complessivo ≥3** indica che la sintomatologia non è controllata in modo ottimale e quindi necessita una rivalutazione cardiologica.		

2013 ESC guidelines on the management of stable coronary artery disease



NHS
National Institute for Health and Clinical Excellence

Issued: July 2011 last modified: December 2012

Key points

- **Lifestyle changes are vital in the management of stable angina, including smoking cessation, healthy diet, weight loss and control of lipid levels**
- Associated conditions, such as hypertension and diabetes, should be treated according to relevant guidance
- Anti-anginal drugs should be titrated to the optimal licensed dose to control symptoms
- Revascularisation should be considered in selected patients

Tabella 5. Programma di intervento sul fumo.

1. Informare tutti i pazienti circa i rischi connessi al fumo.
2. Ricercare sistematicamente il tabagismo in tutti i pazienti.
3. Valutare il grado di dipendenza mediante il test di Fagenstrom.
4. Avviare il counseling in tutti i pazienti, fornendo adeguata formazione anche al personale infermieristico.
5. Istruire i pazienti sull'opportunità di rivolgersi al curante in caso di ripresa del fumo.

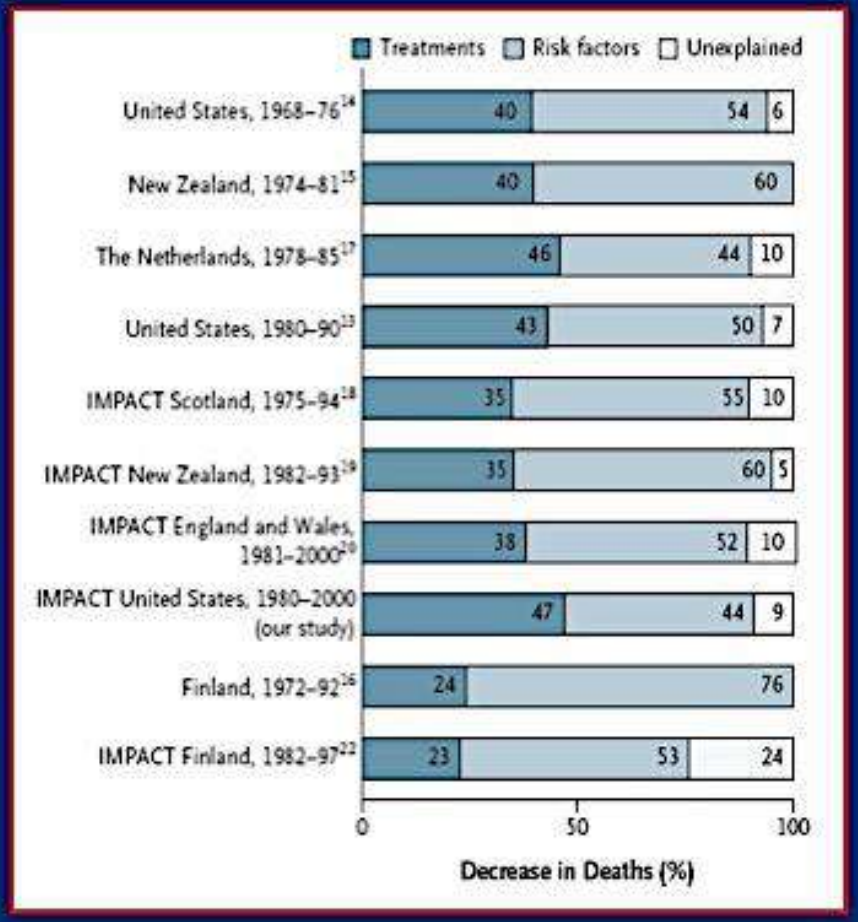
Tabella 6. L'intervento sull'alimentazione.

1. L'alimentazione svolge un ruolo importante nella cardiopatia ischemica cronica, interferendo in misura positiva con tutti i maggiori fattori di rischio, quali diabete, ipertensione e dislipidemia.
2. Tutti pazienti ed i loro familiari devono essere informati sulla necessità di un corretto approccio alimentare.
3. Le informazioni devono essere espresse in un linguaggio semplice e fruibile.

Basandosi sui capisaldi delle linee guida ESC[5], in accordo con quanto emerso dal GISSI-Prevenzione[76], si raccomanda:

- acidi grassi saturi in misura inferiore al 10% del totale delle calorie quotidiane,
- acidi grassi insaturi non superiori all'1% del totale delle calorie quotidiane,
- <5 g di sale al giorno
- 200 g di frutta al giorno
- 200 g di vegetali al giorno
- incrementare il consumo di pesce
- consumo di alcol, preferibilmente vino rosso, dovrebbe essere limitato a due bicchieri al giorno (20 g/die) per gli uomini e un bicchiere al giorno (10 g) per le donne.

Percentage of the Decrease in Deaths from CHD Attributed to Treatments and Risk-Factor Changes



The Centers for Disease Control

Ford ES et al. N Engl J Med 2007; 356:2388

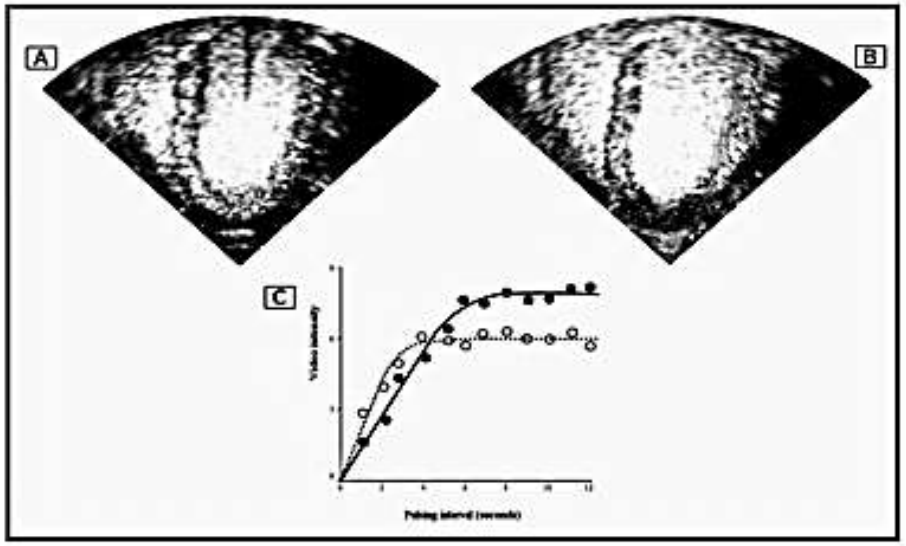
The use of revascularization for chronic angina resulted in a reduction of approximately 15,690 deaths in 2000, as compared with deaths in 1980, or approximately 5% of the total and only 1.3% was attributable to PCI.

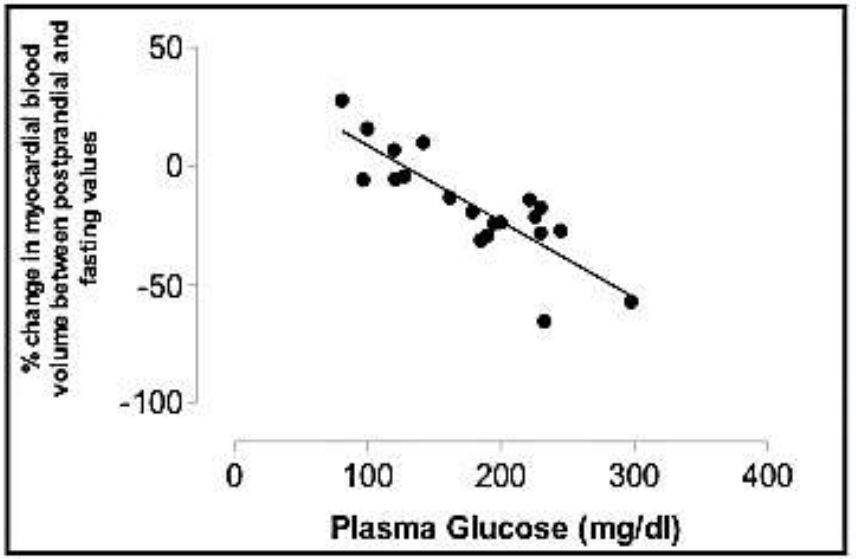
2.4.1 Obiettivi terapeutici nel paziente diabetico affetto da cardiopatia ischemica cronica

Rispetto a 20 anni fa, l'armamentario terapeutico a disposizione del medico per il controllo della glicemia si è arricchito enormemente. I farmaci attivi sulla glicemia possono essere distinti in tre classi:

1. farmaci che aumentano i livelli di insulina nel sangue: insulina, analoghi rapidi e lenti dell'insulina, sulfaniluree, metiglinidi, analoghi del *glucagon-like peptide 1* (GLP-1), inibitori della dipeptidilpeptidasi 4;
2. farmaci che aumentano la sensibilità dell'insulina (metformina, pioglitazone);
3. inibitori dell'assorbimento del glucosio: a livello intestinale (acarbose), a livello del tubulo renale (inibitori del *sodium-glucose co-transporter-2* [SGLT-2]).

POSTPRANDIAL HYPERGLYCEMIA AND MYOCARDIAL PERFUSION DEFECTS





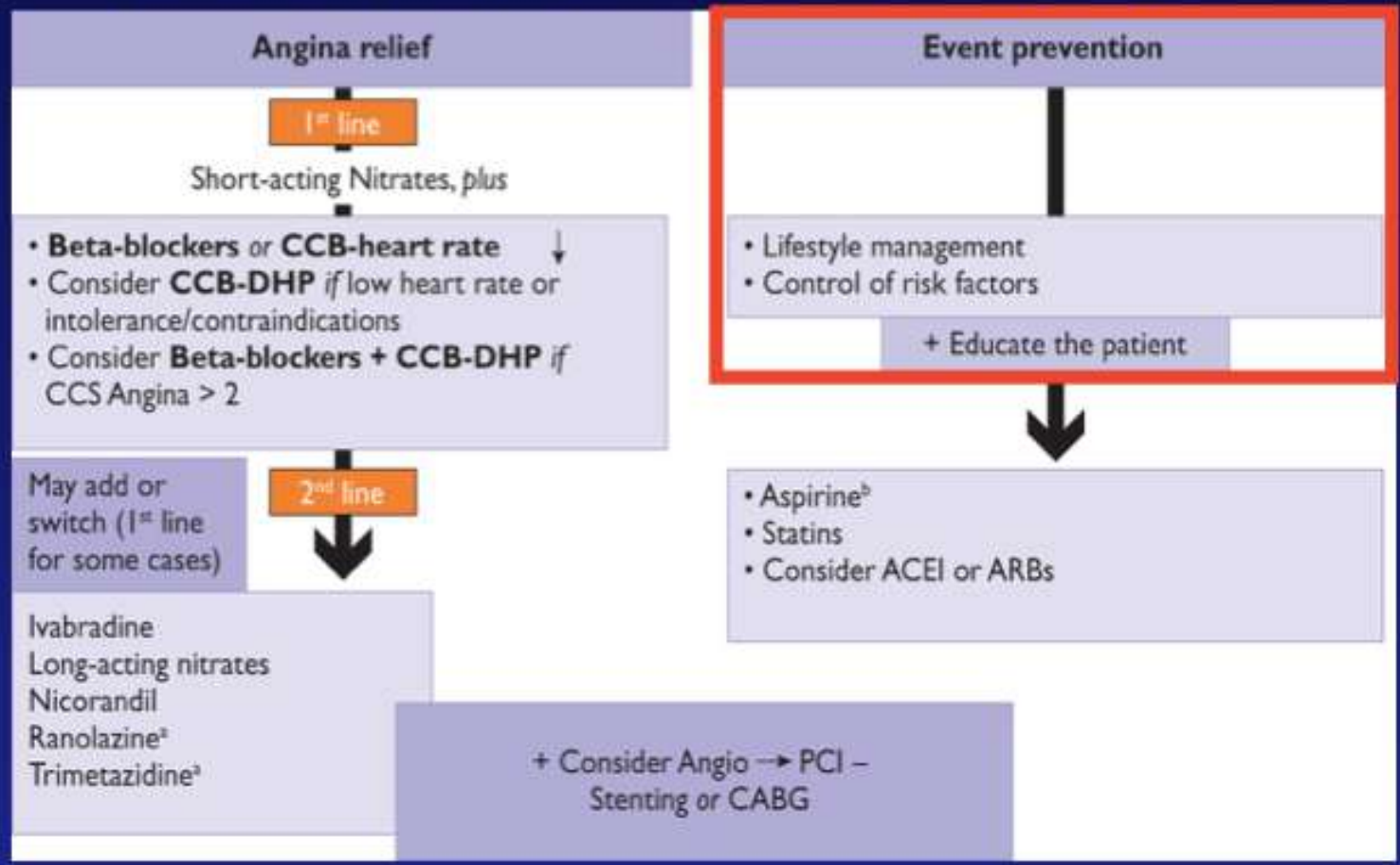
R. Scognamiglio, Circulation 2005

Tabella 7. Sottogruppi di pazienti in prevenzione secondaria (pregresso evento cardiovascolare) per i quali si ritiene ragionevole il raggiungimento di obiettivi di pressione arteriosa più bassi (<130 mmHg) rispetto allo standard usuale (<140 mmHg) (regime terapeutico più intensivo).

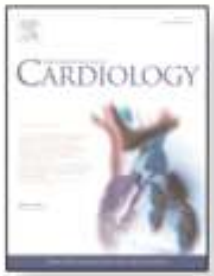
Condizione clinica	Target/ PAS medie raggiunte (mmHg)	Outcome	Principali evidenze	Ref.
Pregresso ictus/TIA (n=5665)	143/149	Recidiva di eventi cerebrovascolari	Ridotta incidenza di ictus non fatale del 29%, beneficio assoluto di 29 eventi per 1000 soggetti/3 anni	PATS[108]
Pregresso ictus/TIA (n=6105)	132/141	Recidiva di eventi cerebrovascolari	Ridotta incidenza di ictus (-28%) e di eventi vascolari maggiori (-26%)	PROGRESS[109]
Pazienti ipertesi non diabetici ad alto rischio (n=1111), >55 anni con ipertensione arteriosa non controllata (PAS >150 mmHg) nonostante terapia + un fattore di rischio aggiuntivo	<130/<140	Prevalenza di IVS all'ECG a 2 anni	Riduzione della prevalenza di IVS. Riduzione parallela dell'endpoint composito secondario di eventi CV e morte per tutte le cause	Cardio-Sis[100]
Cardiopatia ischemica cronica (sottogruppo con eventi CV vs sottogruppo senza pregressi eventi CV)	<130/<140	Riduzione dell'endpoint composito secondario di eventi CV e morte per tutte le cause	La riduzione pressoria <130 mmHg non comportava aumento degli eventi CV (assenza di effetto curva a J)	Cardio-Sis[101]
Cardiopatia ischemica cronica (n=13 655), 64% con pregresso IM, 61% con malattia coronarica, 55% con pregressa rivascolarizzazione, FEVS normale	126/133	Mortalità totale, IM non fatale, angina instabile, arresto cardiaco non rianimato	Riduzione del RR dell'endpoint composito del 20%	EUROPA[111]
Soggetti ad alto rischio CV (20% con pregresso evento CV)	<120/<140	IM, SCA, ictus, insufficienza cardiaca, o morte per cause cardiovascolari	Riduzione (-25%) dell'endpoint composito, e riduzione (-27%) della mortalità totale	SPRINT[119]
Cardiopatia ischemica cronica pregresso IM, pregresso ictus/TIA Equivalenti di cardiopatia ischemica: aterosclerosi carotidea, arteriopatia periferica, aneurisma aortico addominale	<130 mmHg		Classe IIa; livello di evidenza B	AHA/ACC/ ASH[118]

ACC, American College of Cardiology; AHA, American Heart Association; ASH, American Society of Hypertension; CV, cardiovascolare; EUROPA, ECG, elettrocardiogramma; EURopean trial On reduction of cardiac events with Perindopril in stable coronary Artery disease; FEVS, frazione di eiezione ventricolare sinistra; IM, infarto miocardico; IVS, ipertrofia ventricolare sinistra; PAS, pressione arteriosa sistolica; PATS, Post-stroke Antihypertensive Treatment Study; PROGRESS Perindopril Protection Against Recurrent Stroke Study; RR, rischio relativo; SCA, sindrome coronarica acuta; SPRINT, Systolic Blood Pressure Intervention Trial; TIA, attacco ischemico transitorio.

ESC GUIDELINES



ESC Guidelines. Eur Heart J 2013; 34: 2949-3003



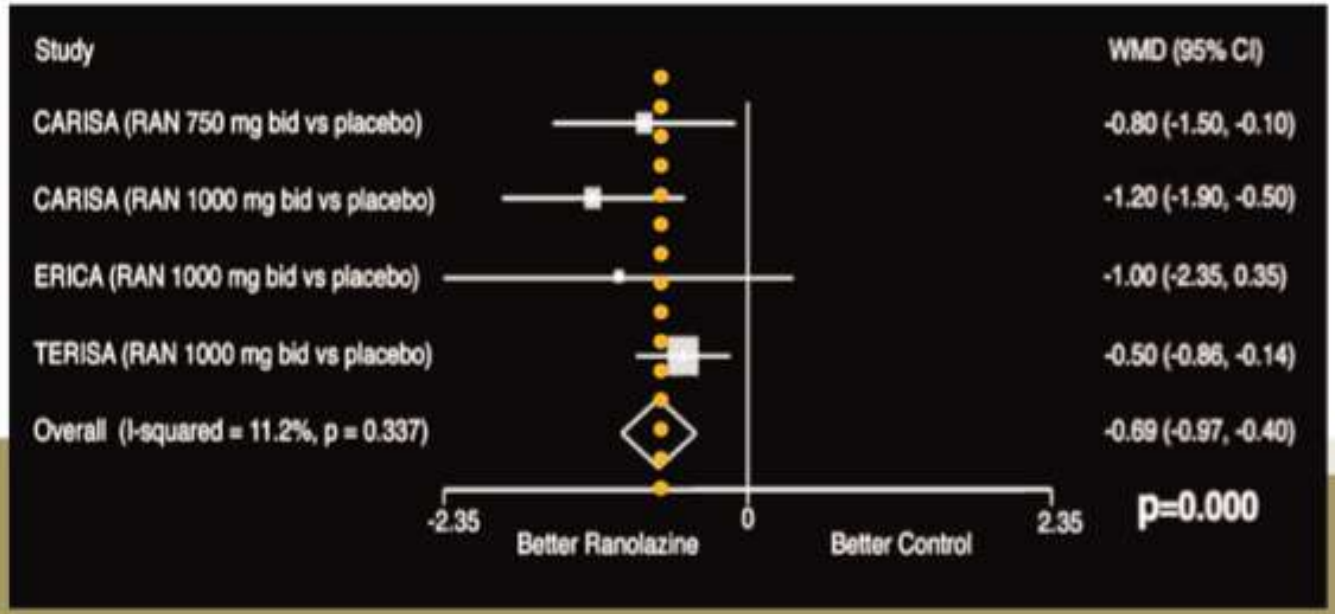
Effects of ranolazine in symptomatic patients with stable coronary artery disease. A systematic review and meta analysis

Savarese, Int. J Cardiol 2013

Gianluigi Savarese[a], Giuseppe Rosano[b], Carmen D'Amore[a], Francesca Musella[a], Giuseppe Luca Della Ratta[a], Angela Maria Pellegrino[a], Tiziana Formisano[a], Alice Vitagliano[a], Annapaola Cirillo[a], Gennaro Cice[c], Luigi Fimiani[a], Luca del Guercio[d], Bruno Trimarco[a], Pasquale Perrone-Filardi[a,*]

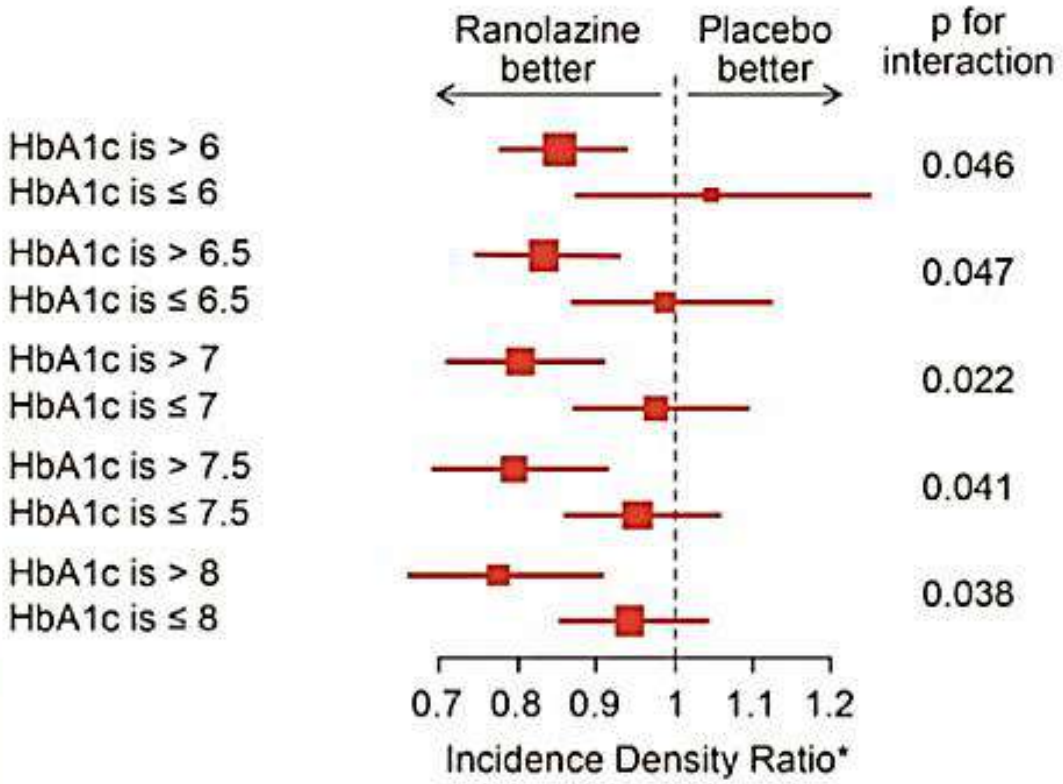
[a]Department of Advanced Biomedical Science, Federico II University, Naples, Italy / [b]Clinical and Experimental Research Center, IRCCS San Raffaele, Rome, Italy
[c]Division of Cardiology , Second University of Naples, Naples, Italy / [d]Department of vascular and Endovascular Surgery, Federico II University, Naples, Italy

Mean difference estimate of weekly angina onset in Ranolazine versus control study groups



Evaluation of Ranolazine in Patients with Type 2 Diabetes Mellitus and Chronic Stable Angina. Results from the TERISA randomized clinical trial

Kosiborod MJ Am Coll Cardiol 2013



Documento ANMCO/GICR-IACPR/GISE
L'organizzazione dell'assistenza nella fase post-acuta delle sindromi coronariche

Commissione ANMCO/GICR-IACPR/GISE

Fulvia Seccareccia e Stefano Rosato
Centro Nazionale di Epidemiologia, Sorveglianza e Promozione della Salute, Istituto Superiore di Sanità, Roma

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