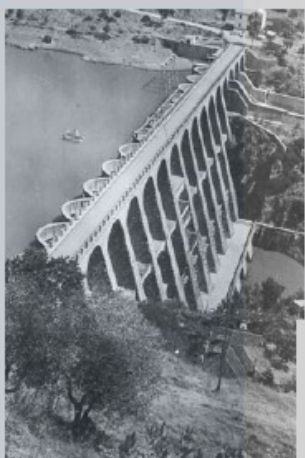


XXVI Riunione

Scientifica Regionale

SID-AMD

IL DIABETE:
UNA MALATTIA
COMPLICATA?



29-30 Novembre 2024

Cagliari

Hotel Regina Margherita

Il paziente diabetico cardiopatico: tutti gli interventi possibili

Stefania Corda

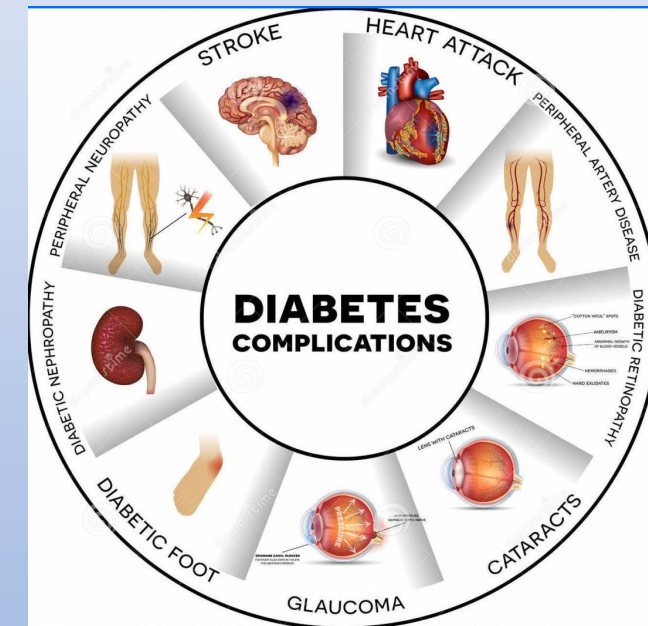
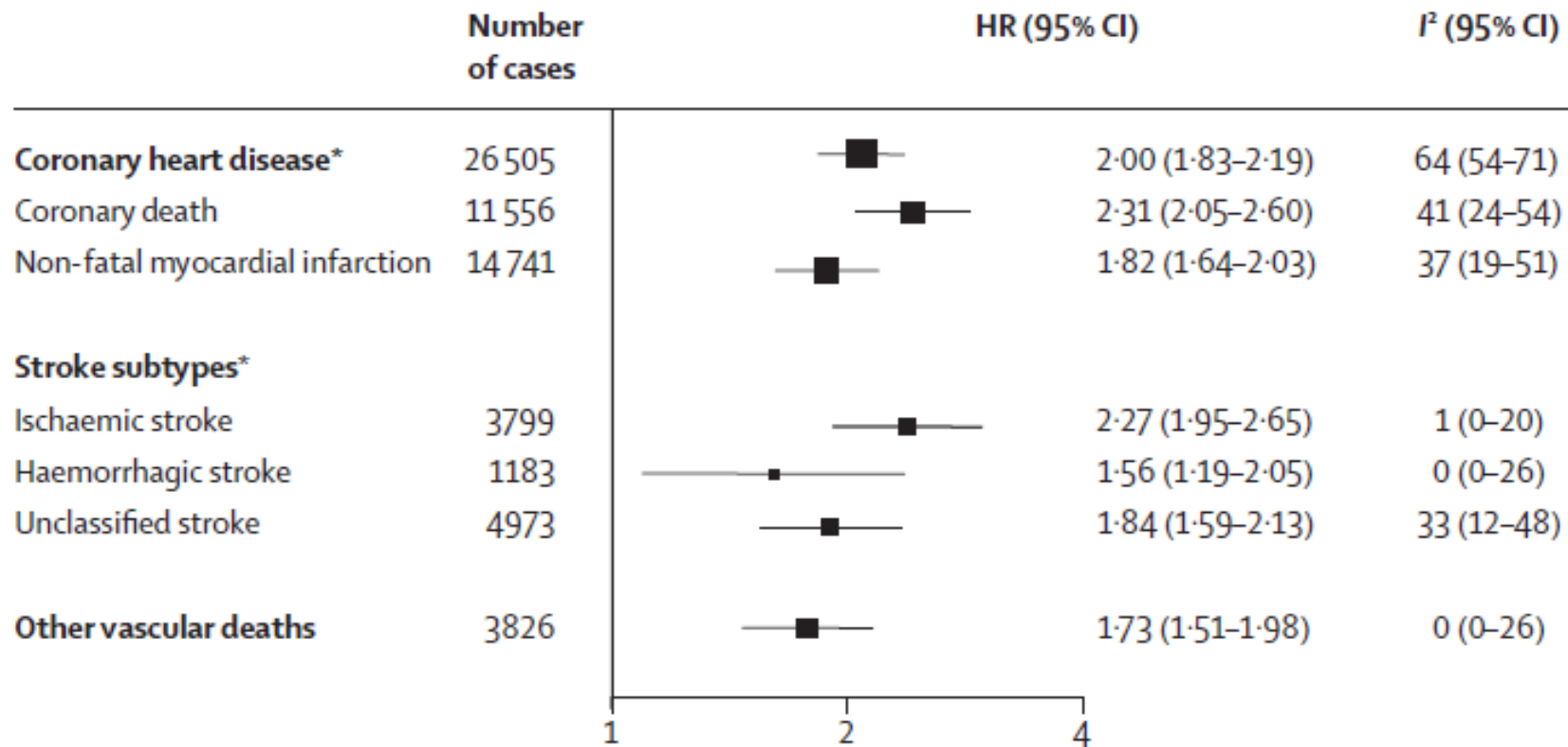
Cardiologia Osp. SS Trinità Cagliari

No conflict of interest to disclose

I soggetti con T2DM hanno un rischio 2-4 volte più elevato di CVD

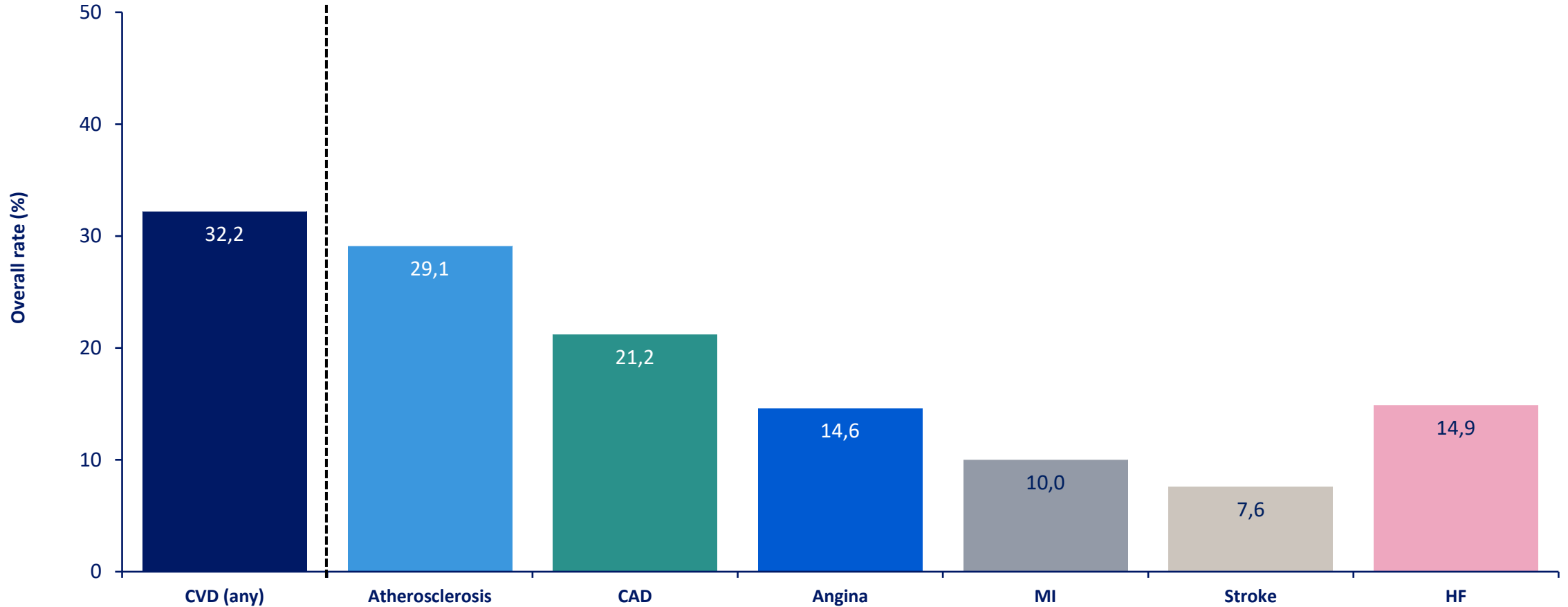
Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies

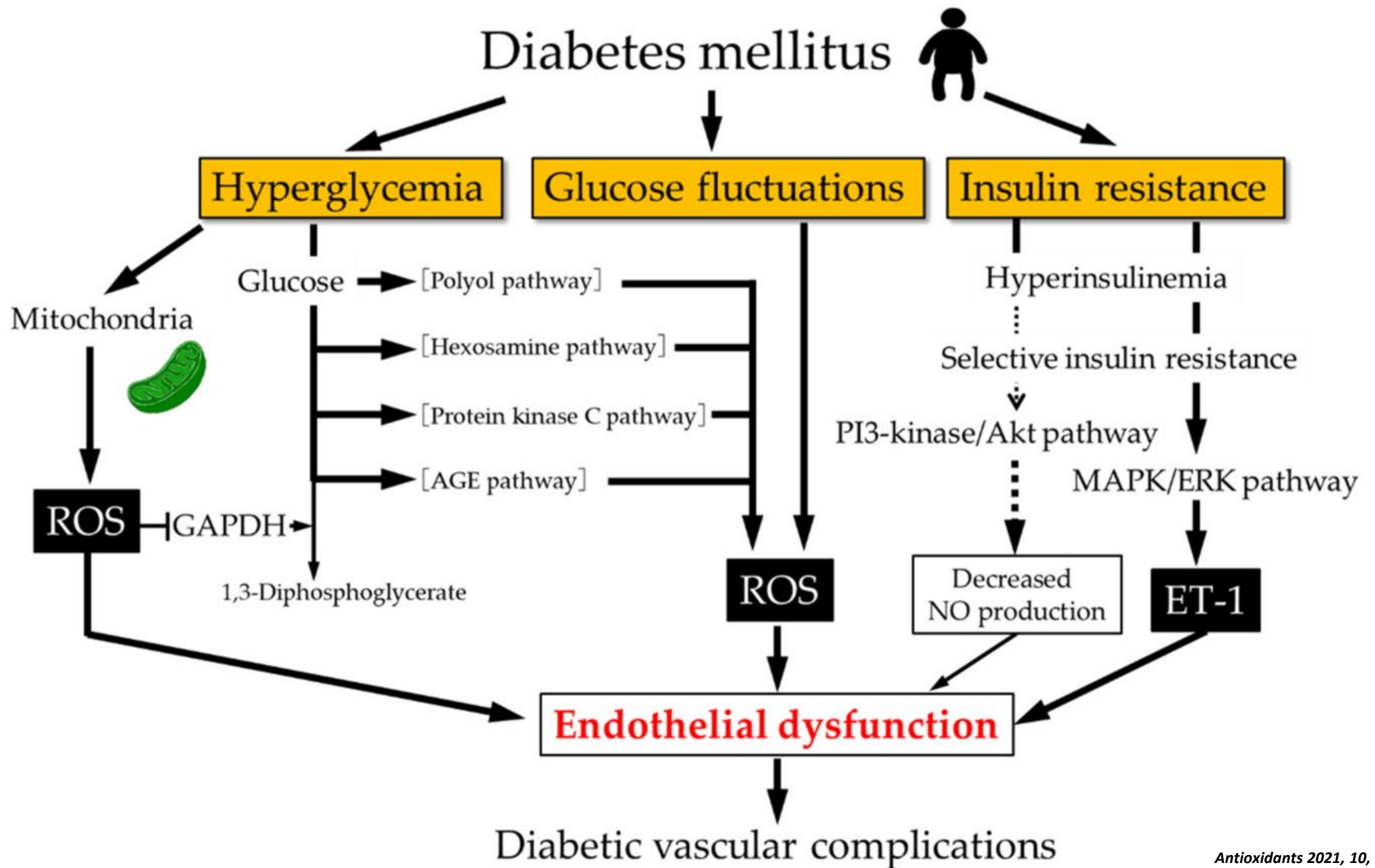
*The Emerging Risk Factors Collaboration**



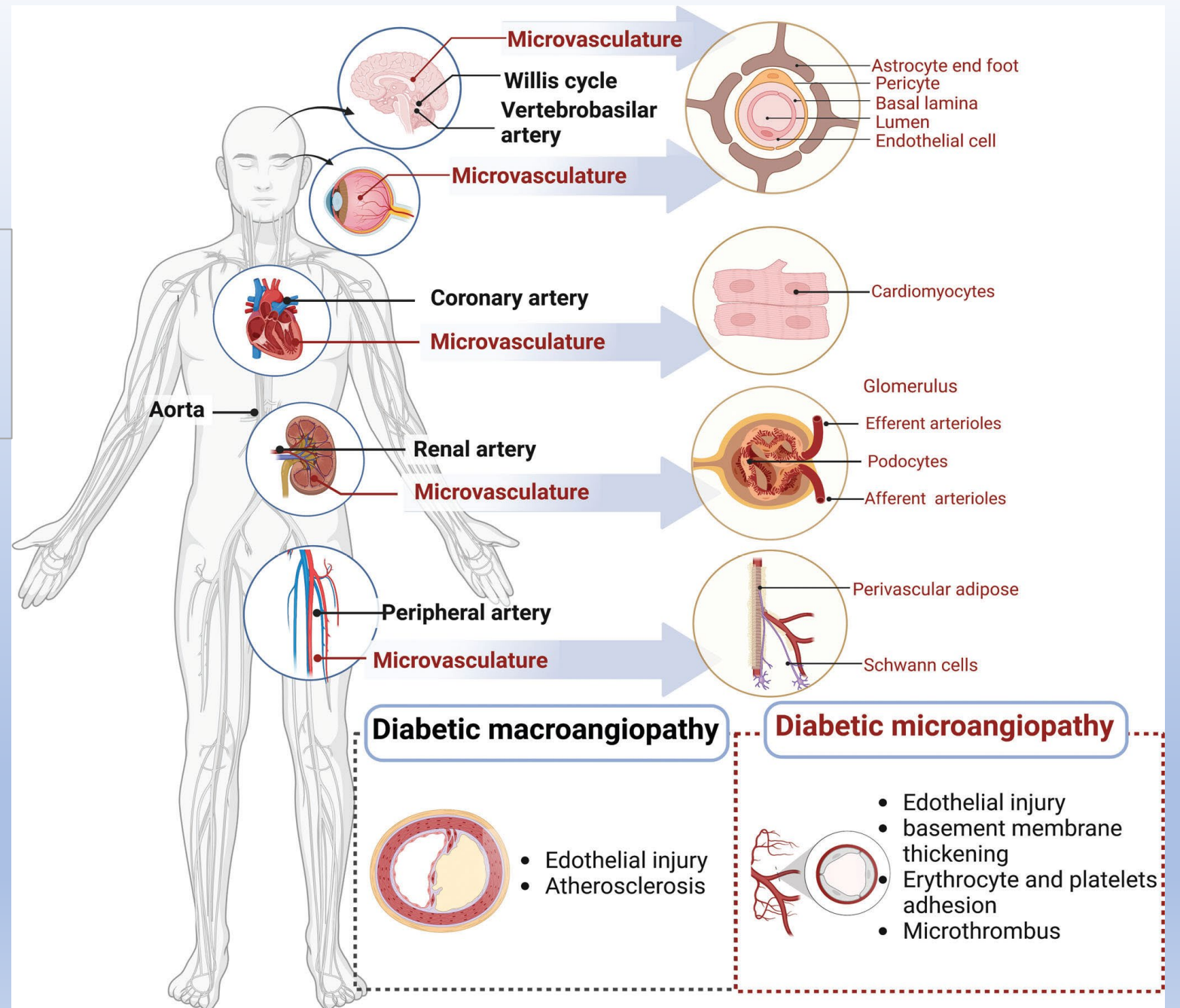
Prevalenza di MCV in DM2

Systematic literature review of scientific evidence: 2007–2017





PANVASCULOPATIA DIABETICA



Circulation

 Check for updates

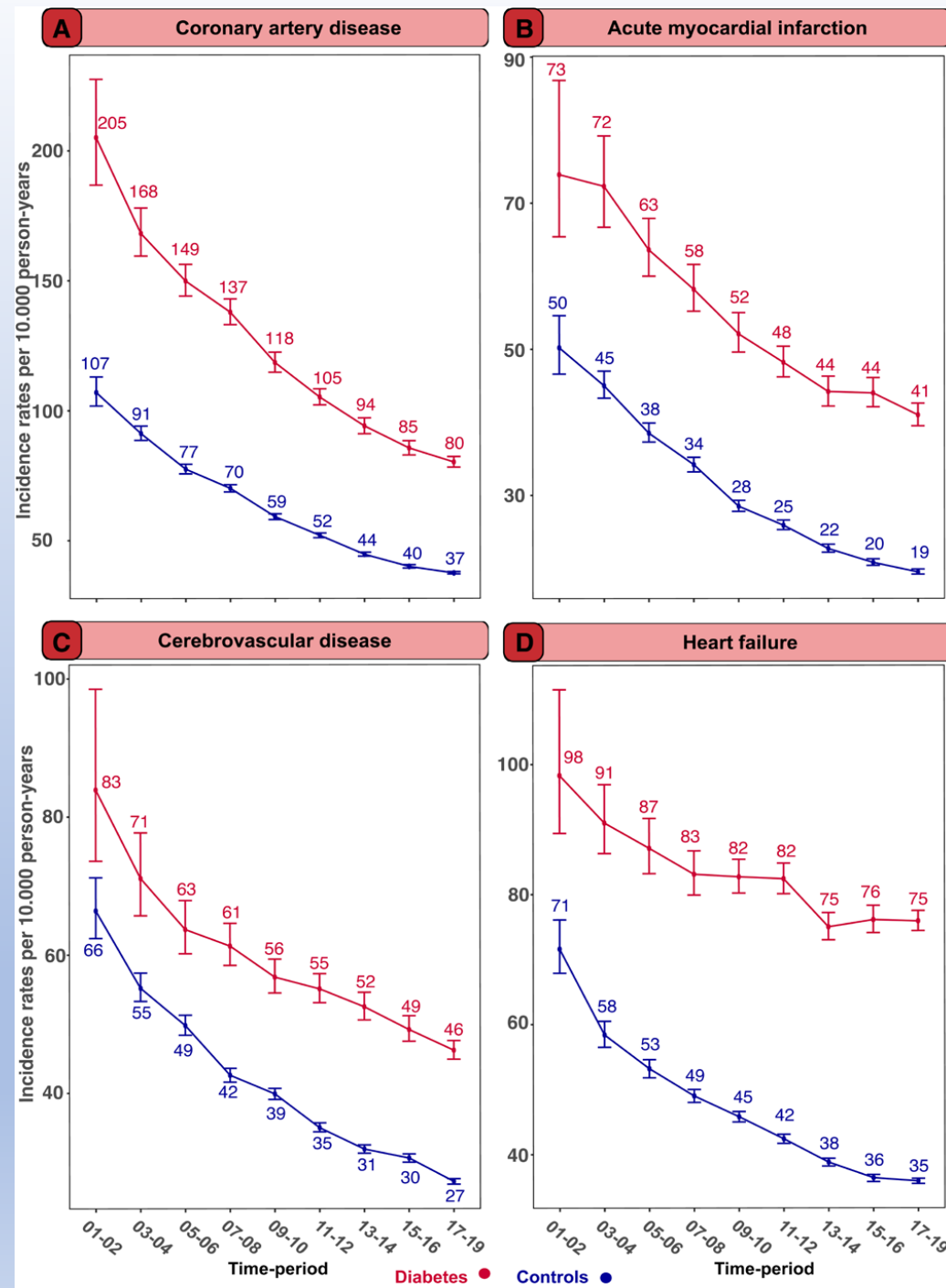
ORIGINAL RESEARCH ARTICLE



Twenty Years of Cardiovascular Complications and Risk Factors in Patients With Type 2 Diabetes: A Nationwide Swedish Cohort Study

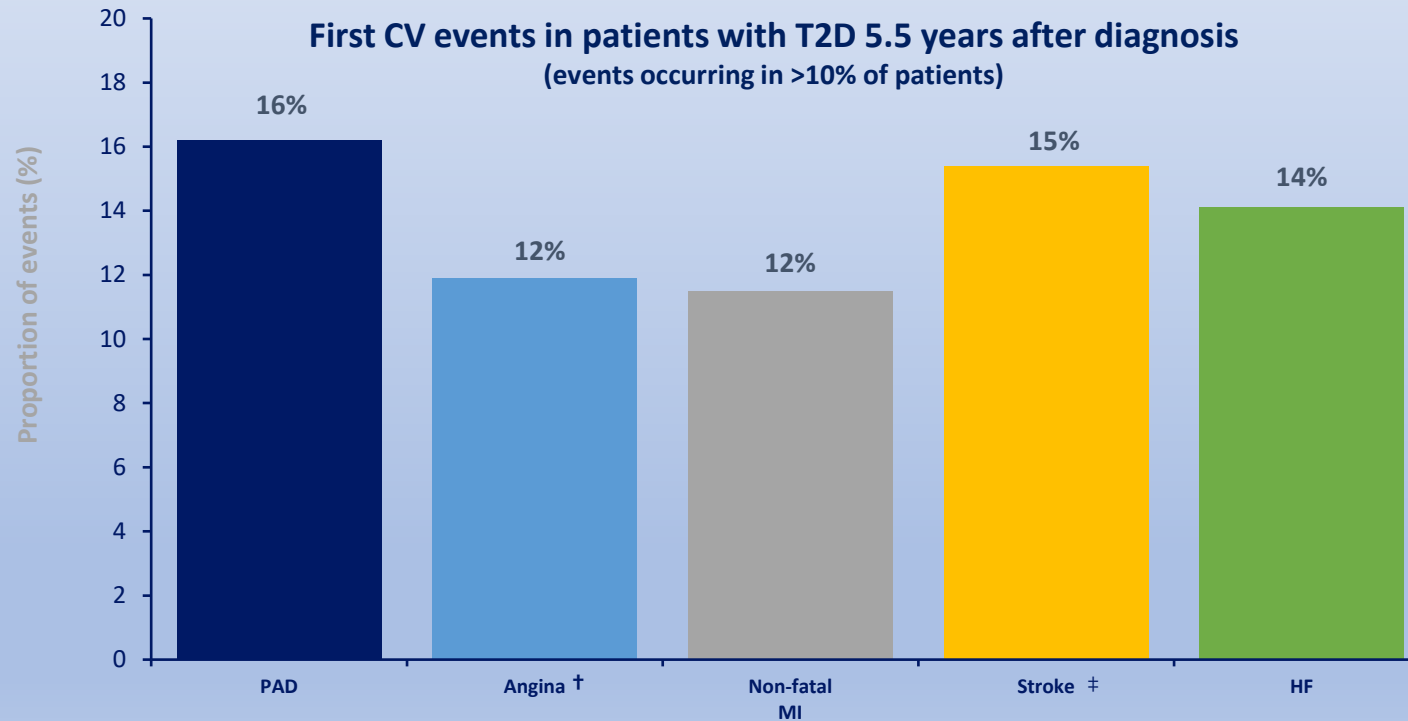
Evoluzione epidemiologica della MCV nel DM

Circulation. 2023;147:1872–1886



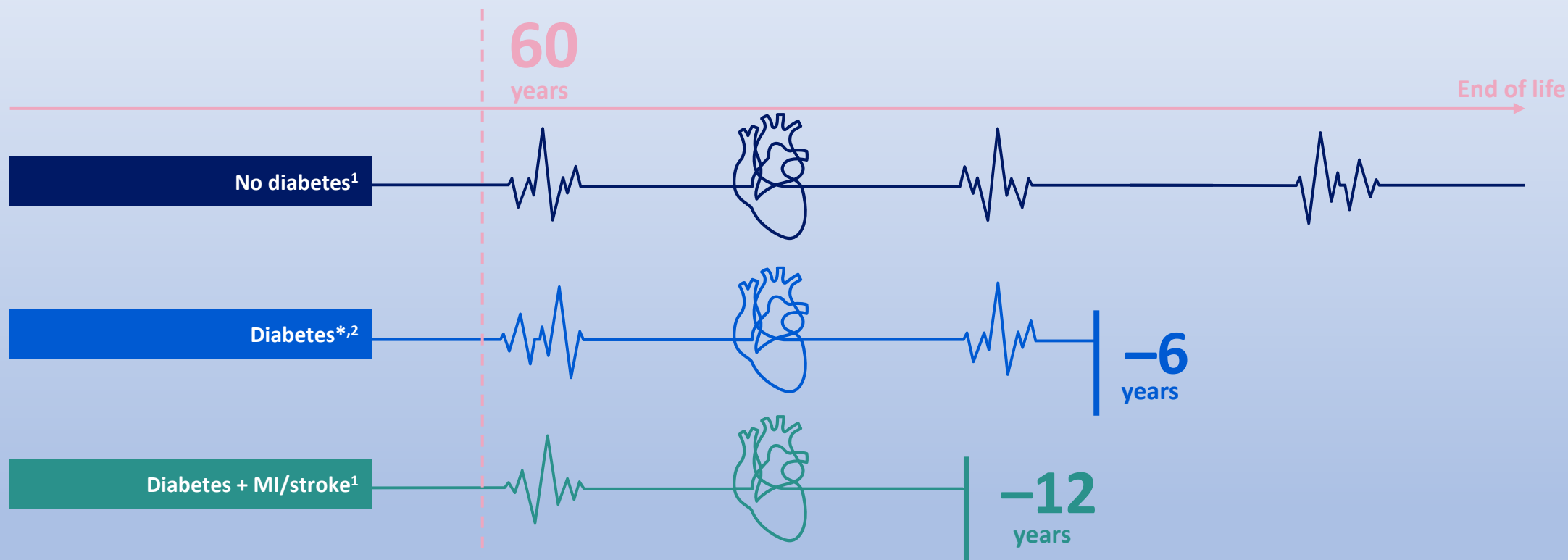
18% dei diabetici ha un primo evento CV entro 5-6 aa dalla diagnosi

Cohort study of 34,198 patients with T2D



Heart attacks and strokes occur over **10 years earlier** in people with T2D than those without and will occur with greater severity

Aspettativa di vita ridotta di 12 anni nei diabetici con ASCVD



Evoluzione mortalità CV in DM 2

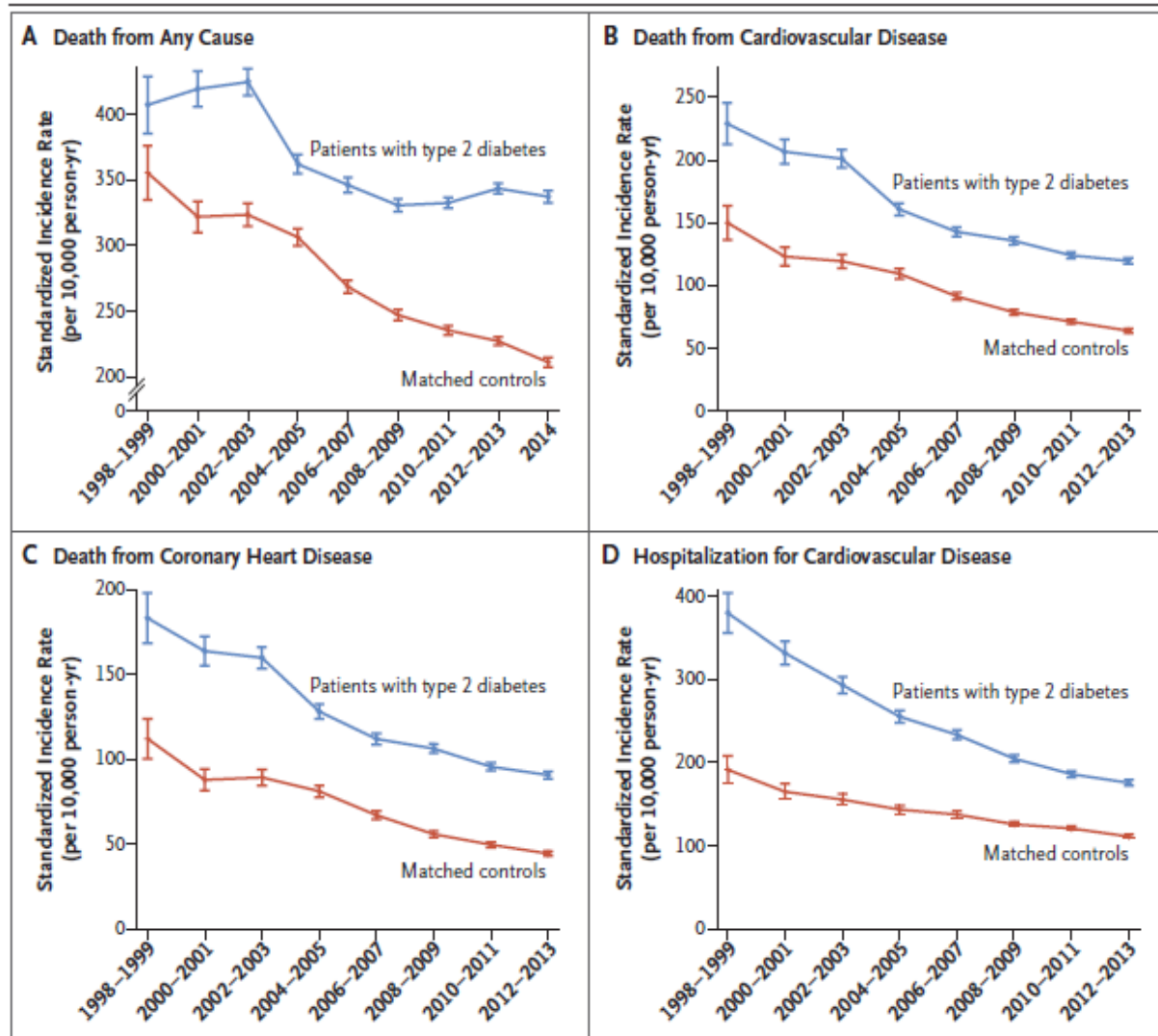
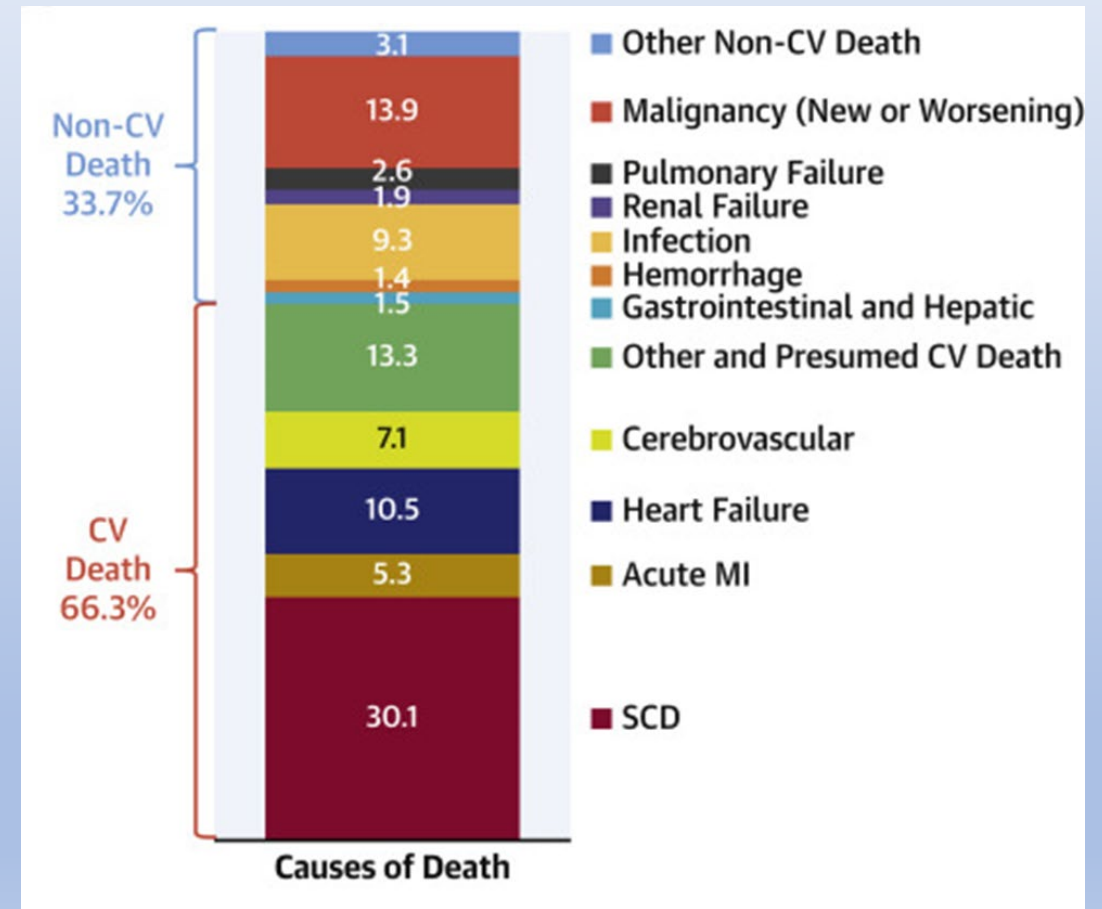


Figure 2. Major Cardiovascular Outcomes in Patients with Type 2 Diabetes and Matched Controls.

Controls were matched for age, sex, and county. I bars represent 95% confidence intervals.





Fondamentale conoscere rischio CV in DM2

Stima rischio cardiovascolare nei pazienti con diabete 2: SCORE2-Diabetes

2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes

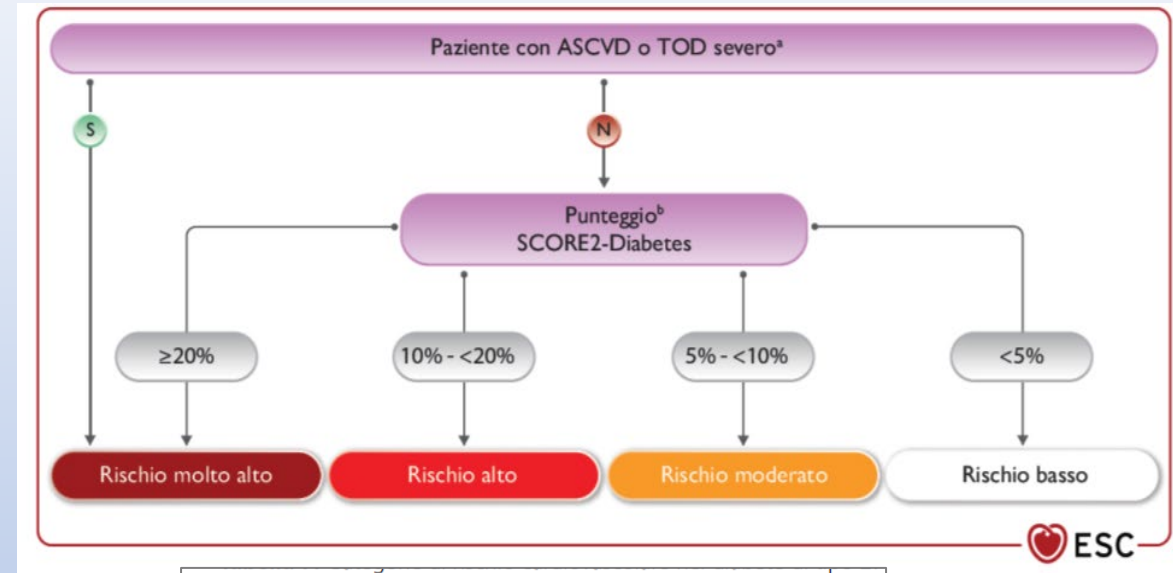
Developed by the task force on the management of cardiovascular disease in patients with diabetes of the European Society of Cardiology (ESC)

Tabella 2 delle raccomandazioni – Raccomandazioni per la stima del rischio cardiovascolare nei pazienti con diabete di tipo 2

Raccomandazioni	Classe ^a	Livello ^b
Nei pazienti diabetici si raccomanda di eseguire lo screening per rilevare la presenza di TOD severo ^{c,43,44} .	I	A
Nei pazienti diabetici si raccomanda di valutare l'anamnesi clinica e la presenza di sintomi indicativi di ASCVD ⁵³⁻⁵⁵ .	I	B
Nei pazienti con T2DM che non presentano ASCVD sintomatica o TOD severo ^c si raccomanda di stimare il rischio di CVD a 10 anni mediante l'algoritmo SCORE2-Diabetes ^d .	I	B

Severo TOD

- eGFR <45 mL/min/1.73 m² indipendentemente da albuminuria
- eGFR 45–59 mL/min/1.73 m² e microalbuminuria (UACR 30–300 mg/g; stadio A2) o proteinuria (UACR >300 mg/g; stage A3)
- presenza di microangiopatia in almeno 3 sedi (es. microalbuminuria + retinopatia + neuropatia)



Rischio CV molto alto

Pazienti con T2DM associato a:

- ASCVD accertata clinicamente o
- TOD severo o
- Rischio di CVD a 10 anni ≥20% stimato mediante l'algoritmo SCORE2-Diabetes

Rischio CV alto

Pazienti con T2DM che non rientrano nei criteri di rischio molto alto ma presentano un:

- Rischio di CVD a 10 anni tra 10% e <20% stimato mediante l'algoritmo SCORE2-Diabetes

Rischio CV moderato

Pazienti con T2DM che non rientrano nei criteri di rischio molto alto ma presentano un:

- Rischio di CVD a 10 anni tra 5% e <10% stimato mediante l'algoritmo SCORE2-Diabetes

Rischio CV basso

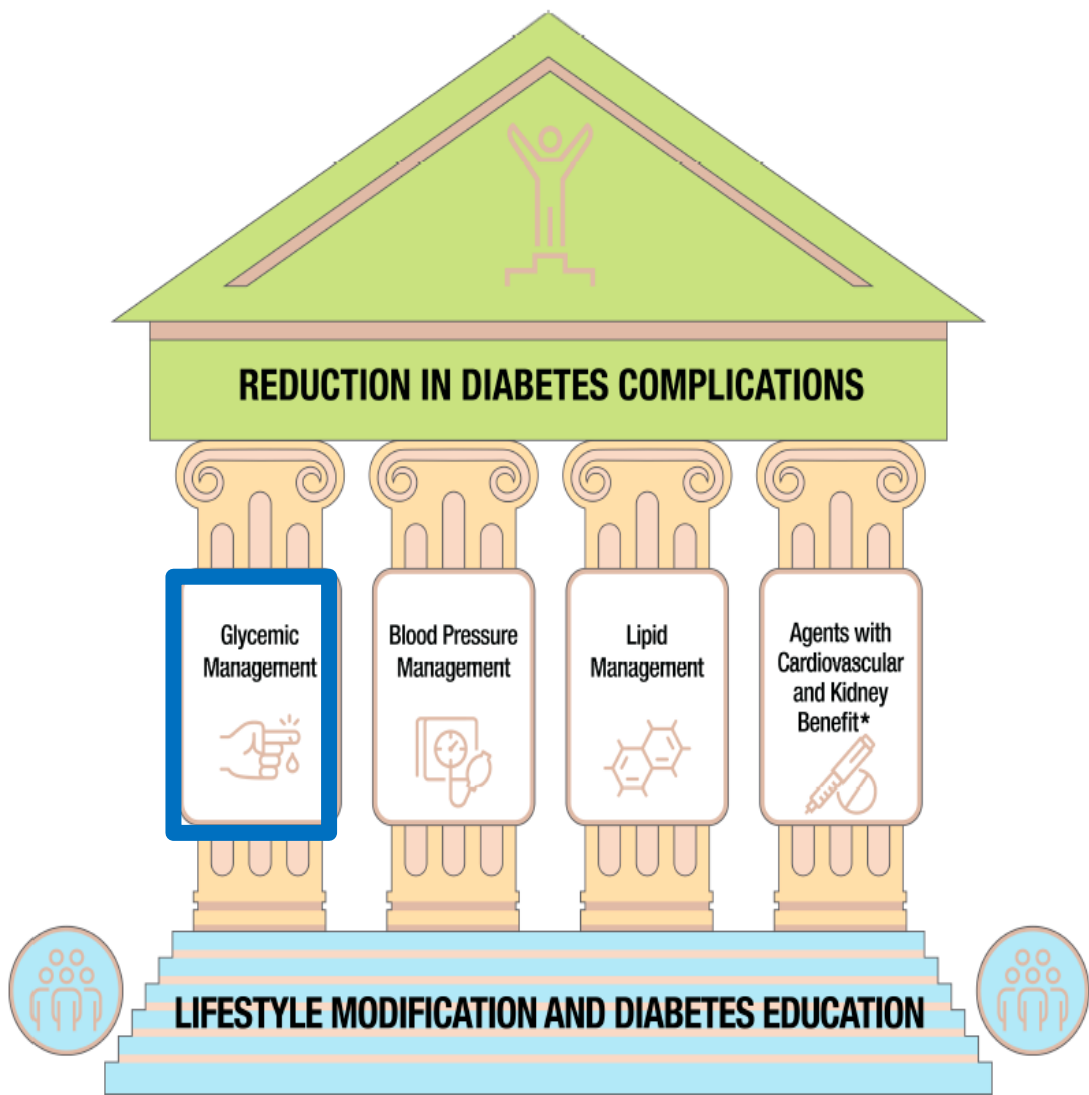
Pazienti con T2DM che non rientrano nei criteri di rischio molto alto ma presentano un:

- Rischio di CVD a 10 anni <5% stimato mediante l'algoritmo SCORE2-Diabetes

Non si applica SCORE2-D



COME RIDURRE RISCHIO CV NEL DM 2



2024

Standards of Care
in Diabetes



Paradigma di gestione DM2:

Da *treat to target*
a *treat to target and benefit*

1. Glycemic Management

2024
Standards of Care
in Diabetes



E' APPROPRIATO A1C GOAL < 7% PER LA MAGGIOR PARTE ADULTI
senza significativa ipoglicemia



Approccio al trattamento dell'iperglicemia

Più stringenti

Meno stringenti

Attitudine del paziente e impegni di trattamento attesi

Altamente motivato, aderente, con eccellenti capacità di "self-care"

Scarsamente motivato, non aderente, con scarse capacità di "self-care"

Rischio potenzialmente associato con ipoglicemia e altri eventi avversi

Basso

Alto

Durata del trattamento

Nuova diagnosi

Diagnosi di lunga data

Aspettativa di vita

Lunga

Breve

Importanti comorbidità

Assenti

Poche/lievi

Gravi

Complicanze vascolari

Assenti

Poche/lievi

Gravi

Risorse sanitarie e sistemi di supporto

Facilmente disponibili

Limitate

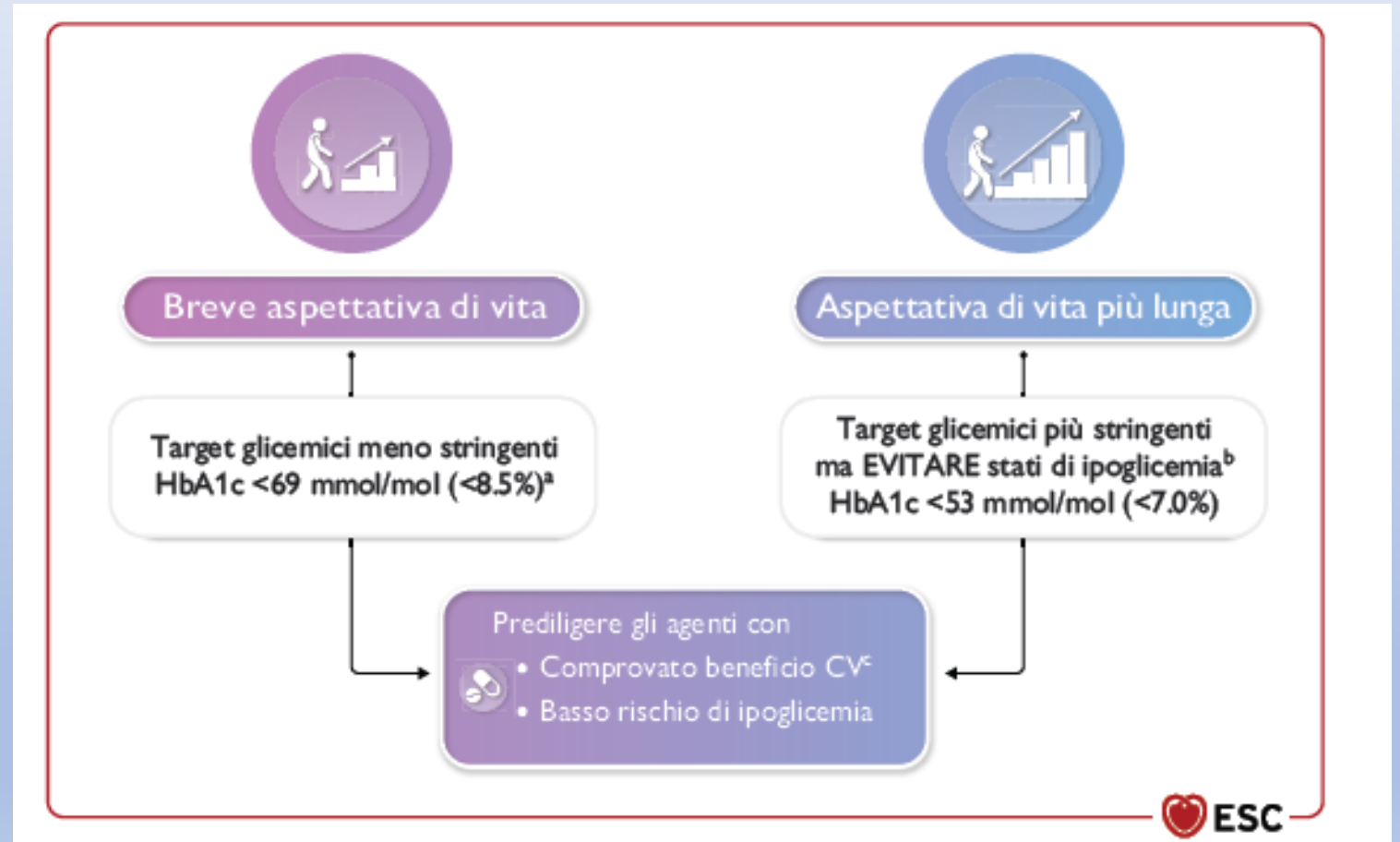
PERSONALIZZARE I TARGET HbA1c IN BASE A COMORBIDITA', DURATA DIABETE E ASPETTATIVA DI VITA

2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes

Developed by the task force on the management of cardiovascular disease in patients with diabetes of the European Society of Cardiology (ESC)

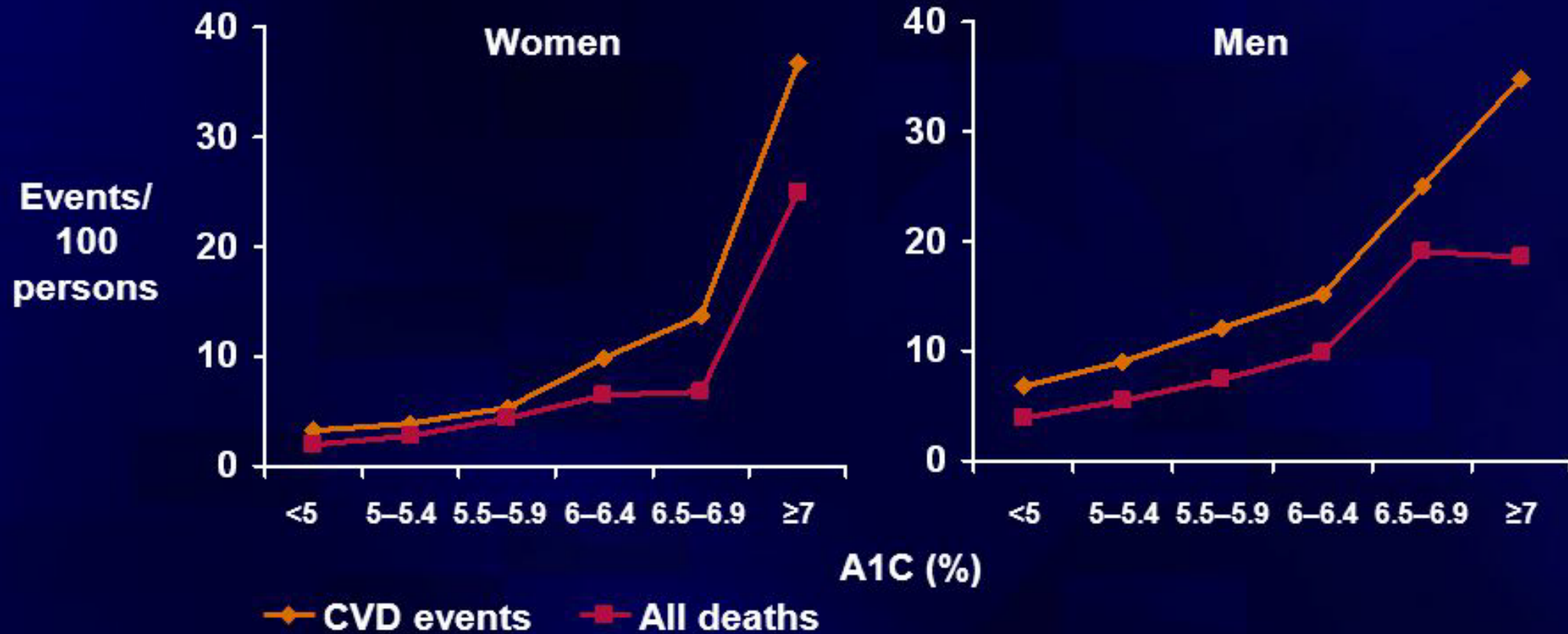
Tabella 7 delle raccomandazioni – Raccomandazioni per i target glicemici nei pazienti diabetici

Raccomandazioni	Classe ^a	Livello ^b
Per ridurre le complicanze microvascolari si raccomanda di perseguire un controllo glicemico stringente (HbA1c <7%) ^{126–128,122} .	I	A
Si raccomanda di evitare stati di ipoglicemia, soprattutto nei pazienti con CVD ^{134–137,147} .	I	B
Si raccomanda di personalizzare i target di HbA1c in base alle comorbidità, la durata del diabete e l'aspettativa di vita ^{124,127} .	I	C
Per ridurre il rischio di CAD nel lungo termine dovrebbe essere preso in considerazione un controllo glicemico stringente, preferibilmente con farmaci dal comprovato beneficio CV ^c .	Ila	B



EPIC-Norfolk: rischio CV aumenta con livelli HbA1c

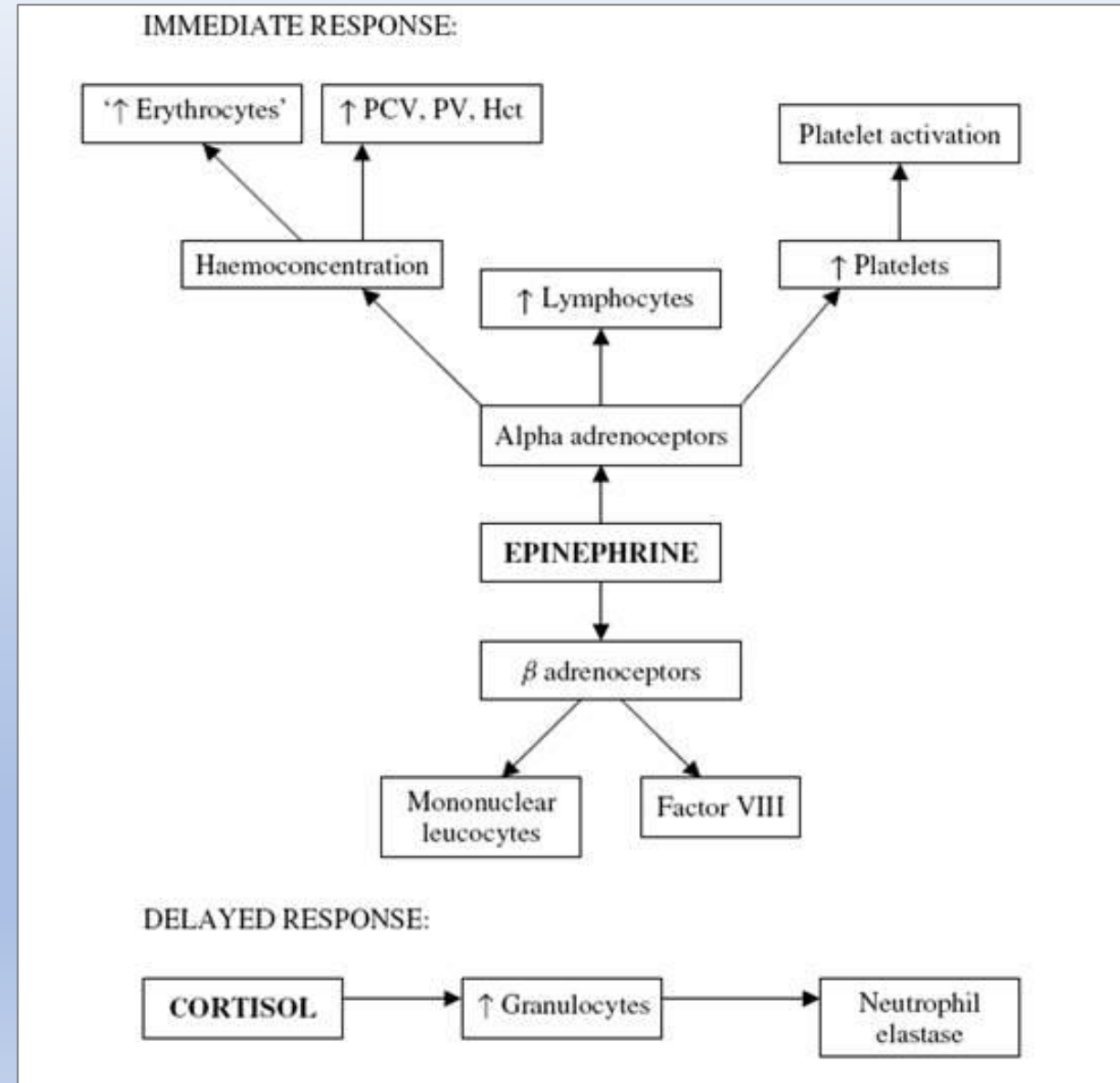
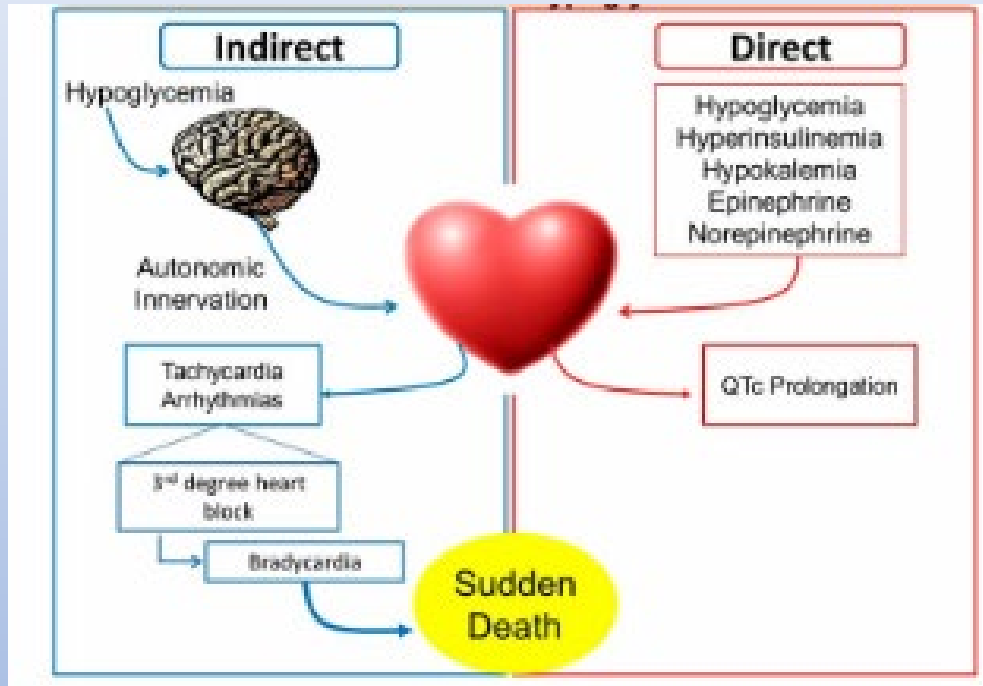
N = 10,232



↑1% A1C associated with: ↑20% CVD events, ↑22% mortality

$P_{\text{Trend}} < 0.001$ across A1C categories for all endpoints

IPOGLICEMIA E MORTALITA' CV

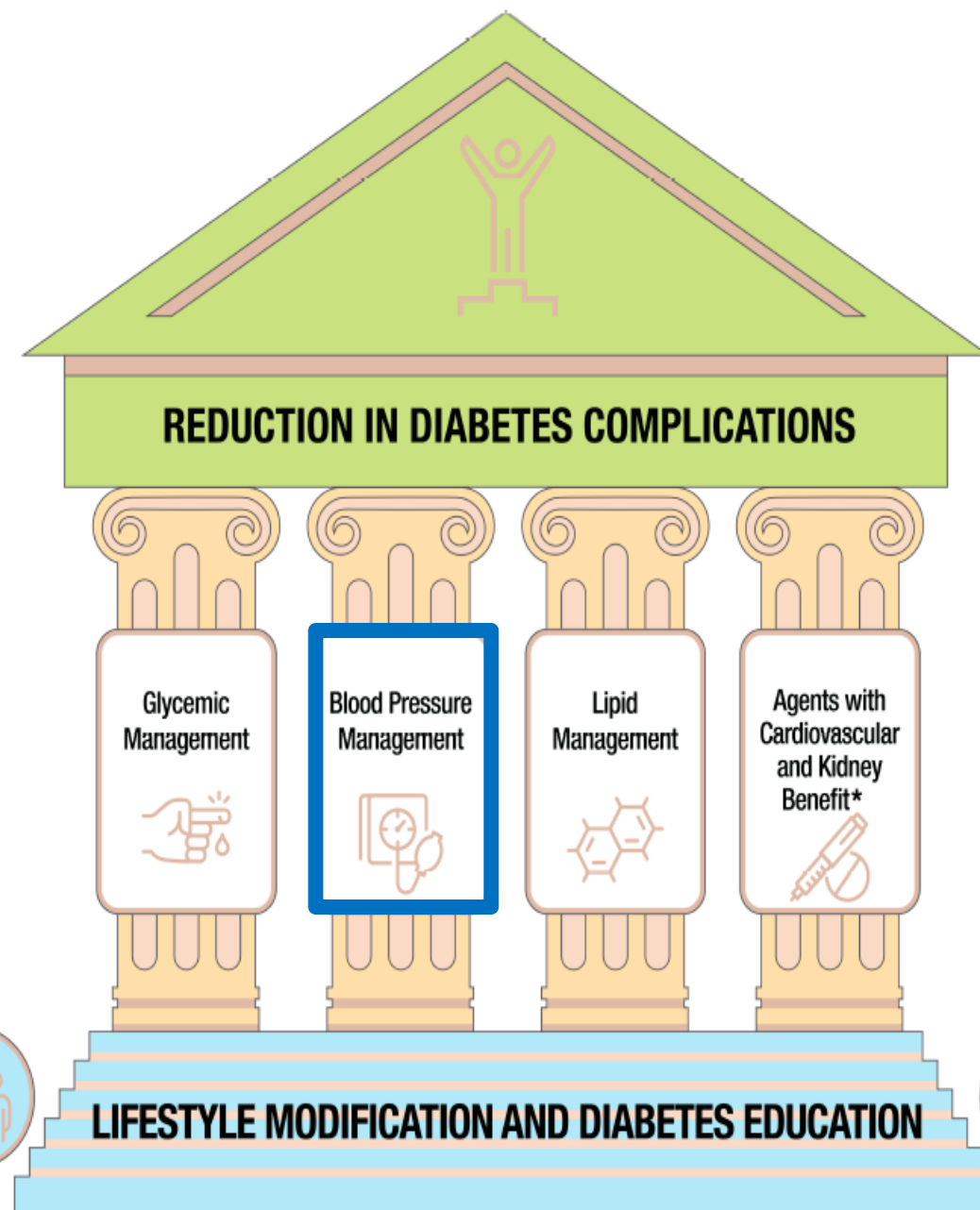


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in Diabetes**



American
Diabetes
Association®



2. Blood Pressure Management



ESC
European Society
of Cardiology

European Heart Journal (2024) 45, 3912–4018
<https://doi.org/10.1093/eurheartj/ehae178>

ESC GUIDELINES

2024 ESC Guidelines for the management of elevated blood pressure and hypertension

Definizione ipertensione arteriosa

$PA \geq 140/90$ mmHg

PA non elevata $< 120/70$ mmHg

PA elevata $120-139/70-79$ mmHg



Blood pressure classification

Non-elevated blood pressure	Elevated blood pressure	Hypertension
Office BP SBP < 120 mmHg and DBP < 70 mmHg	Office BP SBP $120-139$ mmHg or DBP $70-89$ mmHg	Office BP SBP ≥ 140 mmHg or DBP ≥ 90 mmHg
HBPM SBP < 120 mmHg and DBP < 70 mmHg	HBPM SBP $120-134$ mmHg or DBP $70-84$ mmHg	HBPM SBP ≥ 135 mmHg or DBP ≥ 85 mmHg
ABPM Daytime SBP < 120 mmHg and Daytime DBP < 70 mmHg	ABPM Daytime SBP $120-134$ mmHg or Daytime DBP $70-84$ mmHg	ABPM Daytime SBP ≥ 135 mmHg or Daytime DBP ≥ 85 mmHg
Insufficient evidence confirming the efficacy and safety of BP pharmacological treatment	Risk stratify to identify individuals with high cardiovascular risk for BP pharmacological treatment	Cardiovascular risk is sufficiently high to merit BP pharmacological treatment initiation

The diagnosis of hypertension and elevated BP requires confirmation using out-of-office measurements (HBPM or ABPM) or at least one additional subsequent office measurement





RIDUZIONE PA

- ✓ QUANDO
- ✓ COME
- ✓ QUANTO



European Heart Journal (2024) 45, 3912–4018
<https://doi.org/10.1093/eurheartj/ehae178>

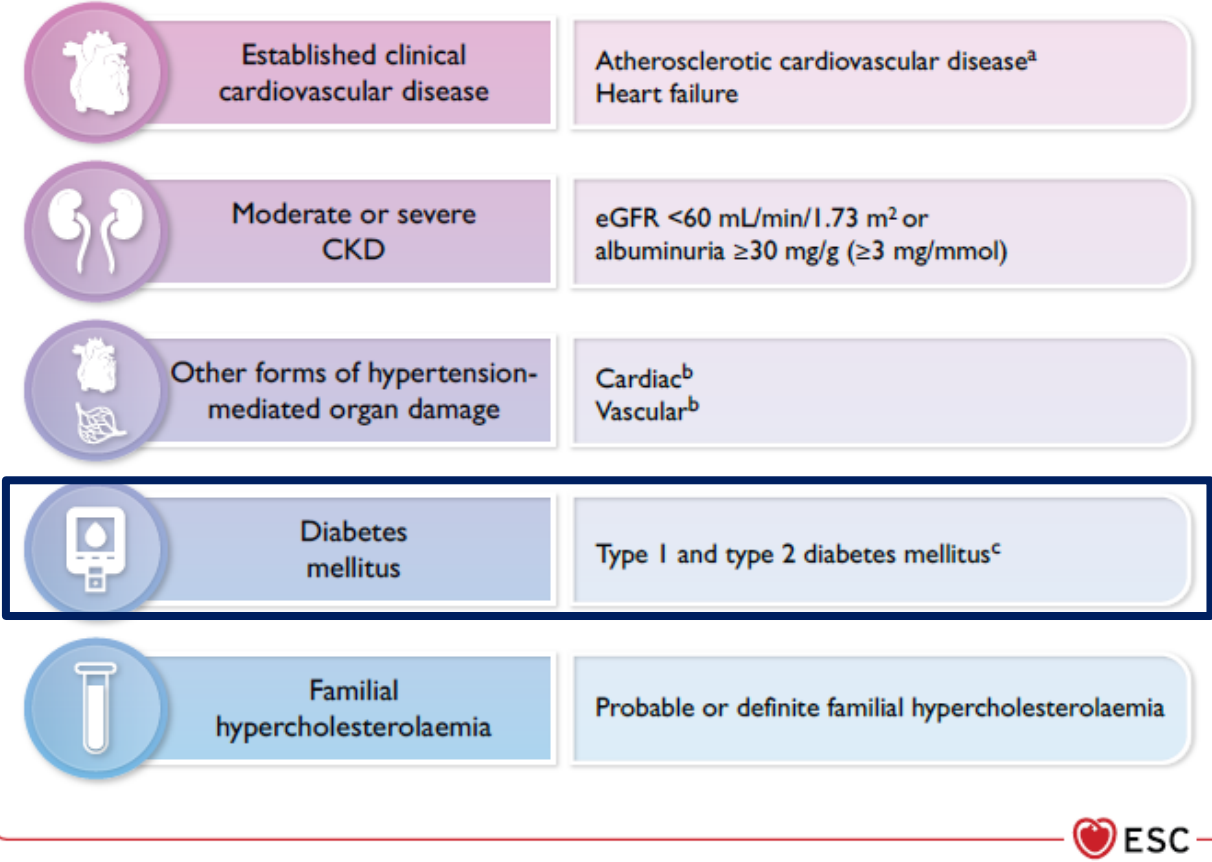
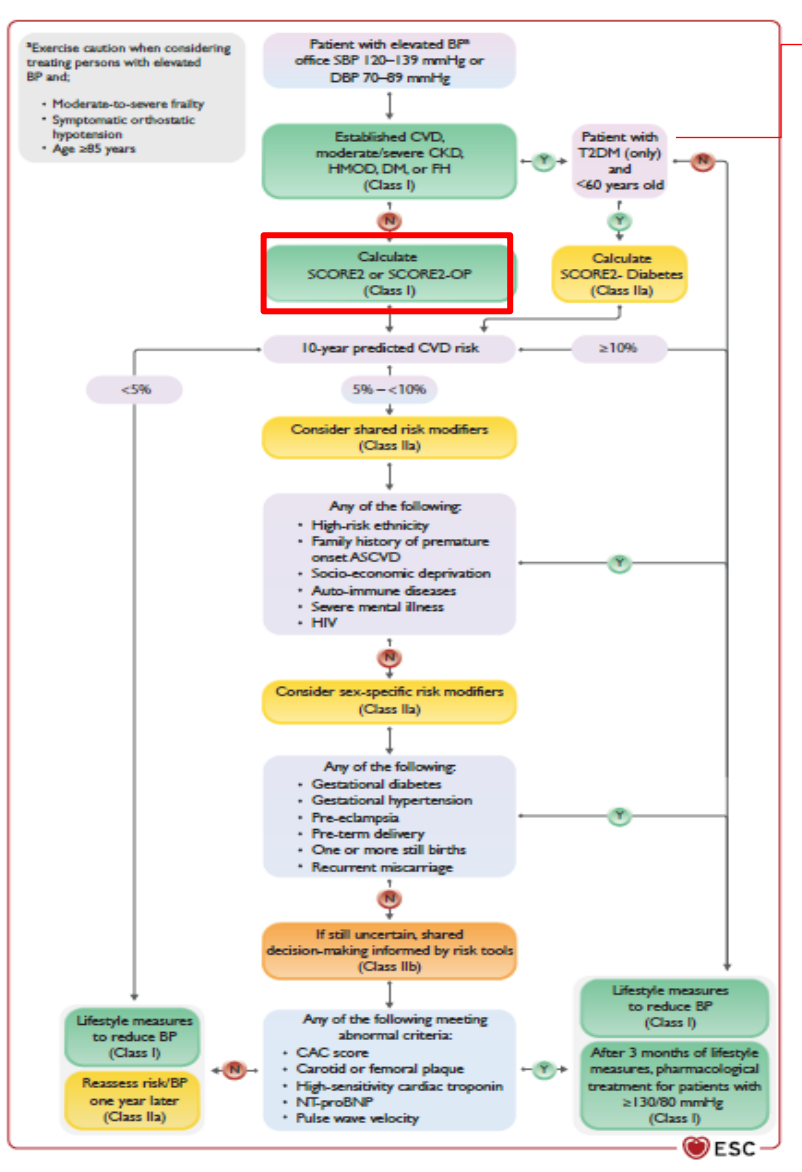
ESC GUIDELINES

**2024 ESC Guidelines for the management of
elevated blood pressure and hypertension**

QUANDO: necessario conoscere RCV nell'iperteso per scelta terapeutica

→ Usare SCORE2-D in DM2 < 60 aa con PA elevata

Condizioni alto rischio CV come **DIABETE**



A graphic of a target with concentric red and white rings. An arrow with orange fletching and a grey shaft is shown hitting the center bullseye. A grey shadow is cast by the arrow onto the target.

The flowchart is divided into three main sections: Screening, Confirming, and Managing hypertension.

- Screening for hypertension:**
 - Opportunistic: every 3 years <40 years; every year ≥40 years.
 - Pathway: Patient centred care → Non-elevated BP (Office SBP <120 mmHg and DBP <70 mmHg) → Lifestyle measures → Screen BP opportunistically.
 - Pathway: Patient centred care → Elevated BP (Office SBP 120–139 mmHg and/or DBP 70–89 mmHg) → Age ≥85 years, moderate-to-severe frailty, symptomatic OH, short life expectancy?
 - Yes (Y): Lifestyle measures.
 - No (N): Established CVD, moderate-to-severe CKD, hypertension-mediated organ damage, diabetes mellitus^a, familial hypercholesterolaemia → Calculate SCORE2/SCORE2-OP (Class I).
 - <5%: Lifestyle measures.
 - 5% – <10%: Assess risk modifiers (Class IIa) → Consider risk tools (Class IIb) → Normal → Lifestyle measures; Abnormal → Targeted secondary hypertension treatment.
 - ≥10%: Targeted secondary hypertension treatment.
- Confirming hypertension:**
 - HBPM/ABPM or repeated standardized office BP.
 - Pathway: Hypertension (Office SBP ≥140 mmHg and/or DBP ≥90 mmHg) → Age <40 years, resistant hypertension, suggestive signs and/or symptoms?
 - Yes (Y): Screen for secondary hypertension (Class I) → Targeted secondary hypertension treatment.
 - No (N): Lifestyle measures.
- Managing hypertension:**
 - Pathway: Drug treatment for confirmed BP ≥130/80 mmHg → Monitor BP and medication tolerance^b → Target SBP 120–129 mmHg (Class I) → Target DBP 70–79 mmHg (Class IIb).

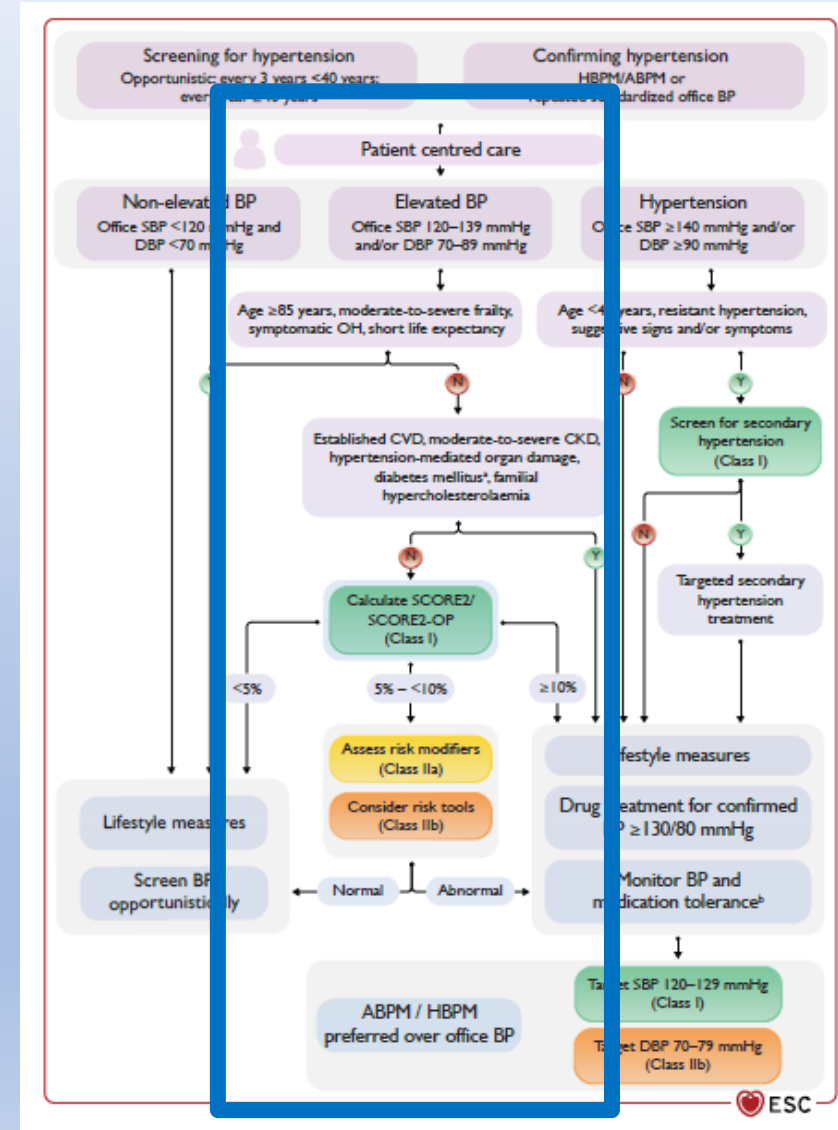
^a Type 1 diabetes mellitus with duration ≥10 years or type 2 diabetes mellitus with duration ≥10 years or type 2 diabetes mellitus with duration ≥5 years and HbA_{1c} ≥7.5%.

^b If tolerated, target SBP <120 mmHg and target DBP <80 mmHg.

QUANDO: SOGLIE INIZIO TERAPIA (2) per il paziente con PA elevata

Blood pressure (mmHg)	Non-elevated BP (<120/70)	Elevated BP (120/70 to 139/89)		Hypertension (≥140/90)
Risk		(a) All adults with SBP 120–129 mmHg (b) SBP 130–139 AND 10-year estimated CVD risk <10% AND no high-risk conditions or risk modifiers or abnormal risk tool tests	(a) SBP 130–139 AND high-risk conditions (e.g. established CVD, diabetes mellitus, CKD, FH or HMOD) (b) SBP 130–139 AND 10-year estimated CVD risk ≥10% (c) SBP 130–139 AND 10-year estimated CVD risk 5% - <10% AND risk modifiers or abnormal risk tool tests	Assumed all at sufficiently high risk to benefit from pharmacological treatment
Treatment	Lifestyle measures for prevention Screen BP and CVD risk opportunistically	Lifestyle measures for treatment Monitor BP and CVD risk yearly	Lifestyle measures and pharmacological treatment (after 3-month delay). Monitor BP yearly once treatment control is established	Lifestyle measures and pharmacological treatment (immediate) Monitor BP yearly once treatment control is established
Target (mmHg)	Maintain BP <120/70	Aim BP 120–129/70–79 mmHg ^a		

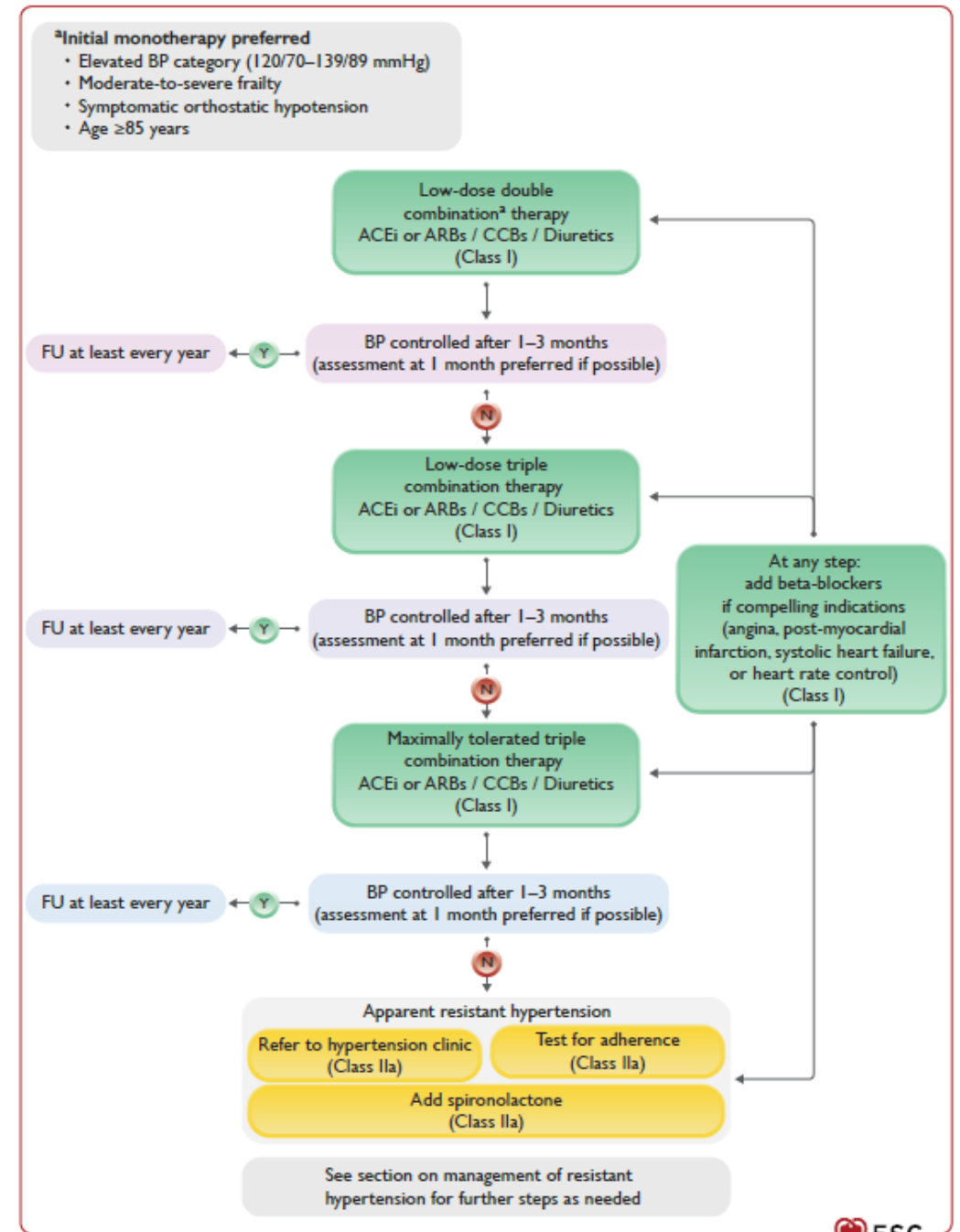
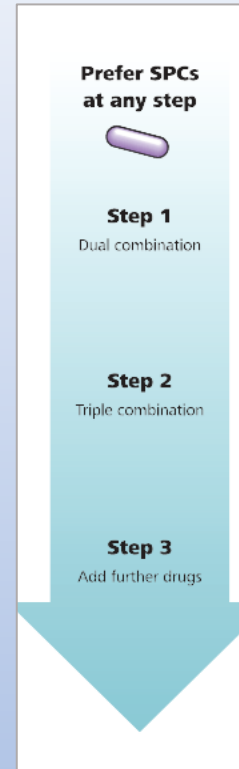
Nei pz ad alto rischio CV come i **DIABETICI** con **PA 130-139 mmHg** è indicato modifica stile di vita e dopo 3 mesi se PA > 130/80 inizio terapia farmacologica



COME: Terapia dell'ipertensione

TERAPIA DI ASSOCIAZIONE

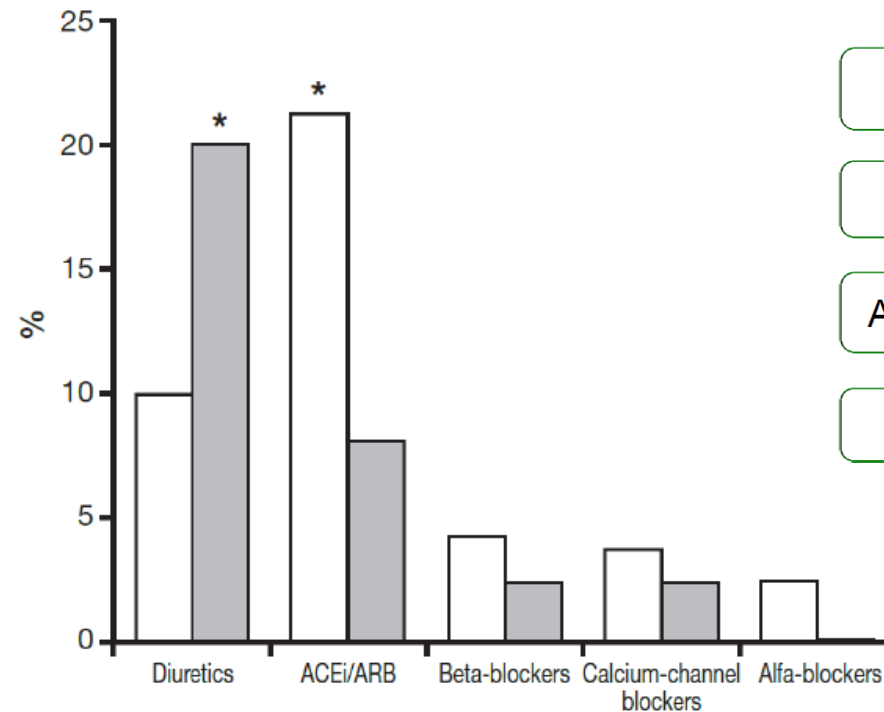
in singola pillola di basse dosi di 2 farmaci classi differenti con lo scopo di minimizzare effetti collaterali e migliorare aderenza



Quali farmaci antipertensivi nel DM

Effects of antihypertensive treatments on incidence of diabetes: A case-control study

M. Monami¹, A. Ungar¹, C. Lamanna², G. Bardini³, L. Pala³, I. Dicembrini³, C. Marchi², M. Vivarelli¹, S. Zannoni¹, N. Bartoli¹, N. Marchionni¹, C.M. Rotella³, and E. Mannucci²



β -blockers

Inhibit insulin secretion

Diuretics

Reduce insulin sensitivity

ACE-inhibitors

Improve insulin sensitivity

ARB

Improve insulin sensitivity

2024

Standards of Care
in Diabetes



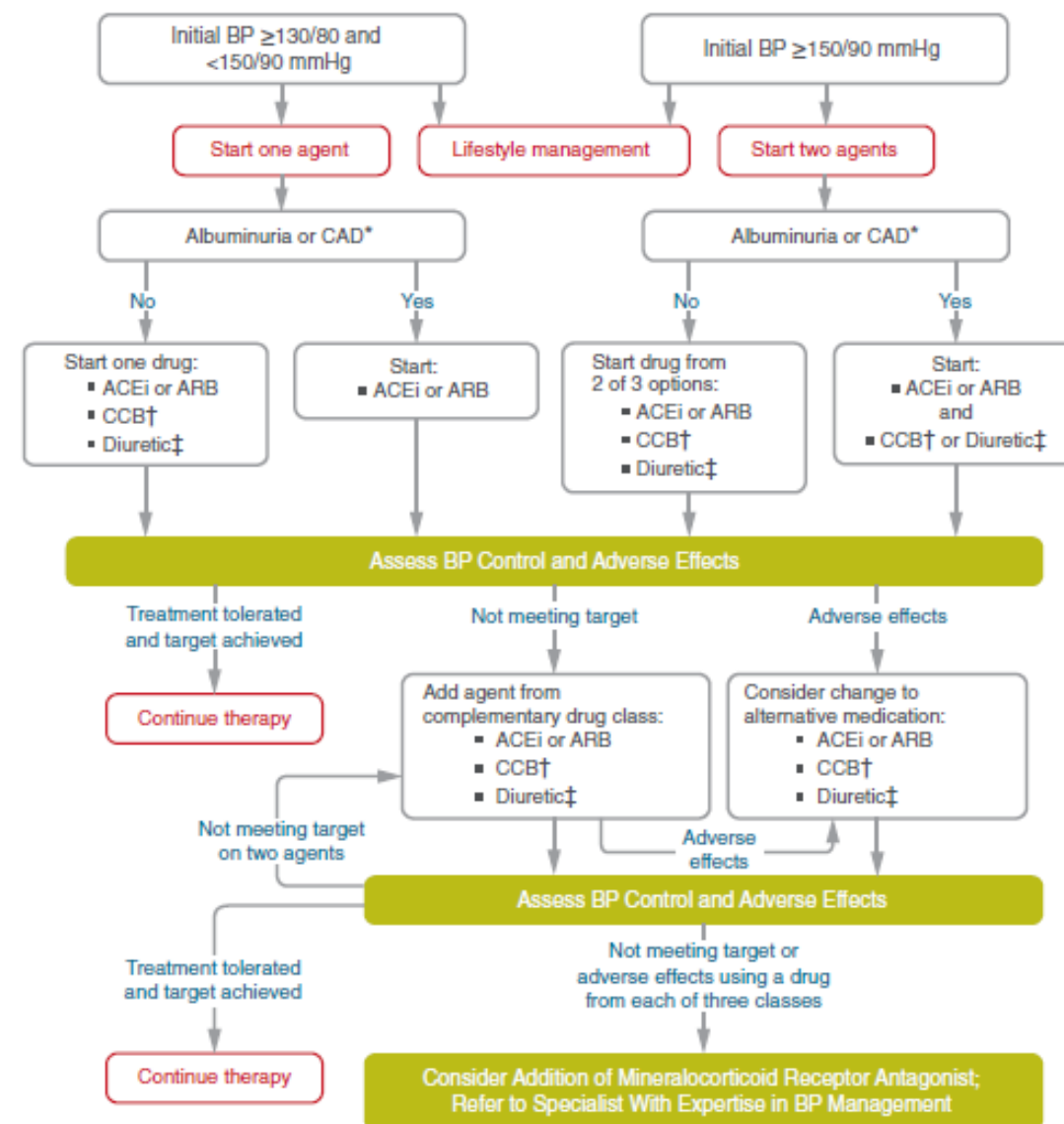
Prima scelta: ACEi o ARB

Tolleranza terapia e rischio **ipotensione ortostatica** in DM



PA non < 120 mmHg

Recommendations for the Treatment of Confirmed Hypertension in Nonpregnant People With Diabetes





ESC

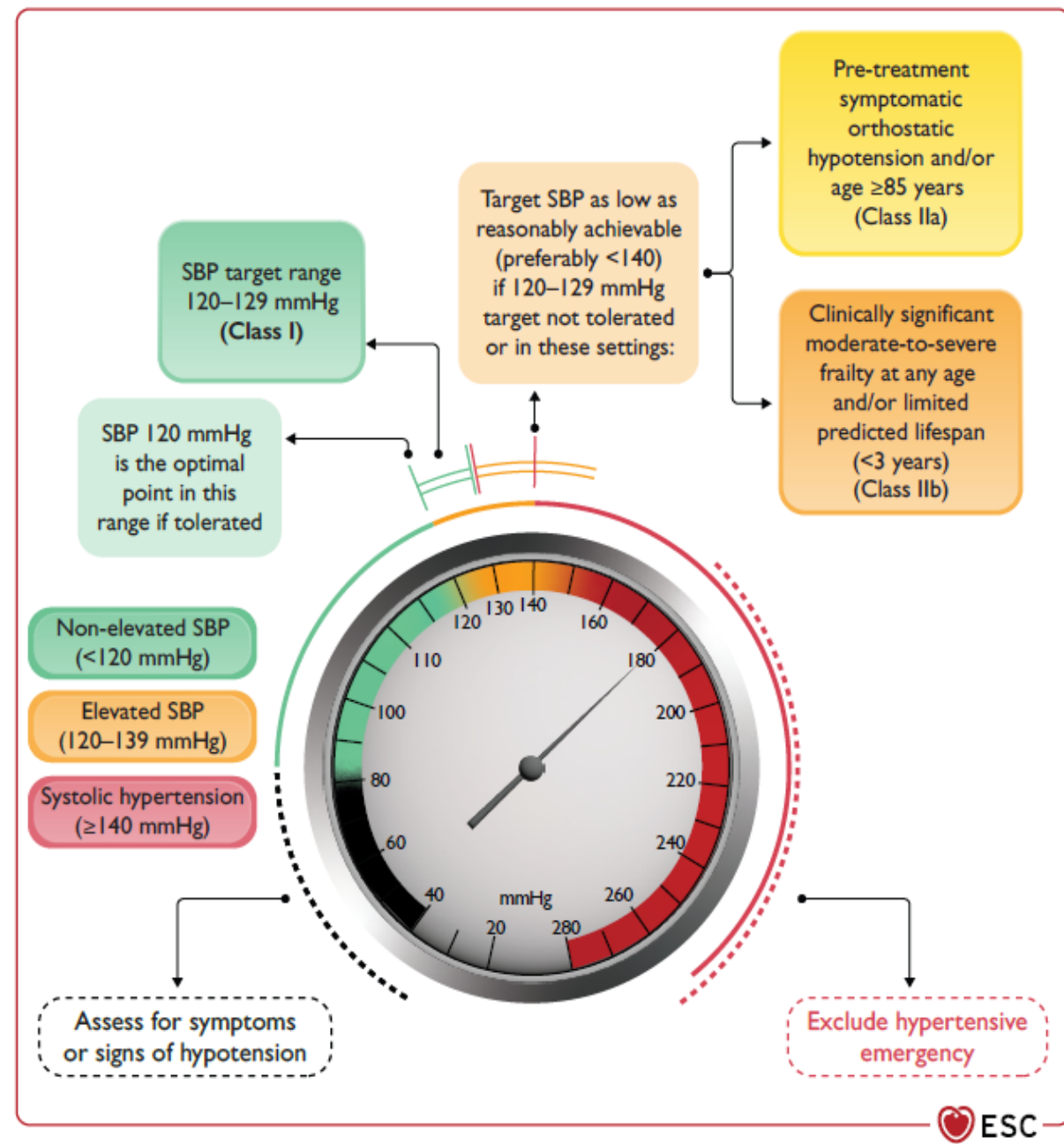
European Society
of Cardiology

European Heart Journal (2024) 45, 3912–4018
<https://doi.org/10.1093/eurheartj/ehae178>

ESC GUIDELINES

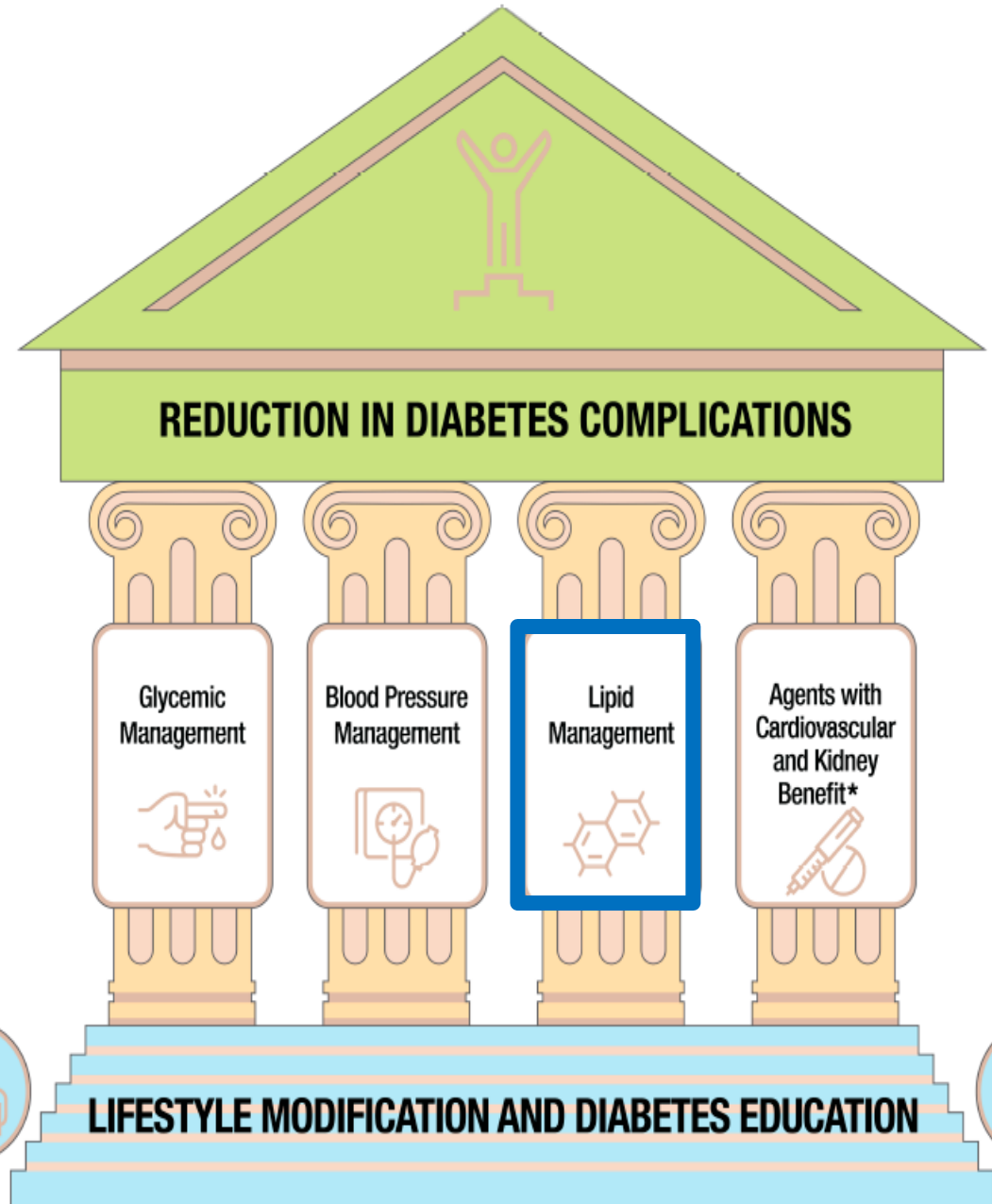
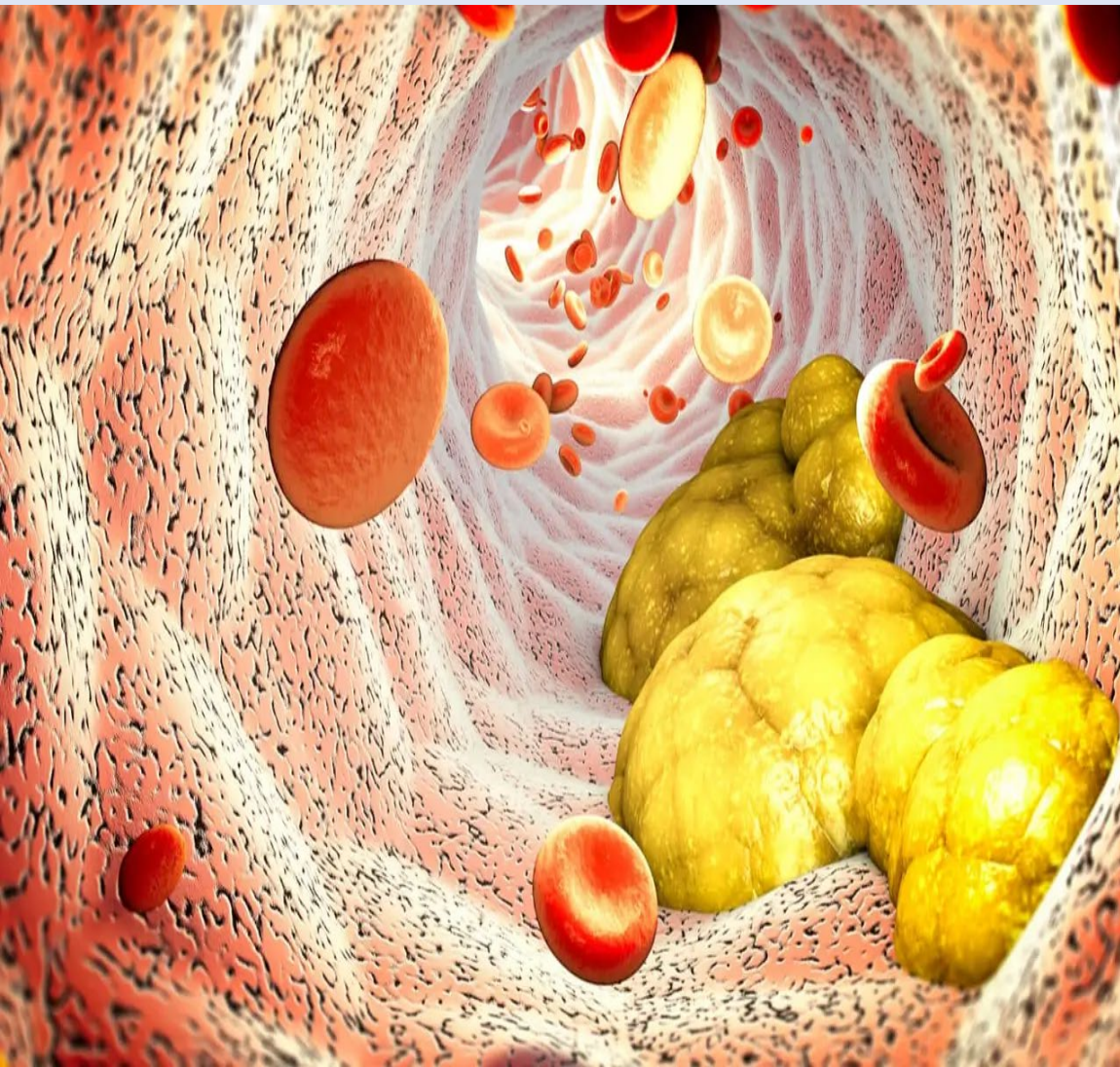
2024 ESC Guidelines for the management of elevated blood pressure and hypertension

QUANTO:
TARGET PRESSORIO
120-129 mmHg
se tollerato anche nei diabetici

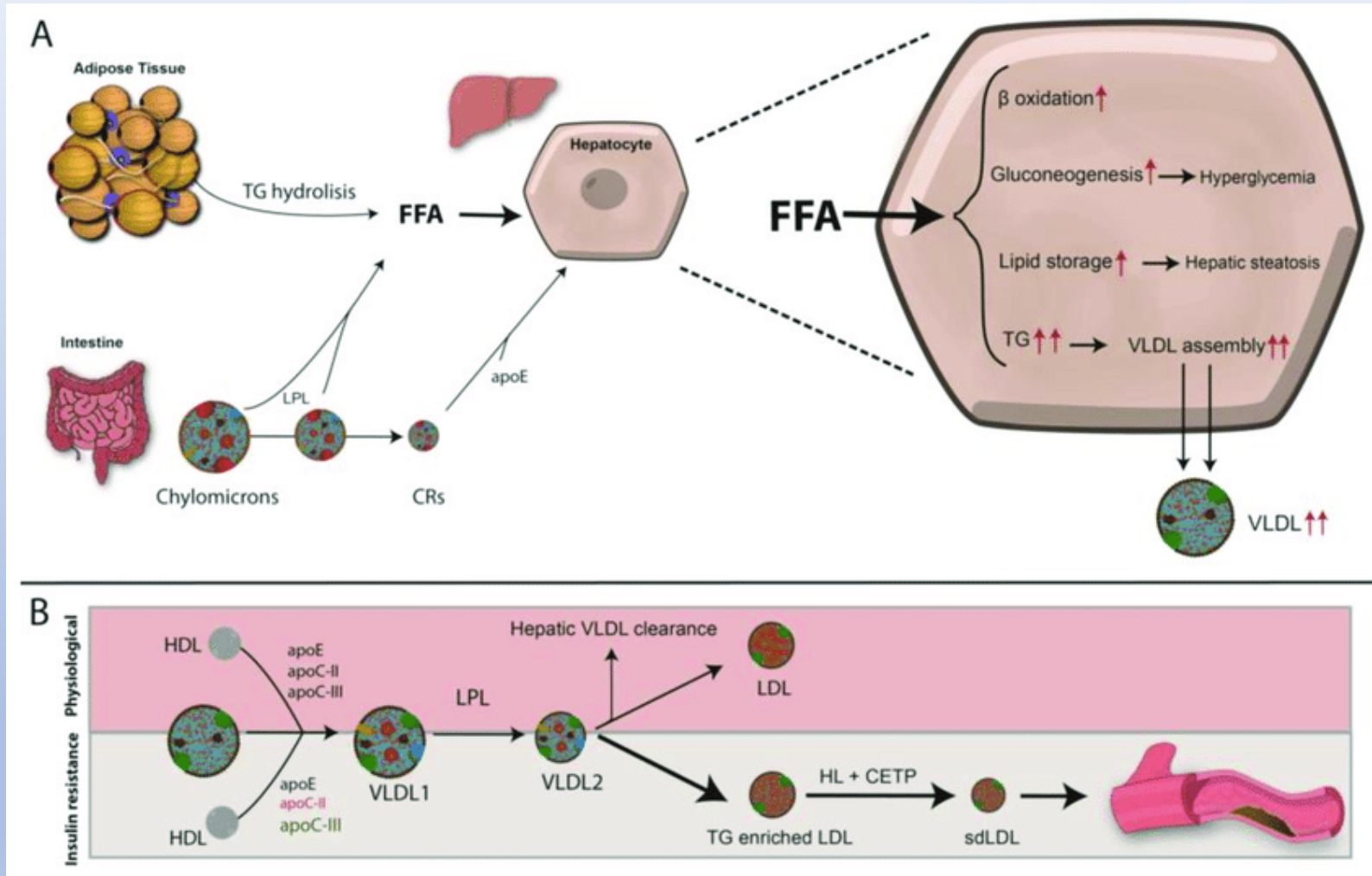


2024

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in Diabetes**



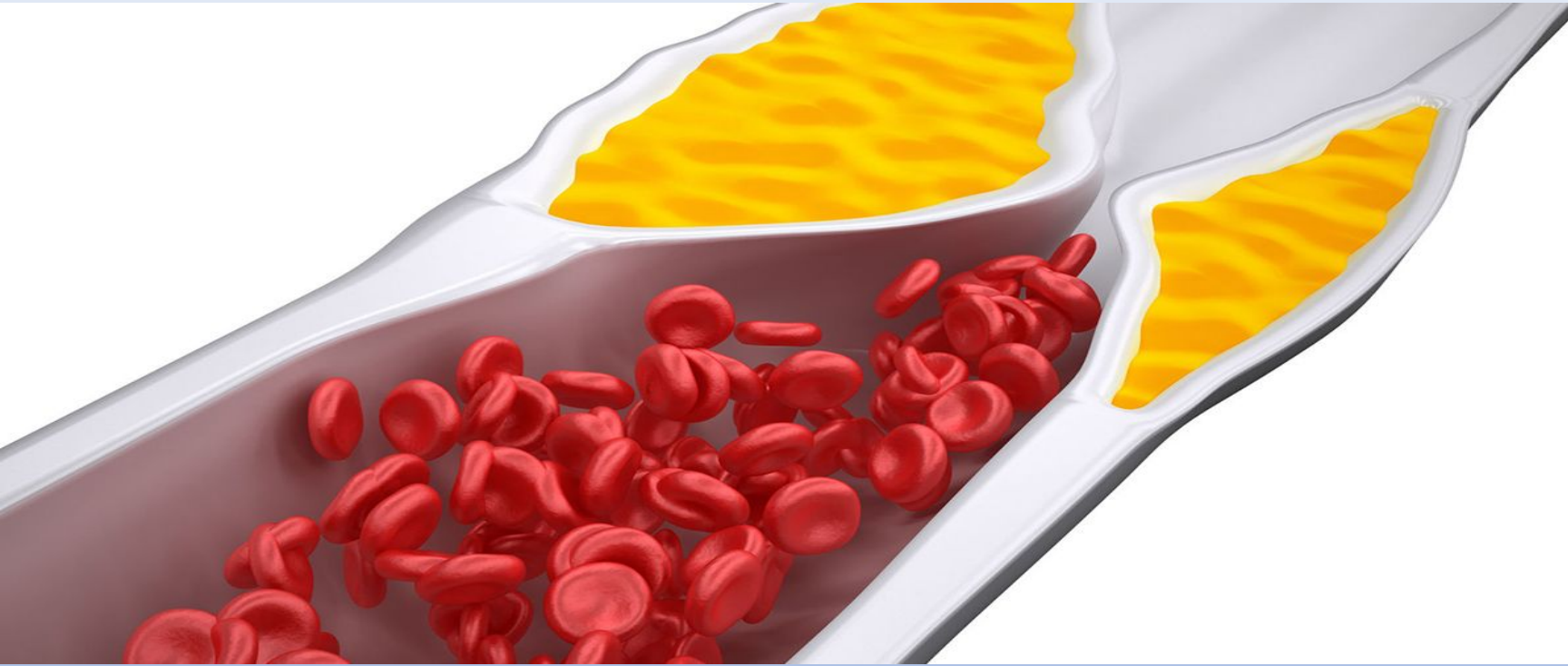
DISLIPIDEMIA DIABETICA



TRIADE ATEROGENA

- $\uparrow$ TG
- $\downarrow$ HDL
- $\uparrow$ LDL piccole e dense

ATS ed effetto causale e cumulativo LDL



"*Lower* is better", "*Sooner* is better" e
"*Longer* is better"

QUANTO RIDURRE LDL IN DM



DIPENDE DAL RISCHIO CARDIOVASCOLARE

2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes

Developed by the task force on the management of cardiovascular disease in patients with diabetes of the European Society of Cardiology (ESC)

3. Lipid Management

Categorie di rischio CV nei pazienti con T2DM basate su ASCVD, TOD severo o SCORE2-Diabetes

Rischio molto alto

LDL-C <1.4 mmol/l
(<55 mg/dl)
(Classe I)

Rischio alto

LDL-C <1.8 mmol/l
(<70 mg/dl)
(Classe I)

Rischio moderato

LDL-C <2.6 mmol/l
(<100 mg/dl)
(Classe I)

Rischio CV molto alto

Pazienti con T2DM associato a:

- ASCVD accertata clinicamente o
- TOD severo o
- Rischio di CVD a 10 anni $\geq 20\%$ stimato mediante l'algoritmo SCORE2-Diabetes

Rischio CV alto

Pazienti con T2DM che non rientrano nei criteri di rischio molto alto ma presentano un:

- Rischio di CVD a 10 anni tra 10% e <20% stimato mediante l'algoritmo SCORE2-Diabetes

Rischio CV moderato

Pazienti con T2DM che non rientrano nei criteri di rischio molto alto ma presentano un:

- Rischio di CVD a 10 anni tra 5% e <10% stimato mediante l'algoritmo SCORE2-Diabetes

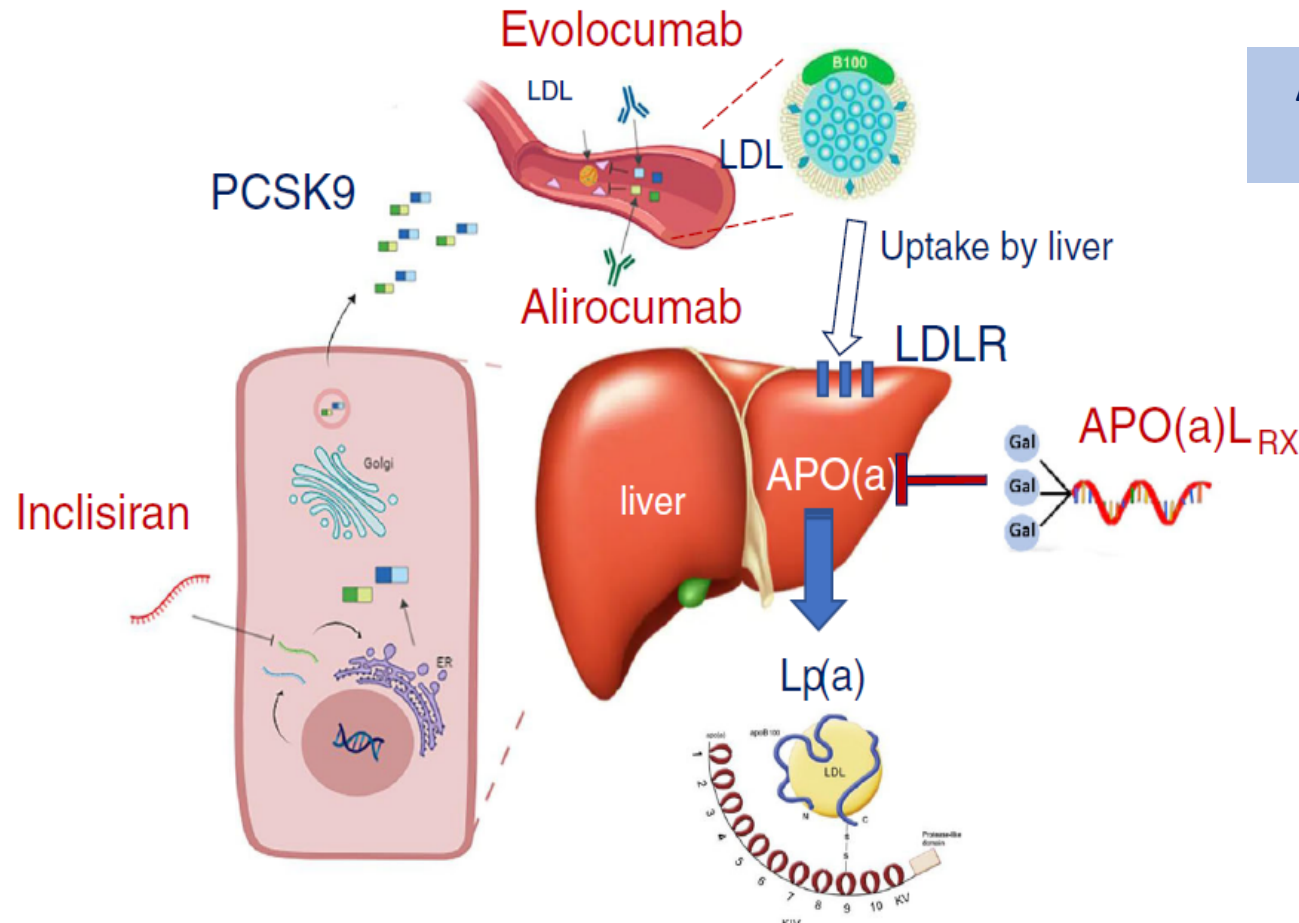
Rischio CV basso

Pazienti con T2DM che non rientrano nei criteri di rischio molto alto ma presentano un:

- Rischio di CVD a 10 anni <5% stimato mediante l'algoritmo SCORE2-Diabetes

TERAPIE TARGET PCSK9

Inclisiran impedisce la trascrizione del mRNA per PCSK9 riducendo i livelli circolanti PCSK9

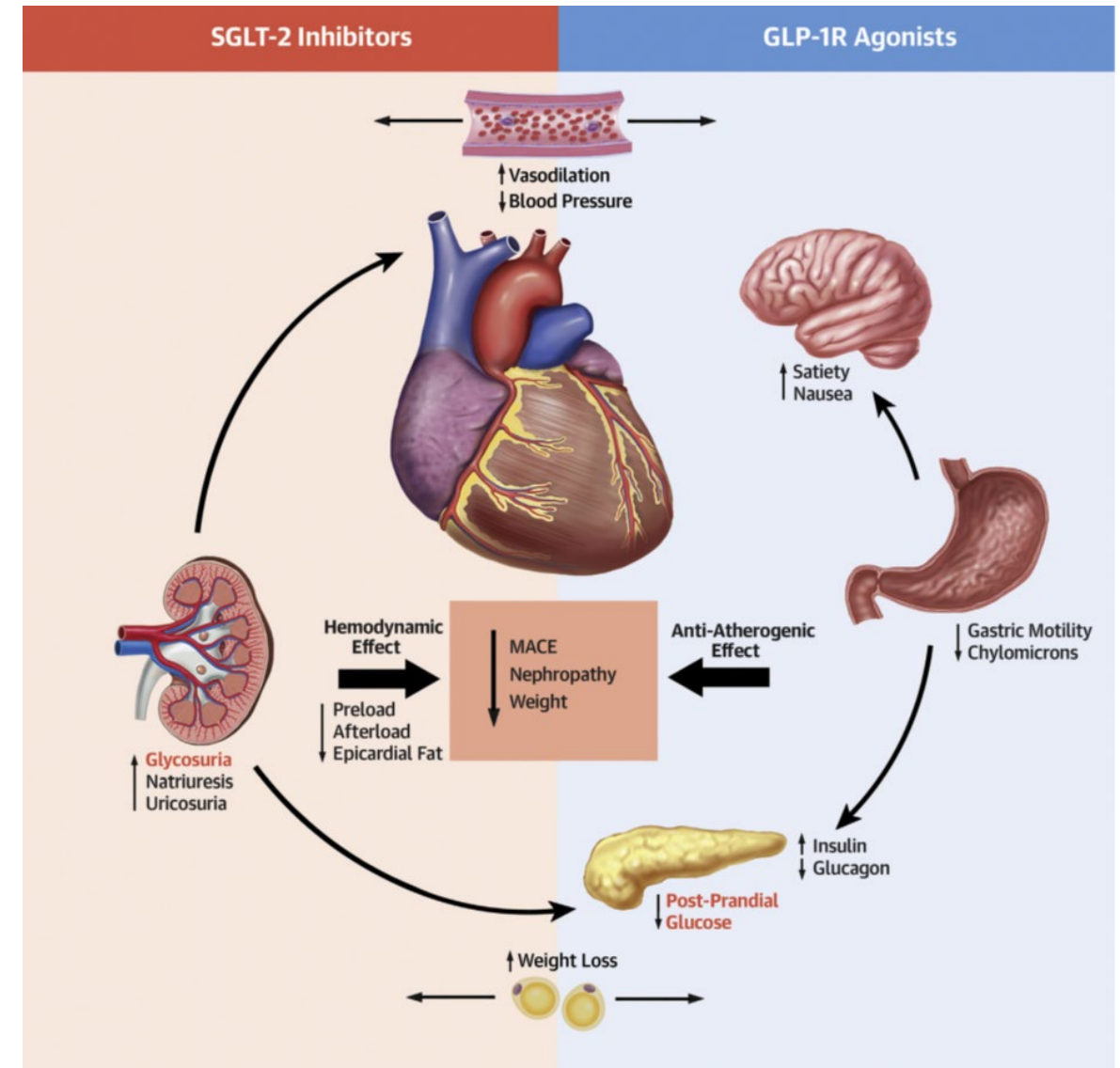
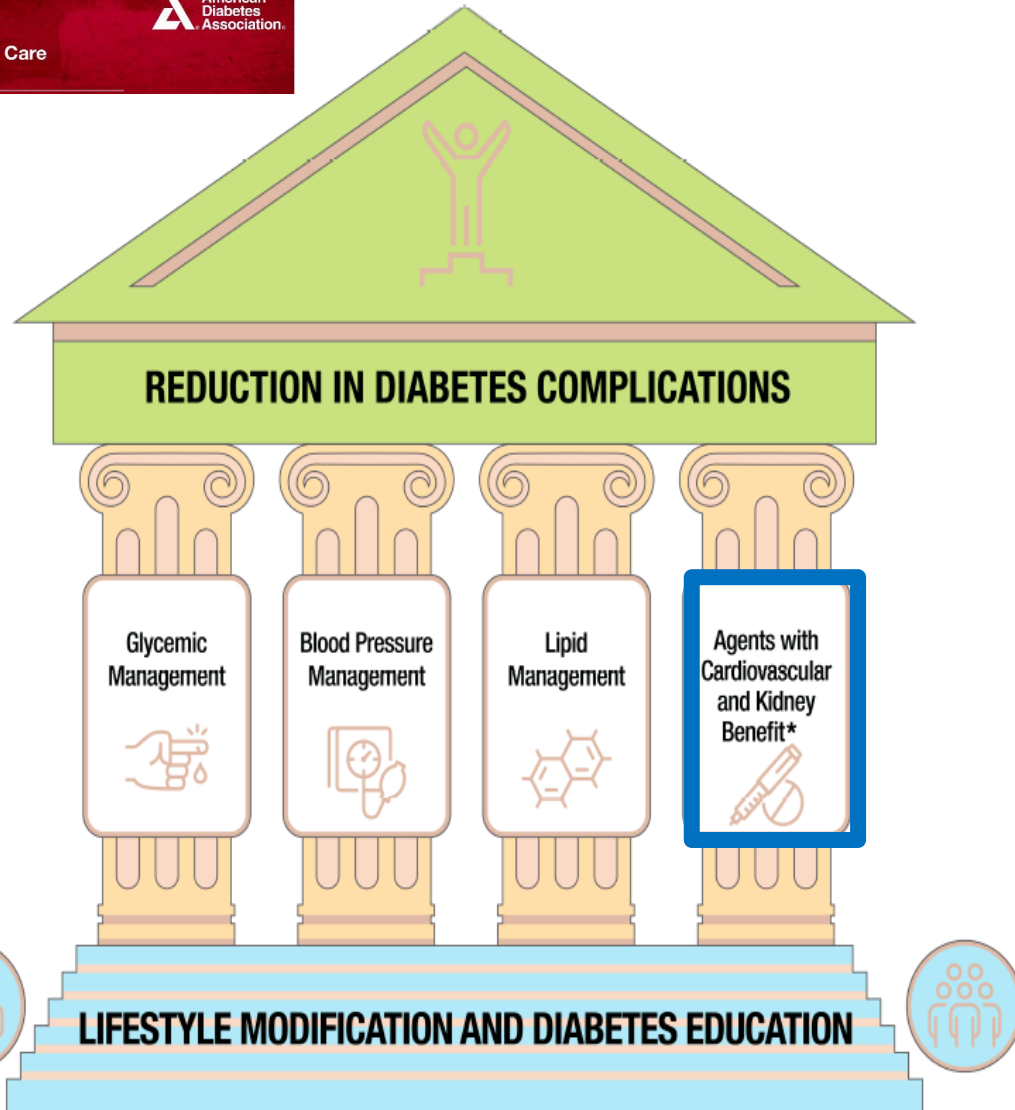


Anticorpi monoclonali bloccano interazione PCSK9-LDLR

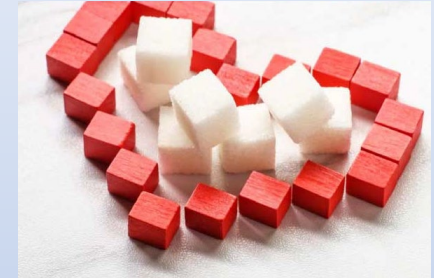
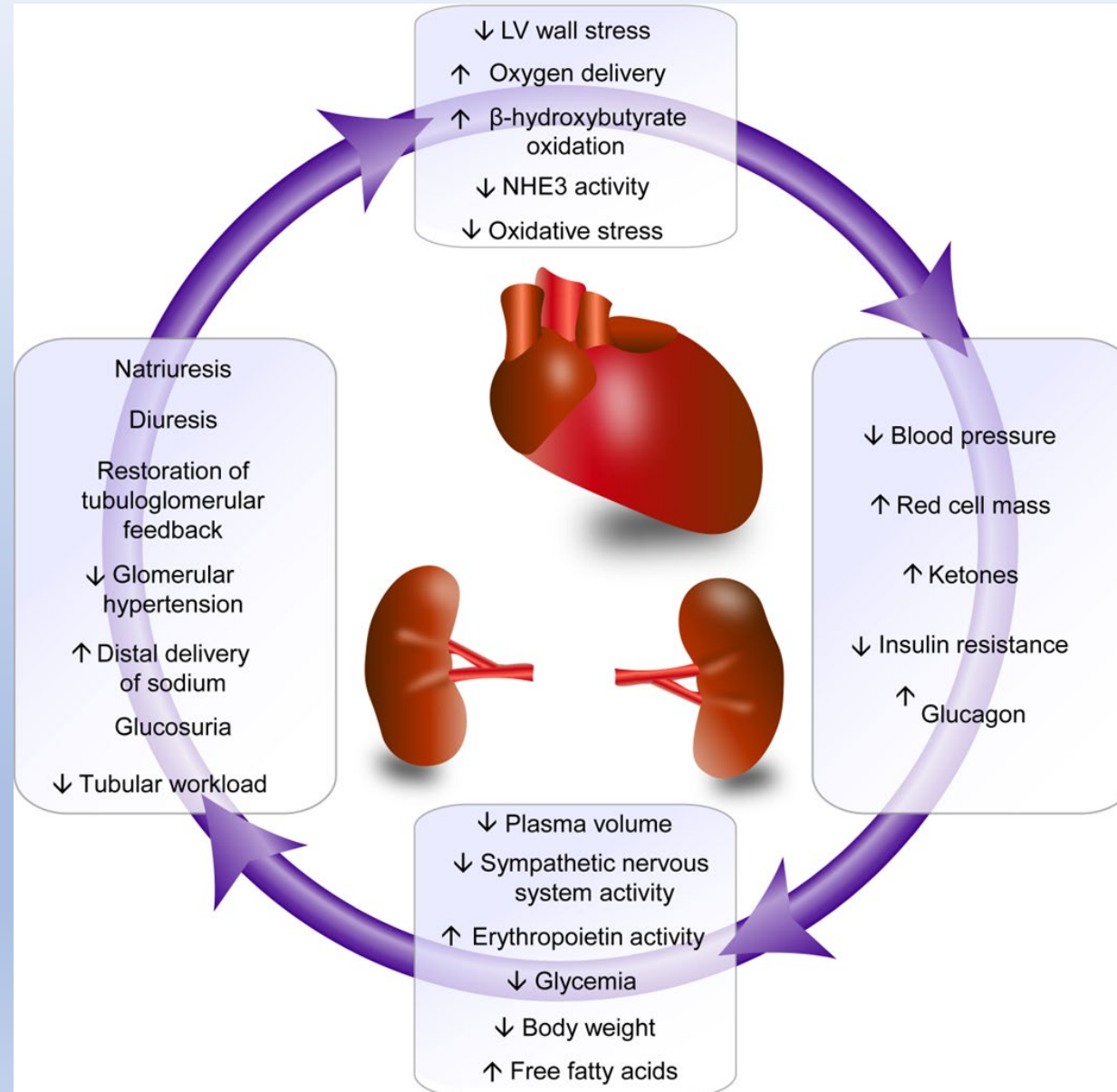
Aumentata espressione LDL-R e riduzione LDL nel plasma

4. Agents with Cardiovascular and Kidney Benefit

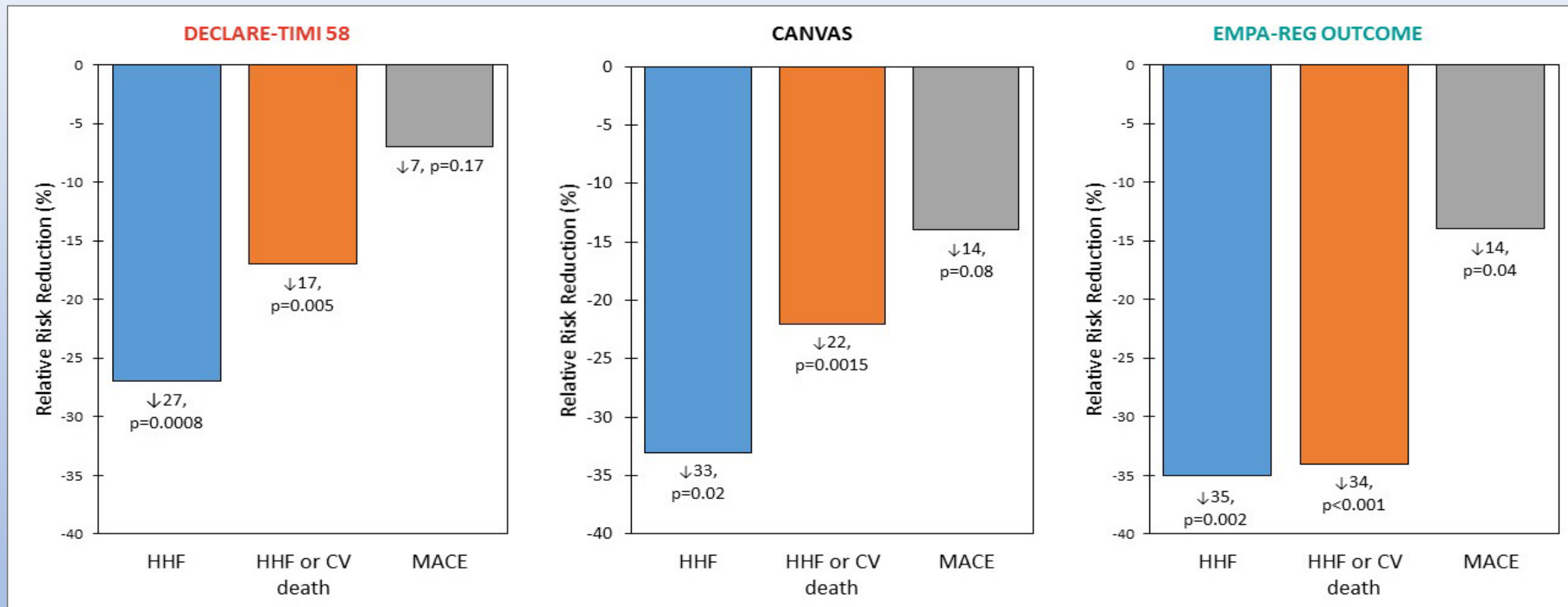
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Benefici cardionefrovascolari **SGLT2i**

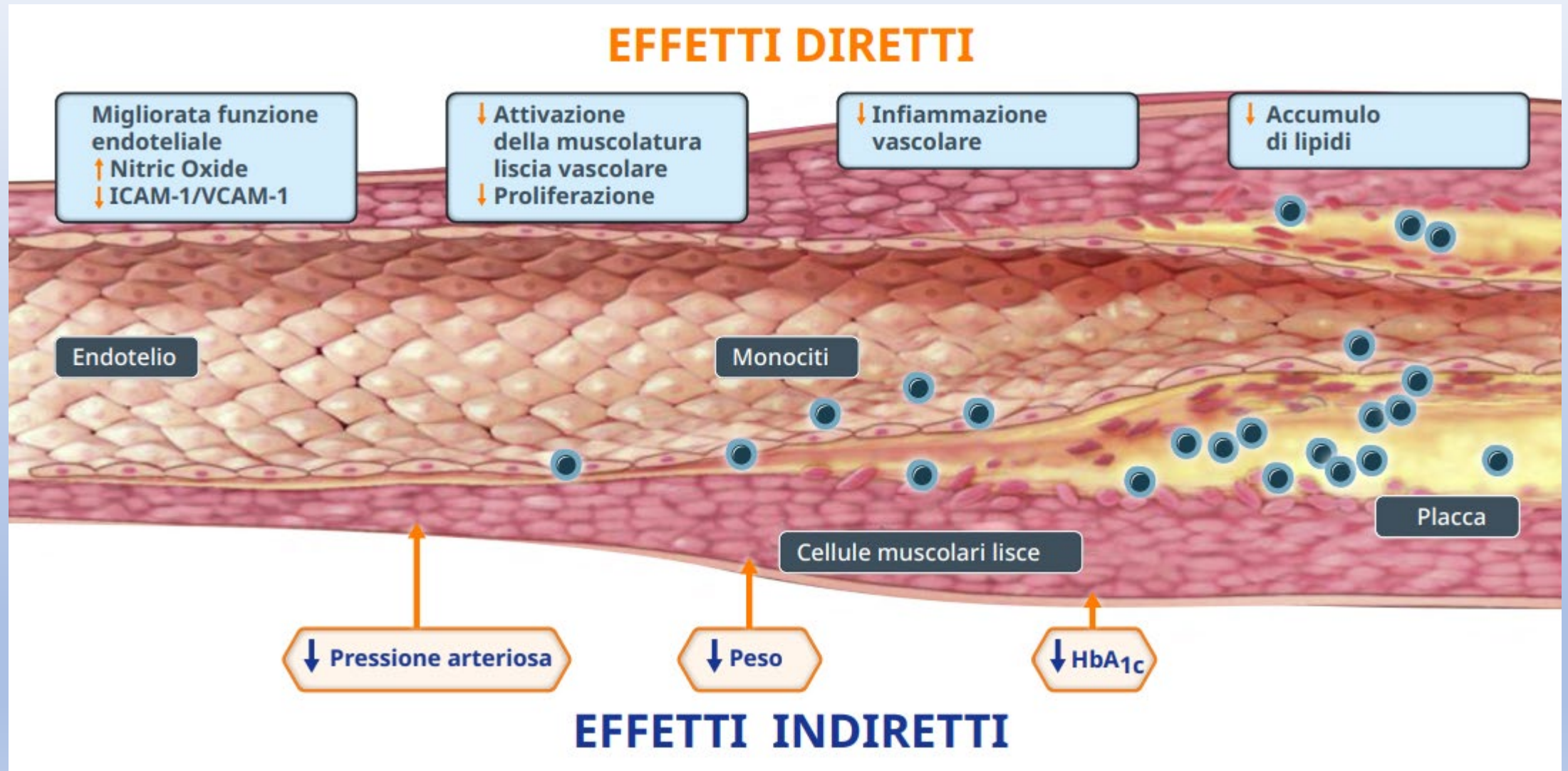


Dati comparativi dei benefici CV degli SGLT2-I

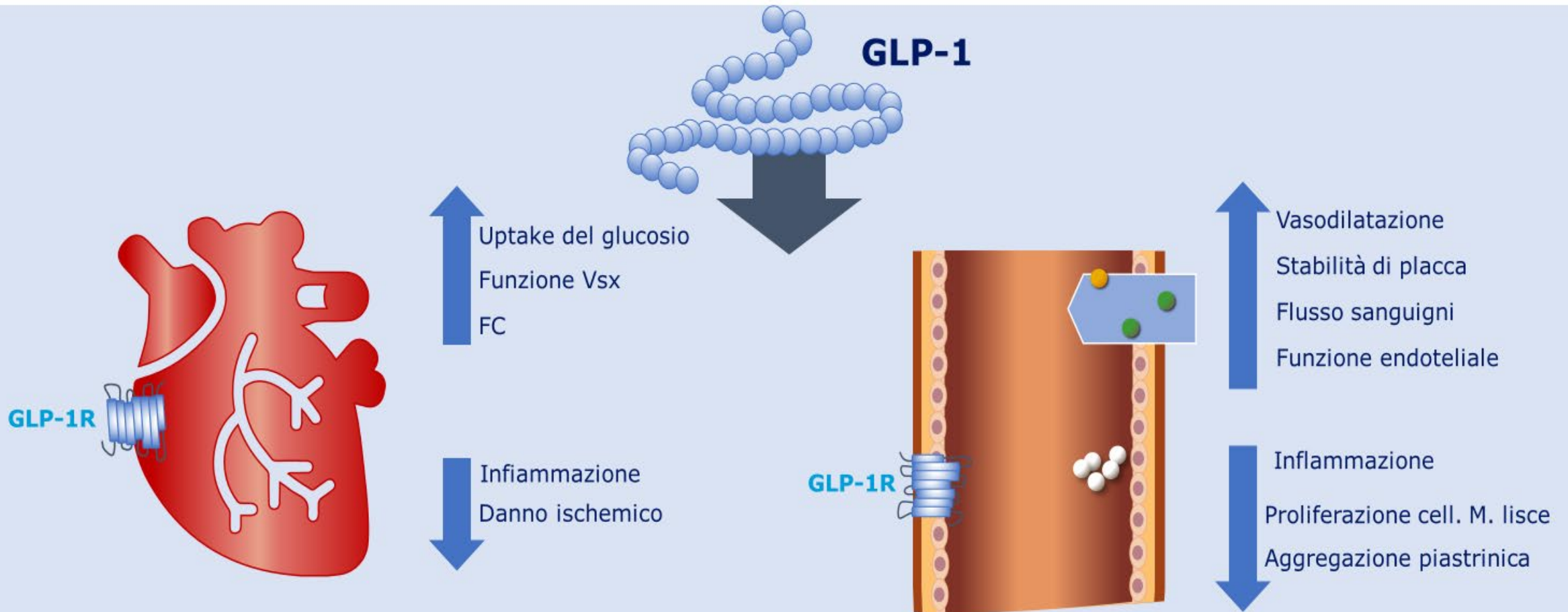


Riduzione MACE ed ospedalizzazioni HF

Effetti cardioprotettivi GLP1-RA

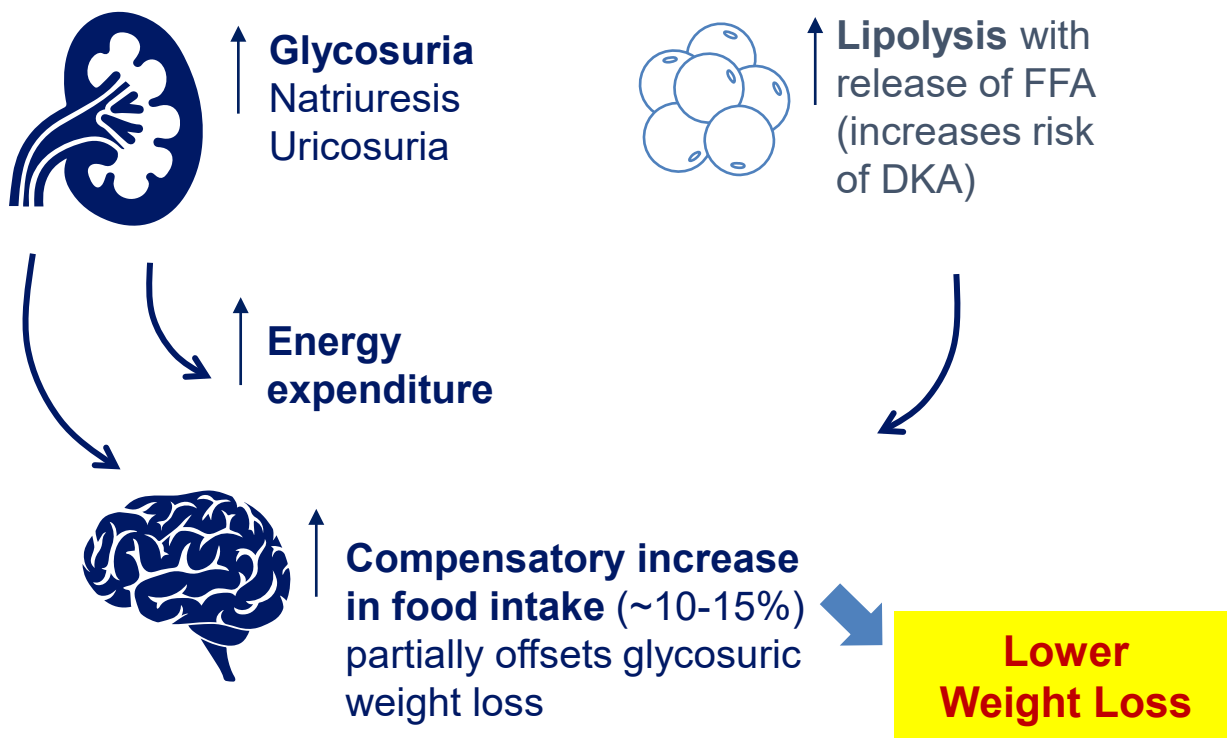


GLP-1RA azione **ANTI-ATEROGENA** diretta tramite recettori posti su **cuore e vasi**

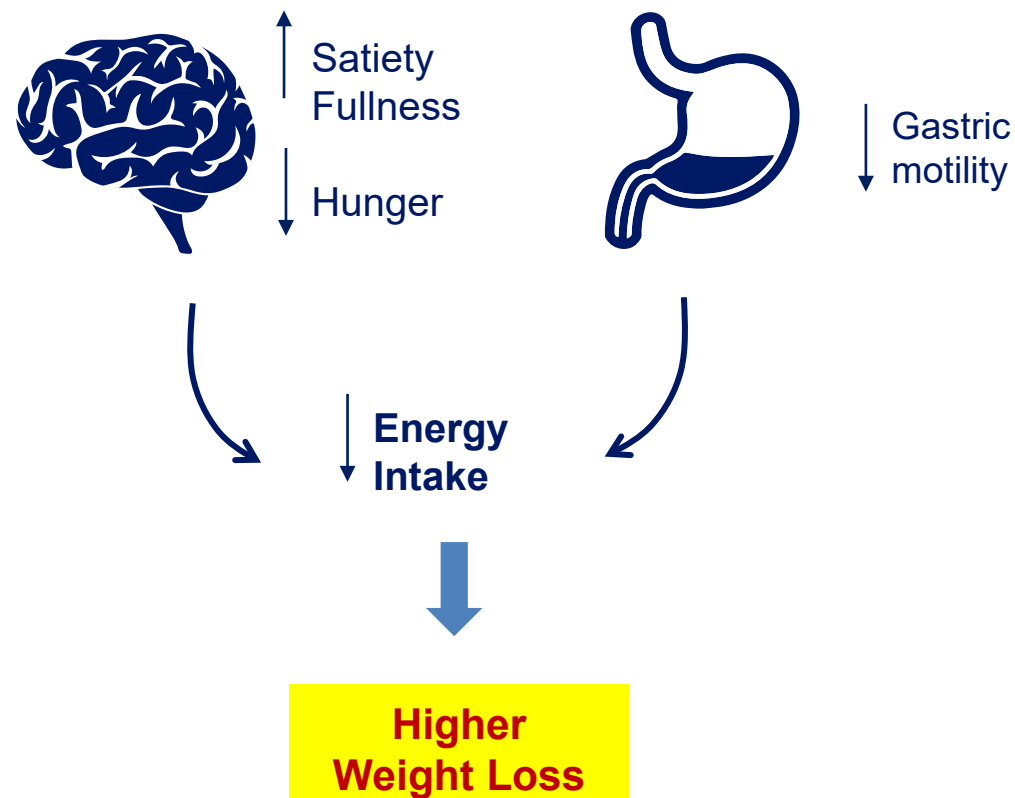


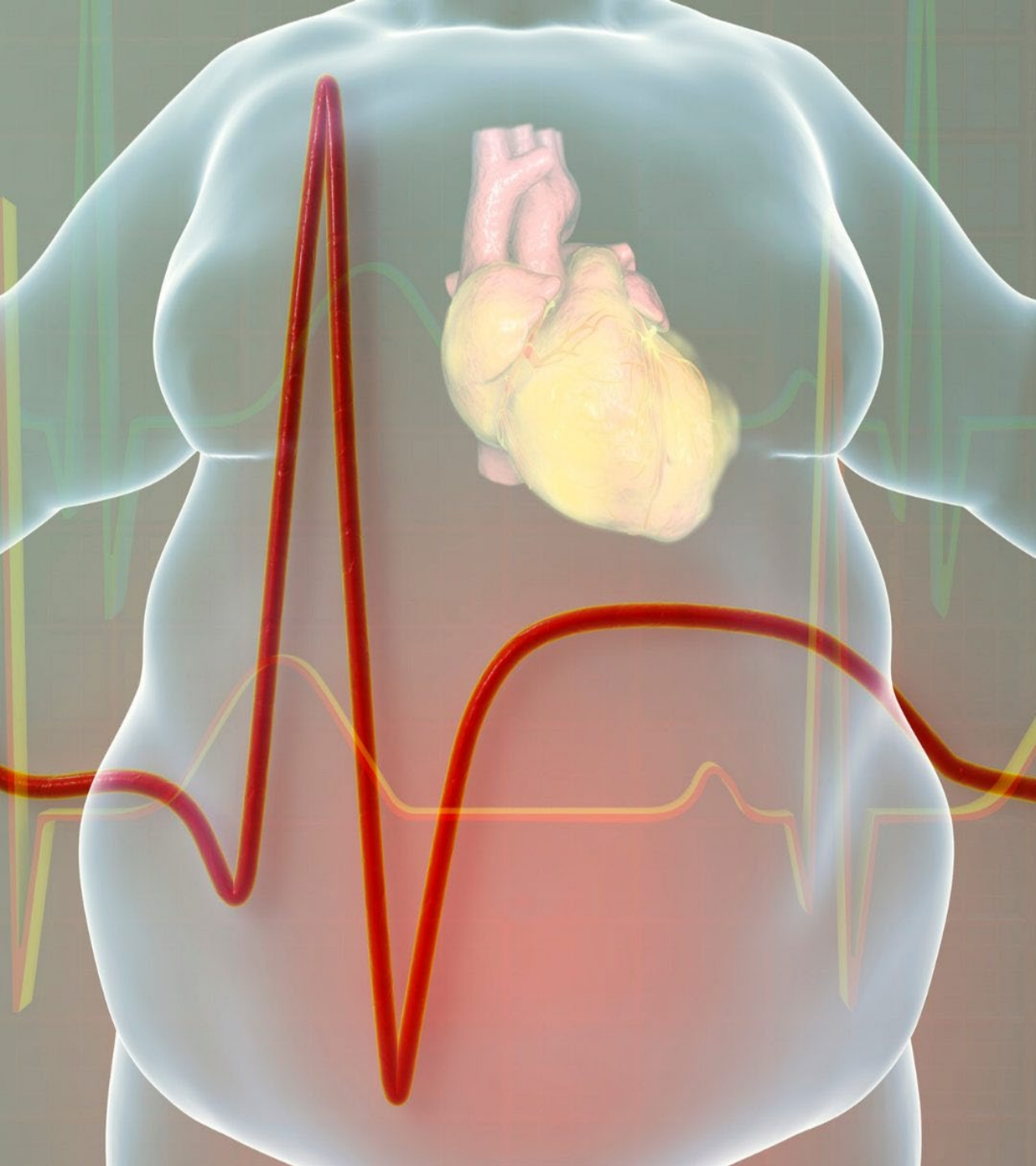
Riduzione **peso corporeo** GLP-1 RA e SGLT-2 I :meccanismi a confronto

SGLT2is



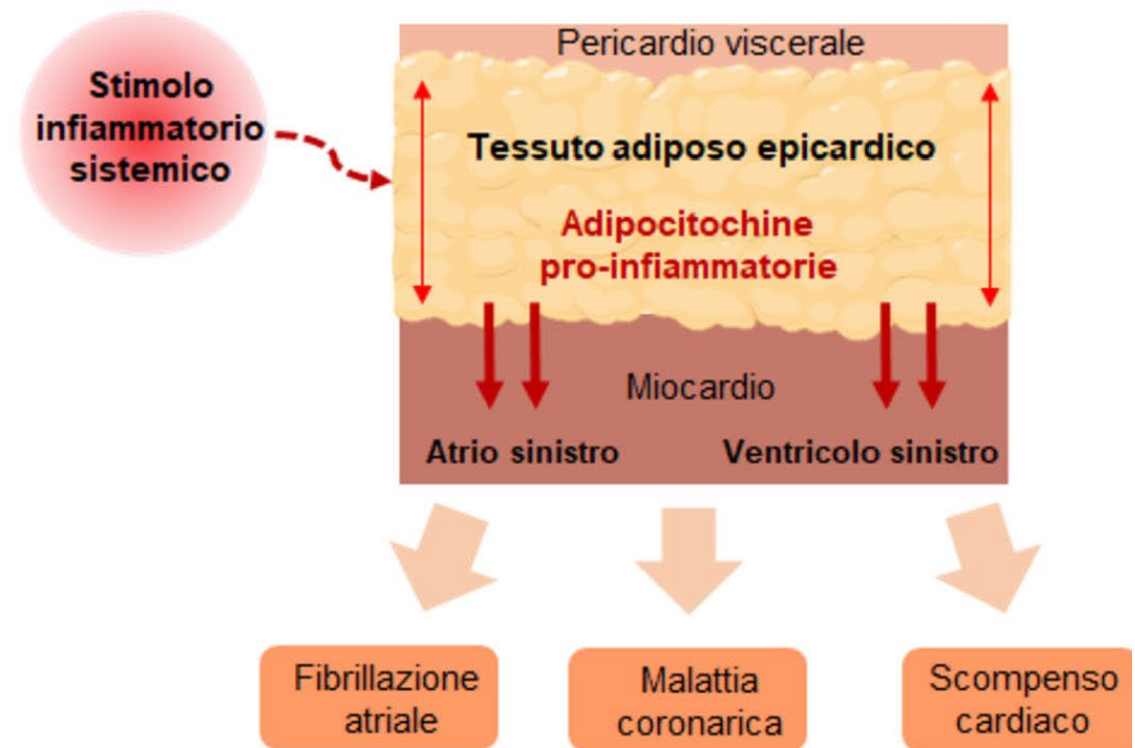
GLP-1 RAs



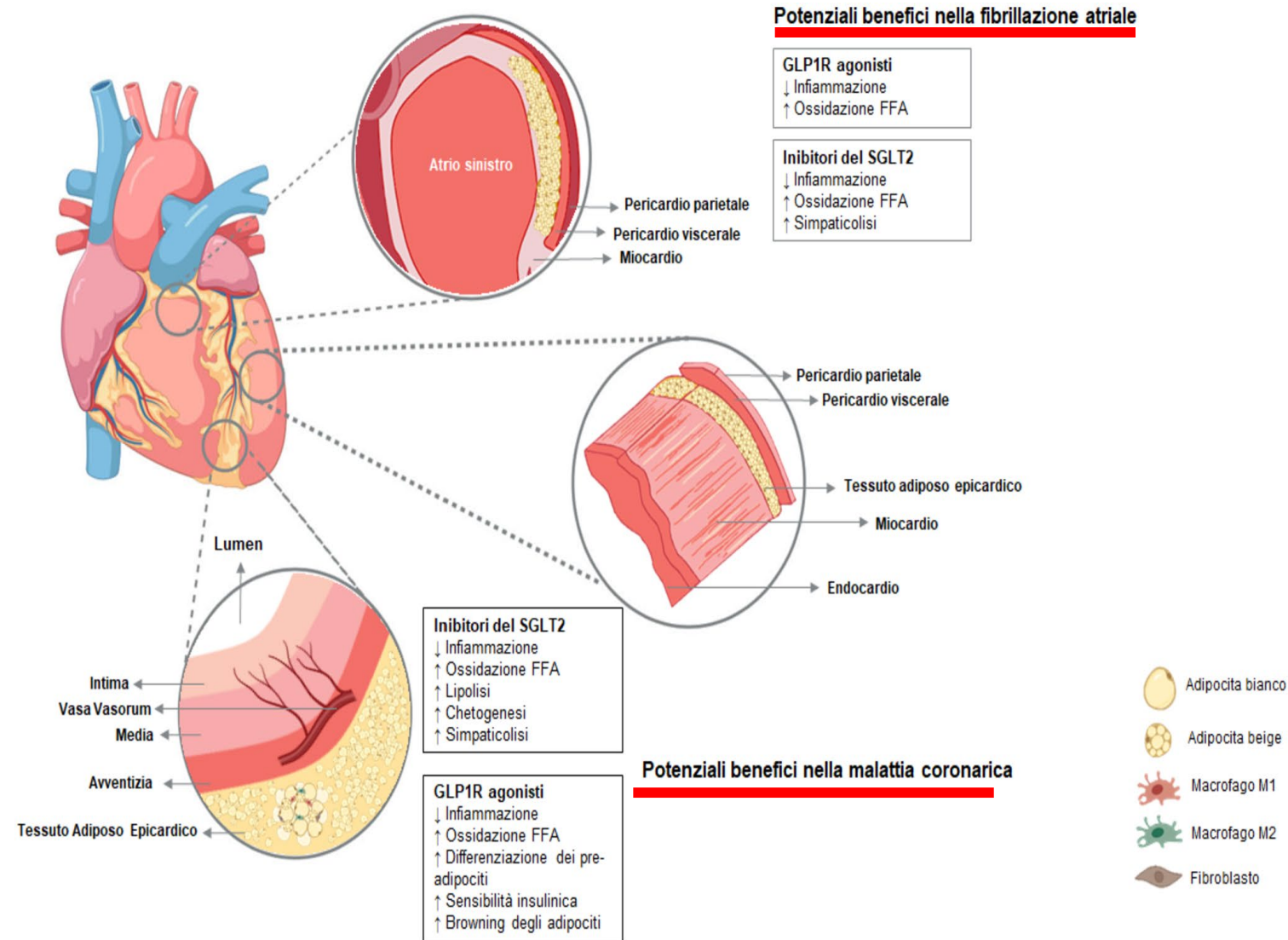


Tessuto adiposo epicardico (EAT)

fattore di rischio cardiovascolare



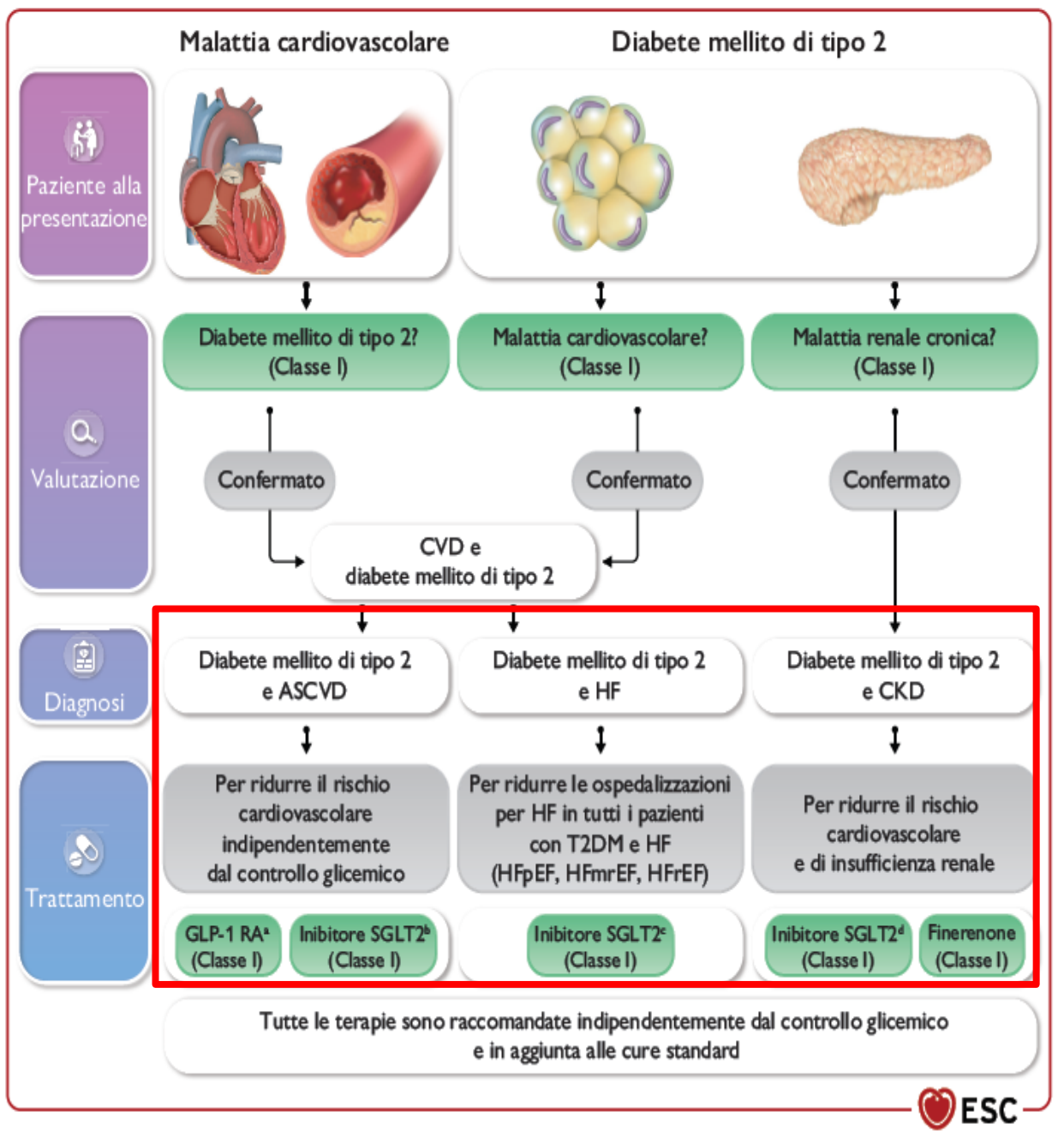
Tessuto adiposo epicardico come target terapeutico SGLT2-i e GLP1-RA



SGLT-2 I

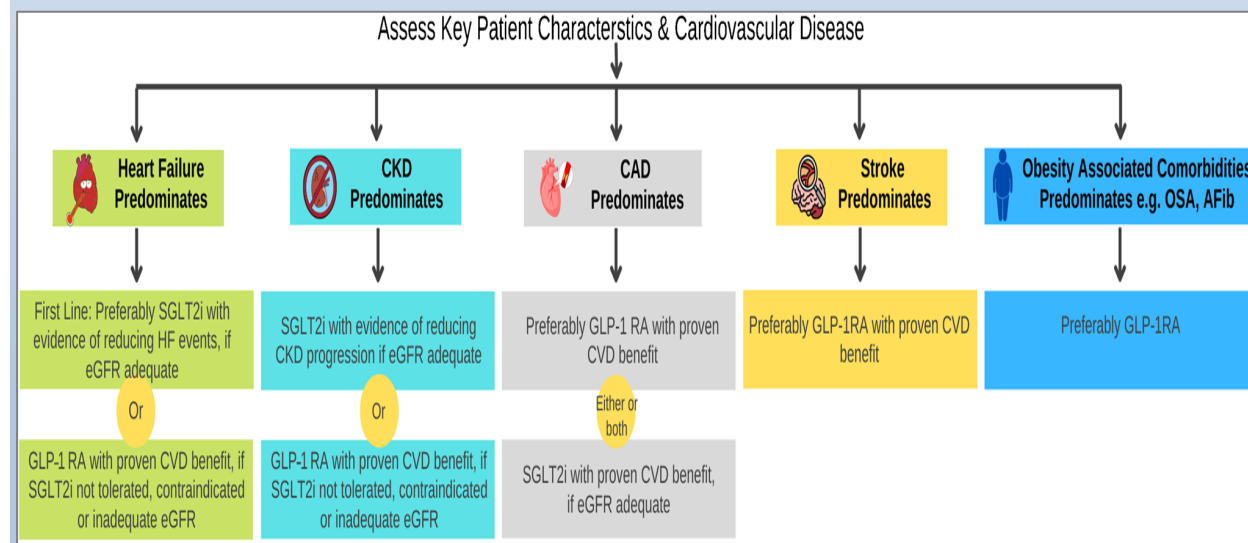
GLP-1 RA



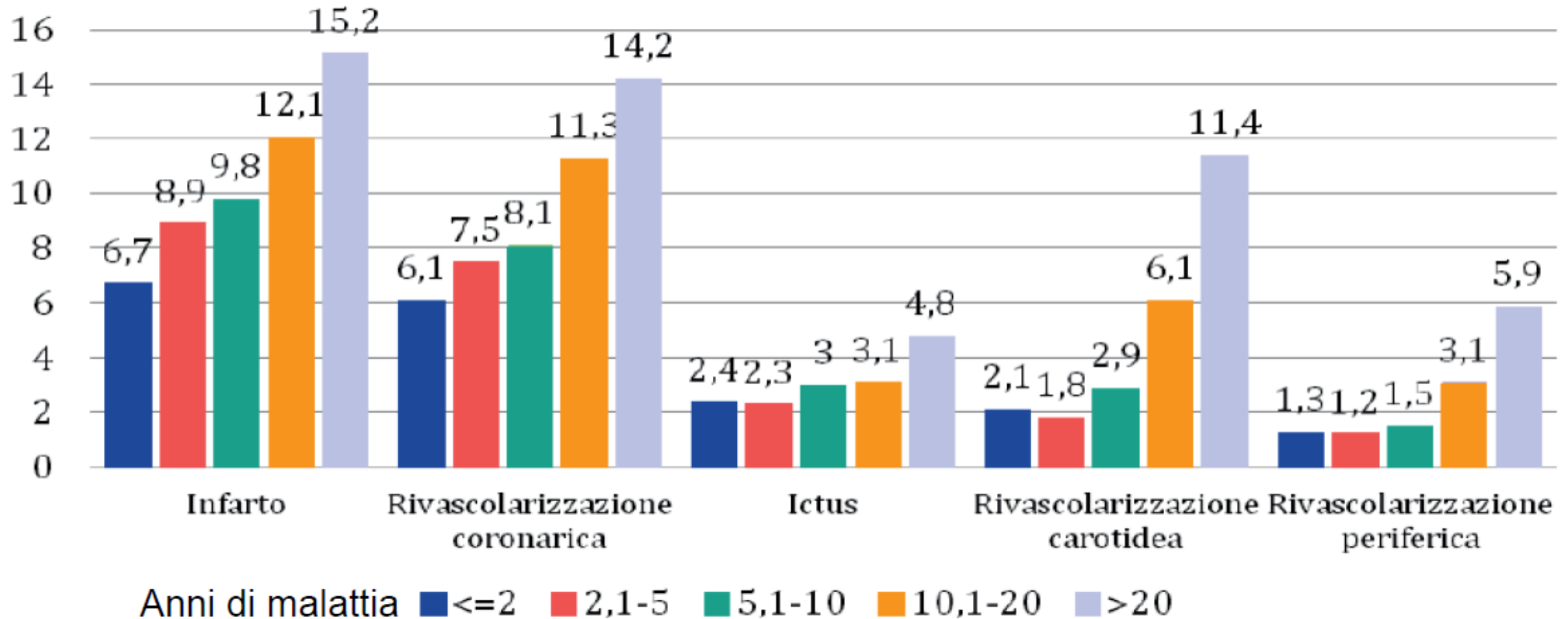


2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes

Valutare caratteristiche paziente



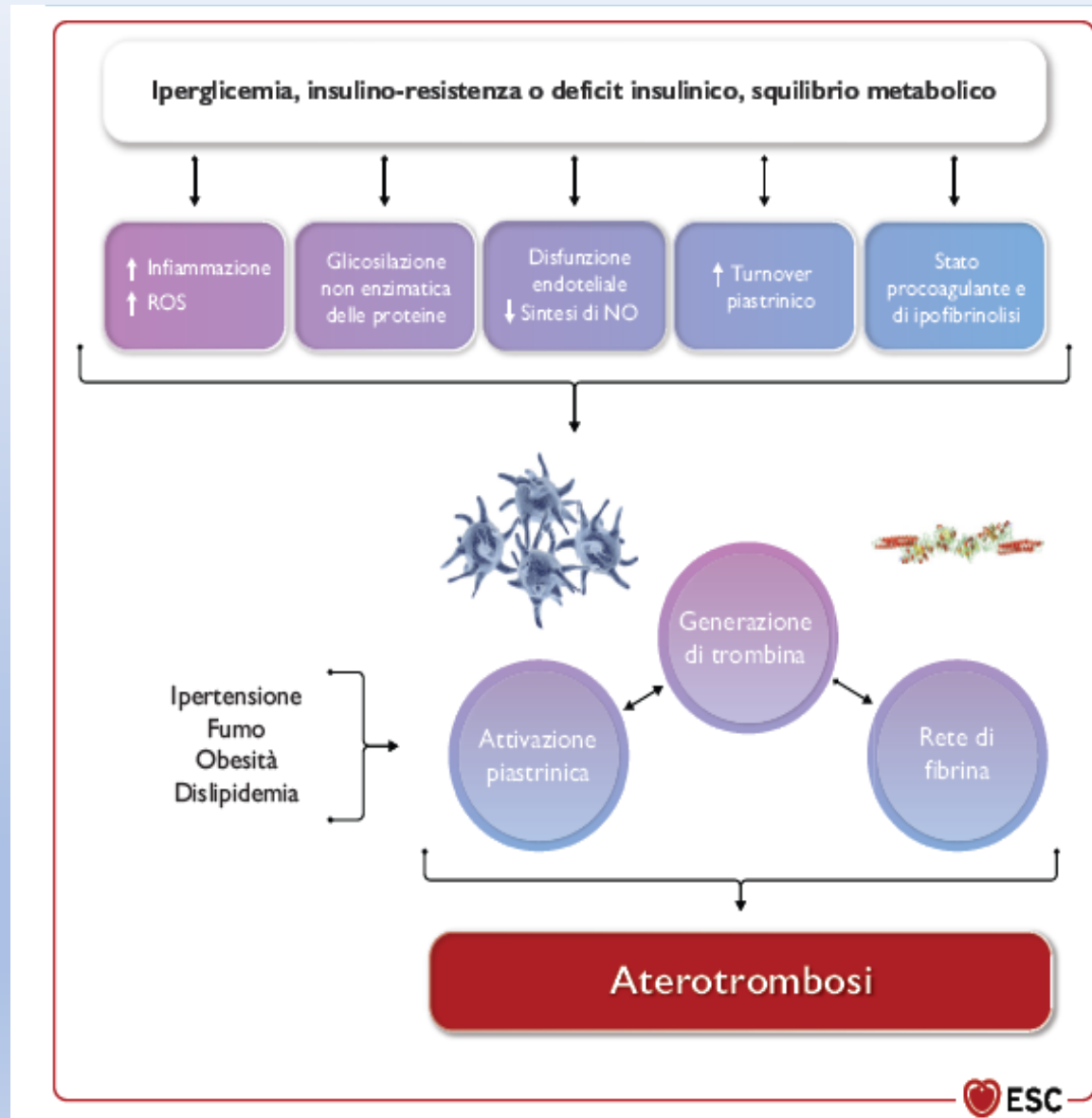
Studio RIACE: 15773 diabetici in 19 centri diabetologici Italiani (JAMD 2018)



Uno su 10 ha avuto un IMA, uno su 10 un intervento rivascularizzazione

Prevenzione del **RISCHIO TROMBOTICO** nel diabetico

PRIMARIA



SECONDARIA



Grazie per l'attenzione