

Identificazione Pazienti DM2 a rischio, con danno cardiorenale e appropriato utilizzo di SGLT2

Dall'**AUDIT CLINICO** alla **COMPETENZA CERTIFICATA**



Protezione cardio-renale nel paziente diabetico tipo 2: dalle evidenze alla pratica clinica

Angelo Avogaro
Università di Padova



DISCLOSURE

In qualità di RELATORE, ai sensi dell'art.76 sul Conflitto di Interessi dell'Accordo Stato-Regioni del 2 febbraio 2017, dichiaro che negli ultimi due anni ho avuto i seguenti rapporti di finanziamento con soggetti portatori di interessi commerciali in campo sanitario:

Novo, Lilly, Sanofi, Astrazeneca, Boehringer, Amgen, Dayki Sankio, MSD, Amarin, Bruno Farmaceutici

Dichiaro, inoltre, che i contenuti formativi esposti sono indipendenti da interessi commerciali.



Medications for Glycemic management

Weight control

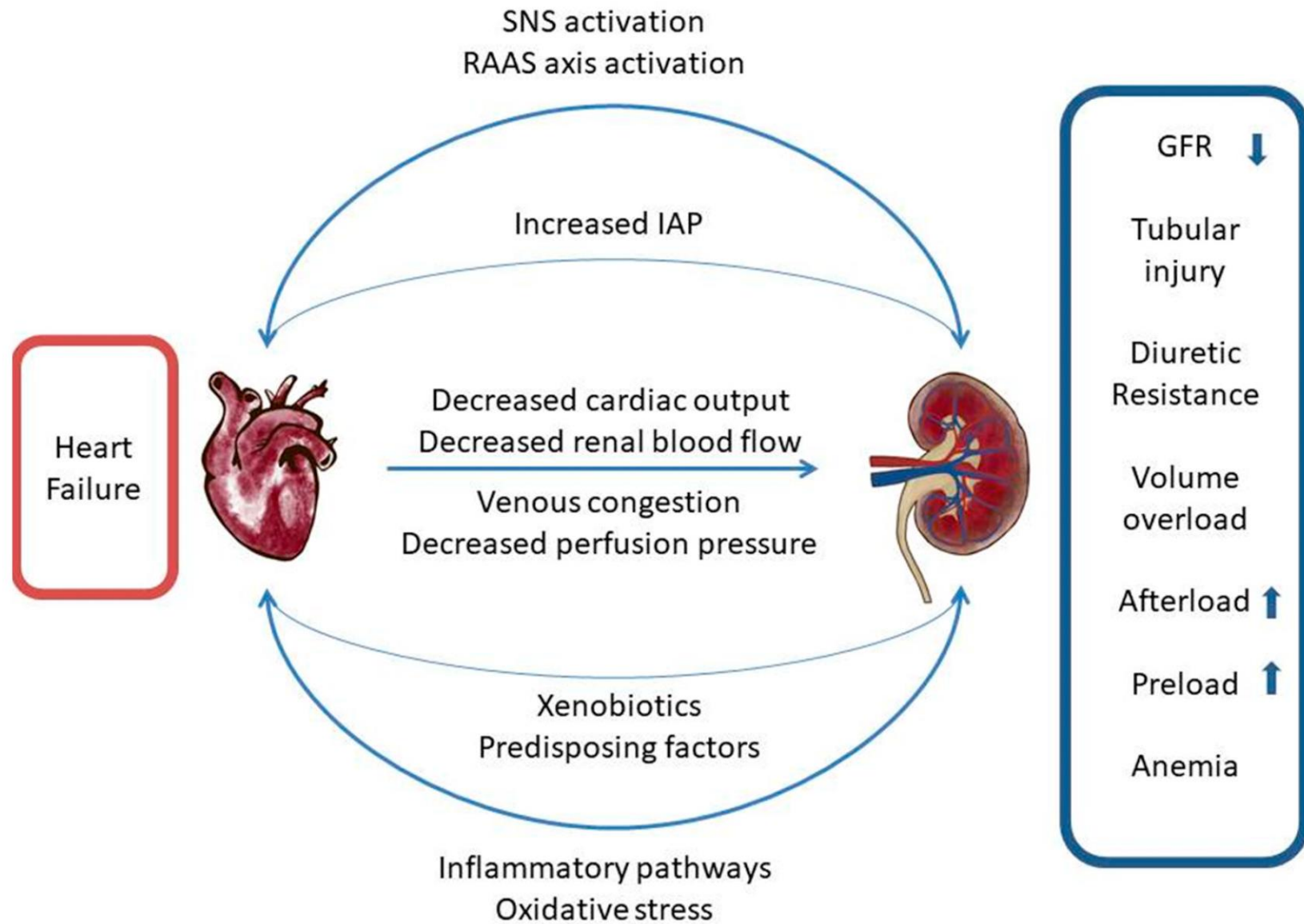
Patient with Type 2 Diabetes

Reduction of Risk factors for CVD

Cardio-renal protection



Perché Cardio-Renale?





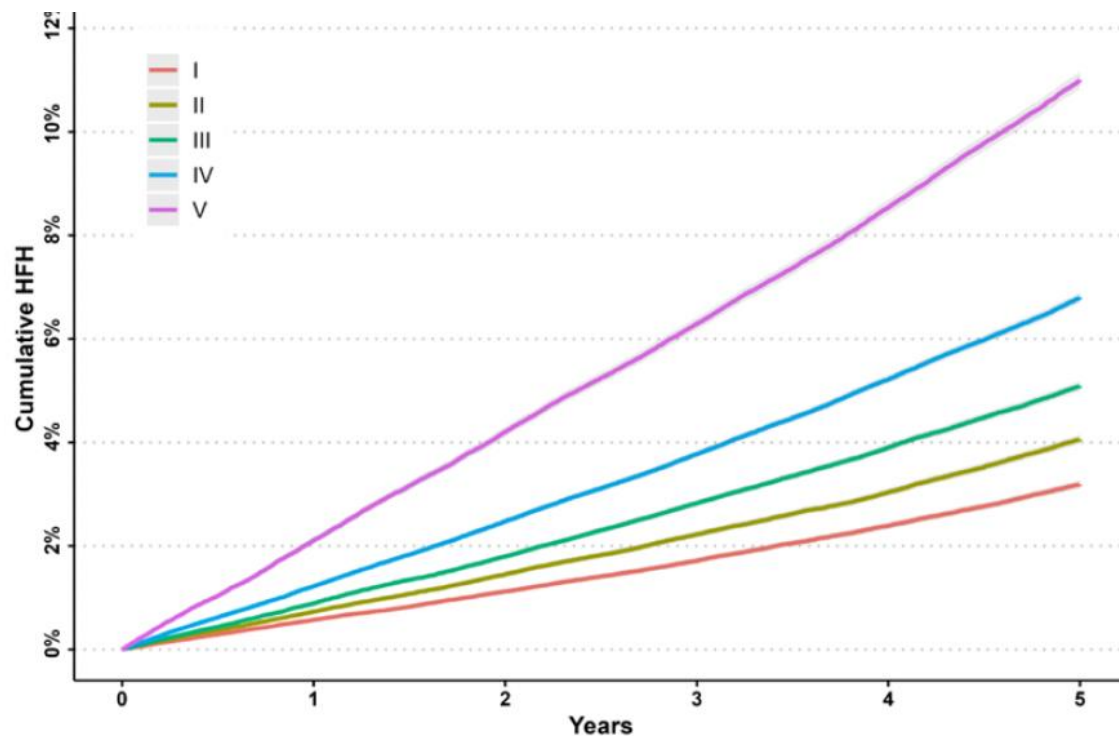
Come «testare» il cuore?

Machine Learning to Predict the Risk of Incident Heart Failure Hospitalization Among Patients With Diabetes: The WATCH-DM Risk Score

Diabetes Care. 2019;42(12):2298-2306. doi:10.2337/dc19-0587

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Heart failure hospitalization according to the WATCH-DM score.



WATCH-DM Groups	Incident heart failure at 5 years (%)
I (Very low risk)	3.18 (3.10, 3.26)
II (Low risk)	4.06 (3.97, 4.15)
III (Moderate risk)	5.09 (4.99, 5.18)
IV (High risk)	6.80 (6.70, 6.90)
V (Very high risk)	11.00 (10.84, 11.16)

Number at Risk		0	1	2	3	4	5
I	192113	187557	183043	178348	173478	168204	
II	194214	188933	183556	177663	171591	165017	
III	236129	227854	218835	209103	199260	188827	
IV	277903	265439	251619	237100	222036	206019	
V	165332	155052	143758	132186	120401	108386	



OPEN Performance assessment across different care settings of a heart failure hospitalisation risk-score for type 2 diabetes using administrative claims

Check for updates

Alessandro Guazzo¹, Enrico Longato¹, Mario Luca Morieri², Giovanni Sparacino¹, Bruno Franco-Novelletto^{3,4}, Maurizio Cancian^{3,4}, Massimo Fusello³, Lara Tramontan⁵, Alessandro Battaglia^{3,4,7}, Angelo Avogaro^{2,7}, Gian Paolo Fadini^{2,7} & Barbara Di Camillo^{1,6,7}

Age (yrs)		Female		Sulfonylureas		Treated dyslipidaemia	
< 45	0	Yes	-3	Yes	1	Yes	-2
46 - 49	5	Anticoagulants		Insulin		Chronic pulmonary disease	
50 - 54	10	Yes	6	Yes	6	Yes	3
55 - 59	15	Platelet aggregation inhibitors				Ischaemic heart disease	
60 - 64	20	Yes		3		Yes	5
65 - 69	25	Calcium channel blockers				Peripheral arterial disease	
70 - 74	30	Yes		4		Yes	5
75 - 79	35	Demographic		Medications		Stroke or TIA	
80 - 84	40	Comorbidities				Yes	3
≥ 85	45					Yes	2
Risk score		HHF Risk Group				5-year HHF Risk	
≤ 26 points		Low				1.3%	
27 – 52		Medium				6.7%	
≥ 53		High				19.5%	



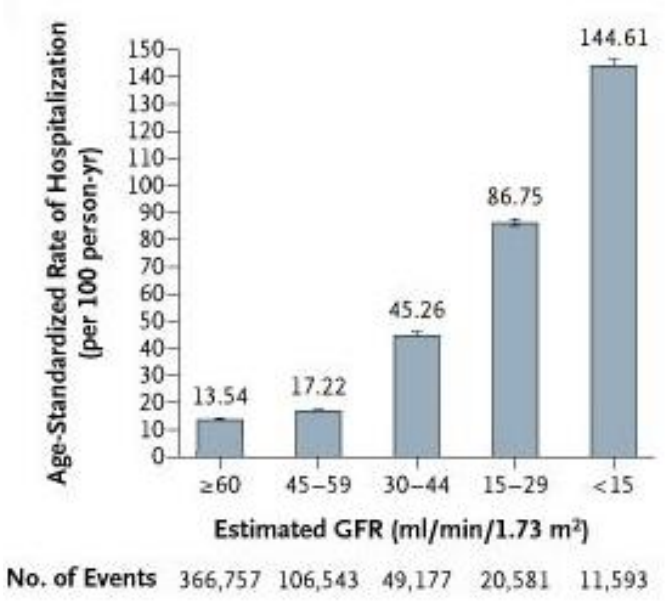
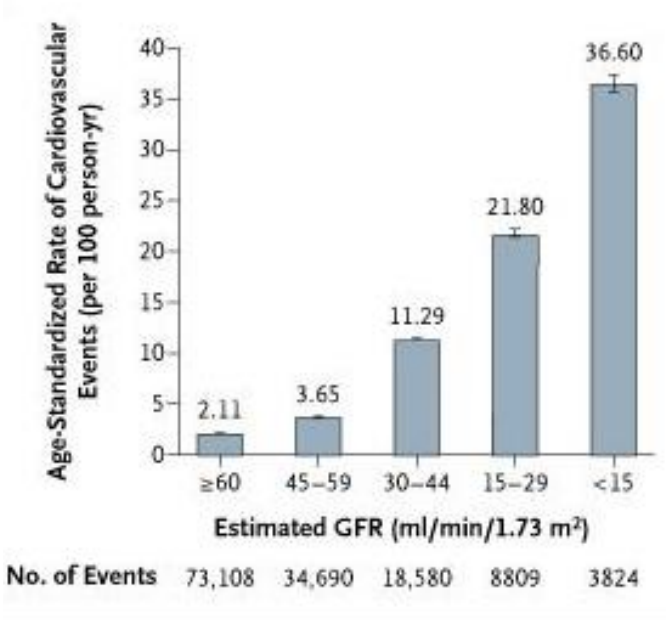
Come «testare» il rene?



Ideal CKD screening and diagnosis should consist of a dual assessment of GFR and albuminuria

				Persistent albuminuria categories (mg/g)		
				A1	A2	A3
				Normoalbuminuria	Microalbuminuria	Macroalbuminuria
				<30	30–300	>300
GFR categories (mL/min/1.73 m ²)	G1	Normal or high	≥90			
	G2	Mildly decreased	60–89			
	G3a	Mildly to moderately decreased	45–59			
	G3b	Moderately to severely decrease	30–44			
	G4	Severely decreased	15–29			
	G5	Kidney failure	<15			

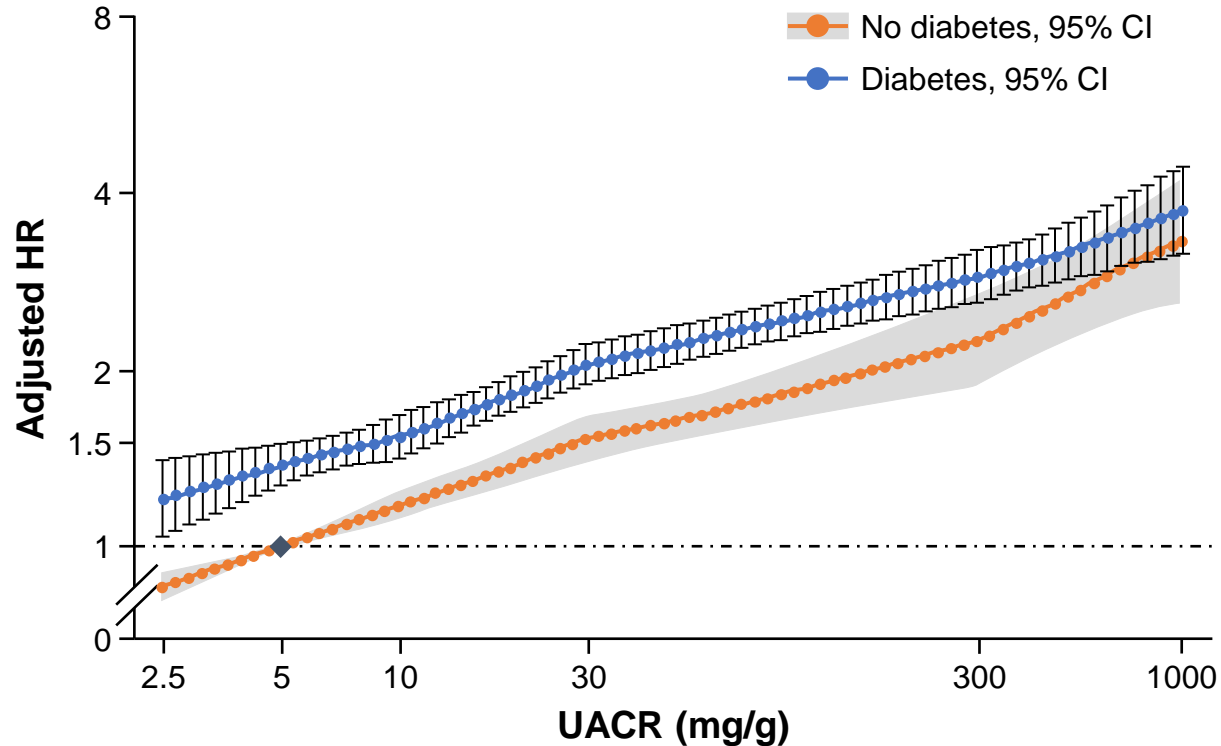
Age-Standardized Rates of Cardiovascular Events and Hospitalization according to Estimated GFR



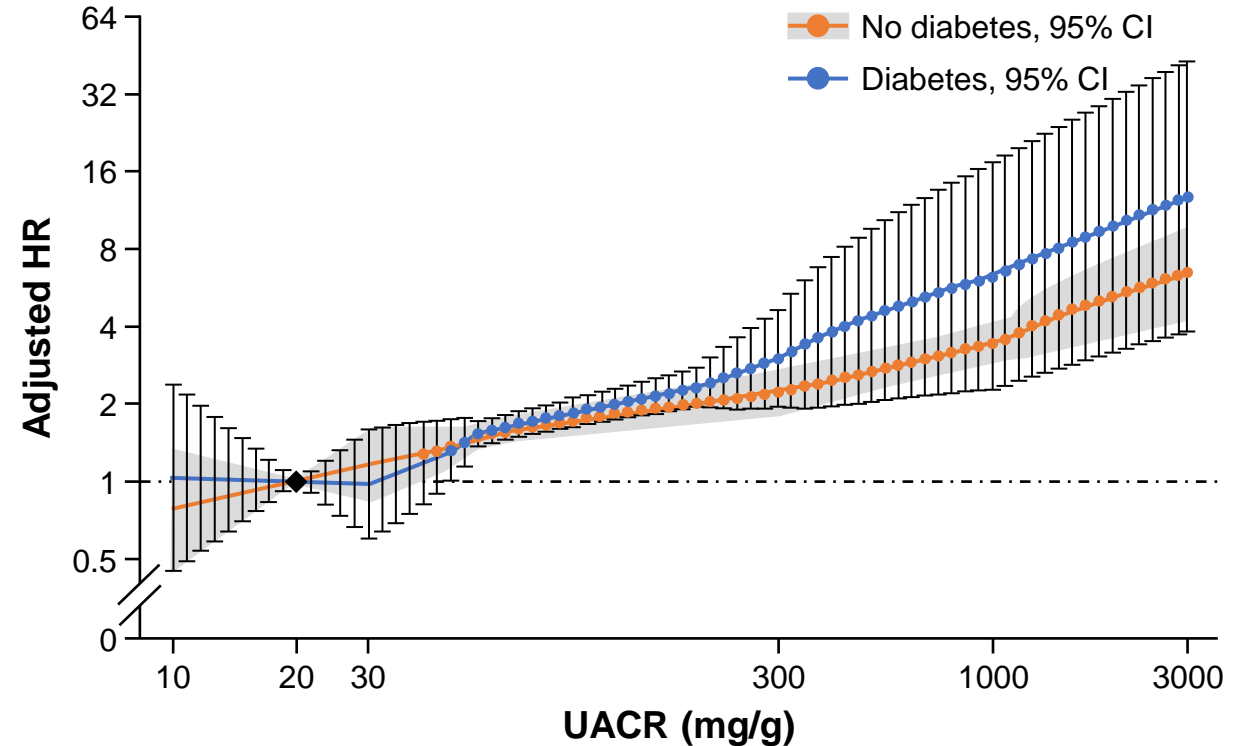


The same risk for microalbuminuria

Risk of all-cause mortality according to UACR in individuals with and without diabetes^{a-c}



Risk for ESKD in populations with CKD, stratified by UACR and diabetes status^{b-e}

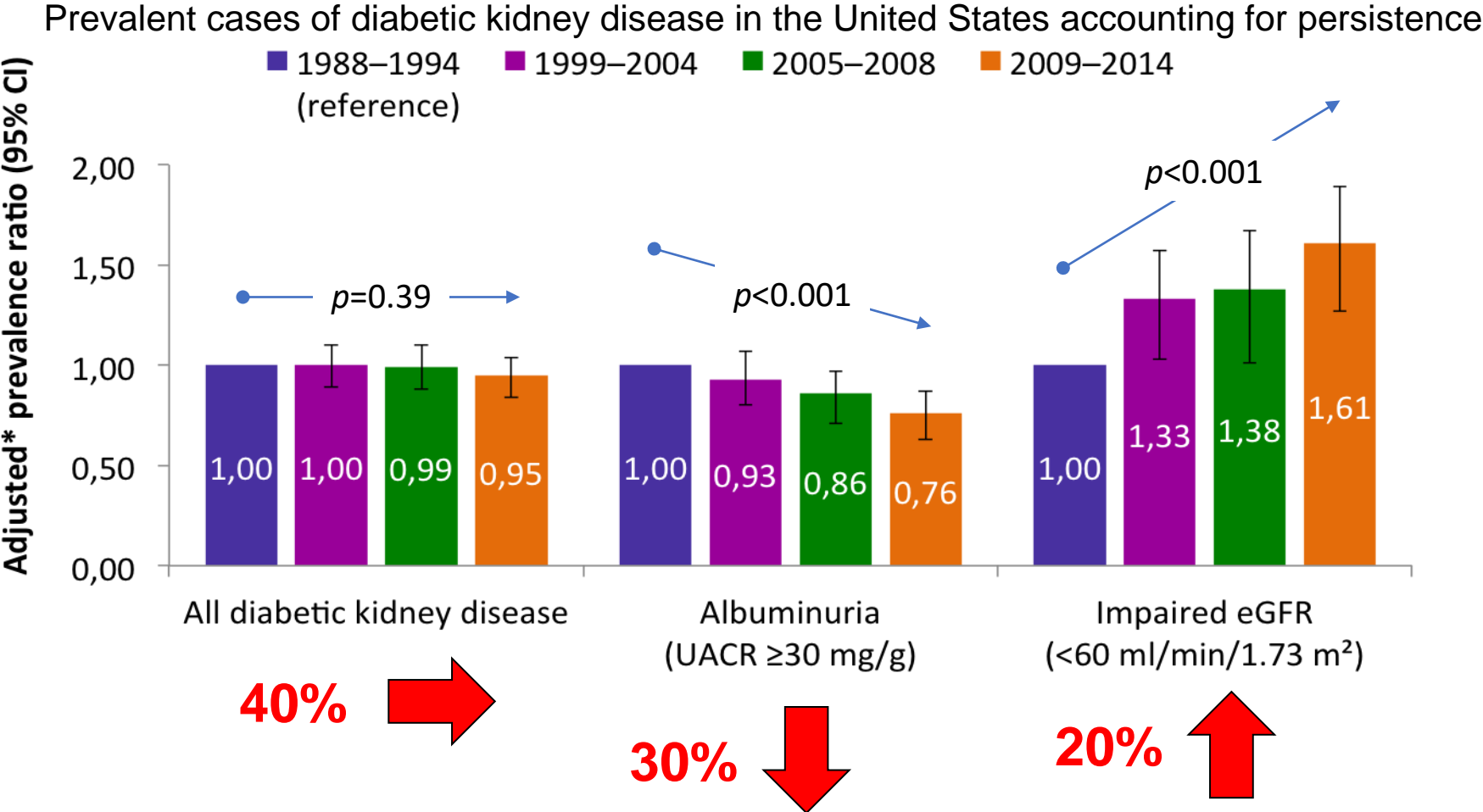


• ^aReference point (diamond) is UACR of 5 mg/g in the no diabetes group, for both individuals with and without hypertension, to show the main effect of diabetes on risk; ^bHRs were adjusted for age, sex, race, smoking, history of CVD, serum total cholesterol concentration, BMI, and eGFR; ^cBlue and purple circles denote $P < 0.05$ as compared with the reference (diamond); ^dCKD defined as eGFR of < 60 mL/min/1.73 m²; ^eReference point (diamond) is UACR of 20 mg/g.

• BMI = body mass index; CI = confidence interval; CKD = chronic kidney disease; CVD = cardiovascular disease; eGFR = estimated glomerular filtration rate; ESKD = end-stage kidney disease; HR = hazard ratio; UACR = urine albumin:creatinine ratio.

• Fox CS et al. *Lancet*. 2012;380:1662–1673. Fox CS et al. *Lancet*. 2012;380:1662–1673.

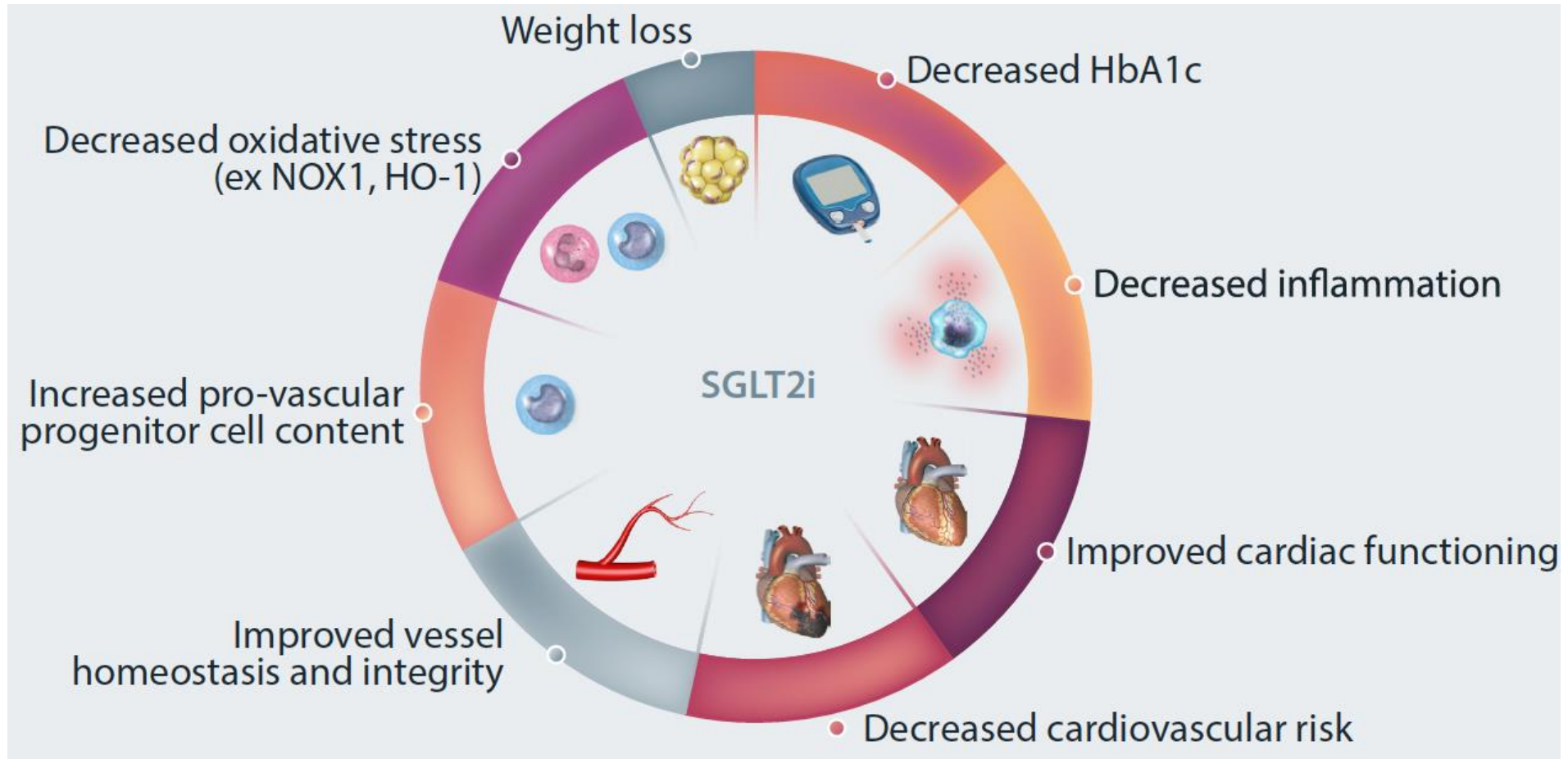
MANIFESTAZIONI CLINICHE DI MALATTIA RENALE NEI PAZIENTI ADULTI AMERICANI CON DIABETE MELLITO NEGLI ANNI 1988-2014



*Adjusted for age, sex, and race/ethnicity. p-values are for trend UACR, urine albumin-to-creatinine ratio

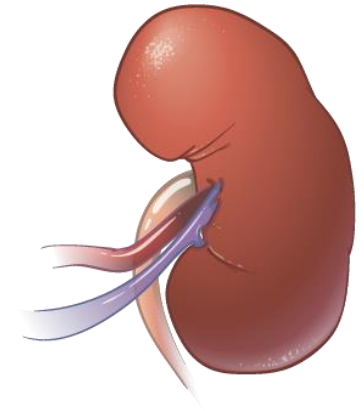
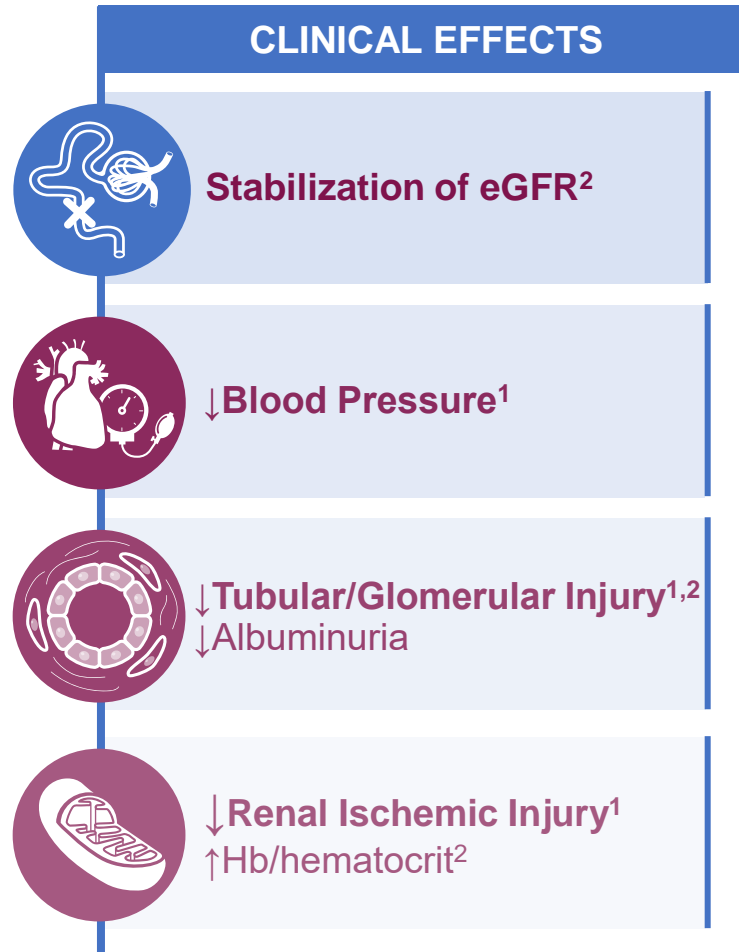
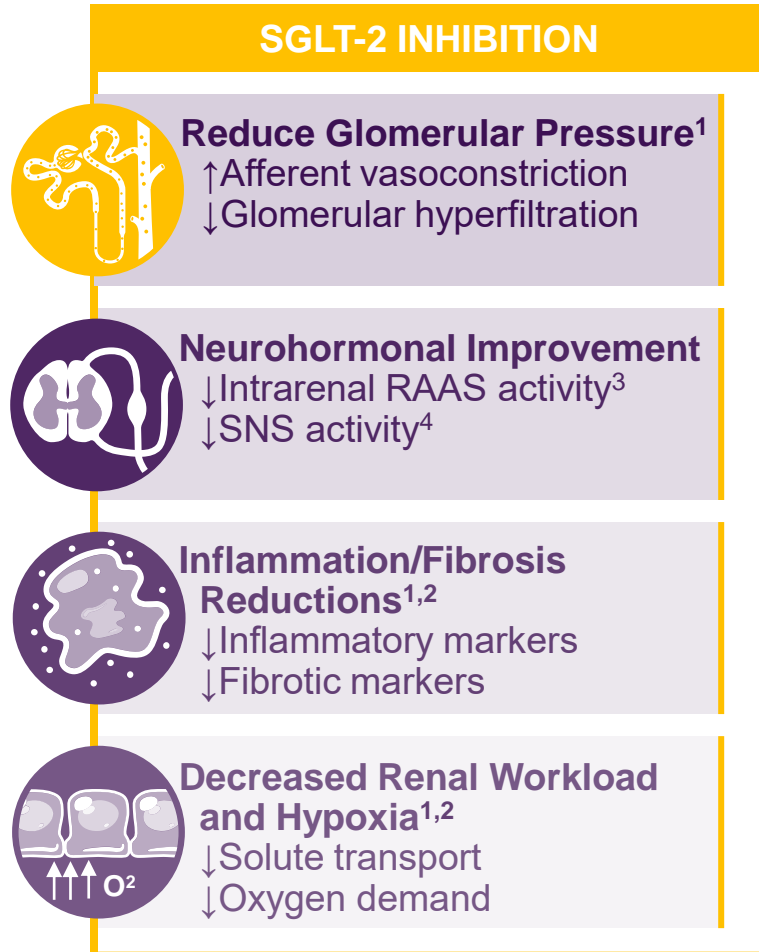


Come attuare la protezione cardio-renale?





Potential Effects By Which SGLT-2 Inhibition Improves Renal Outcomes

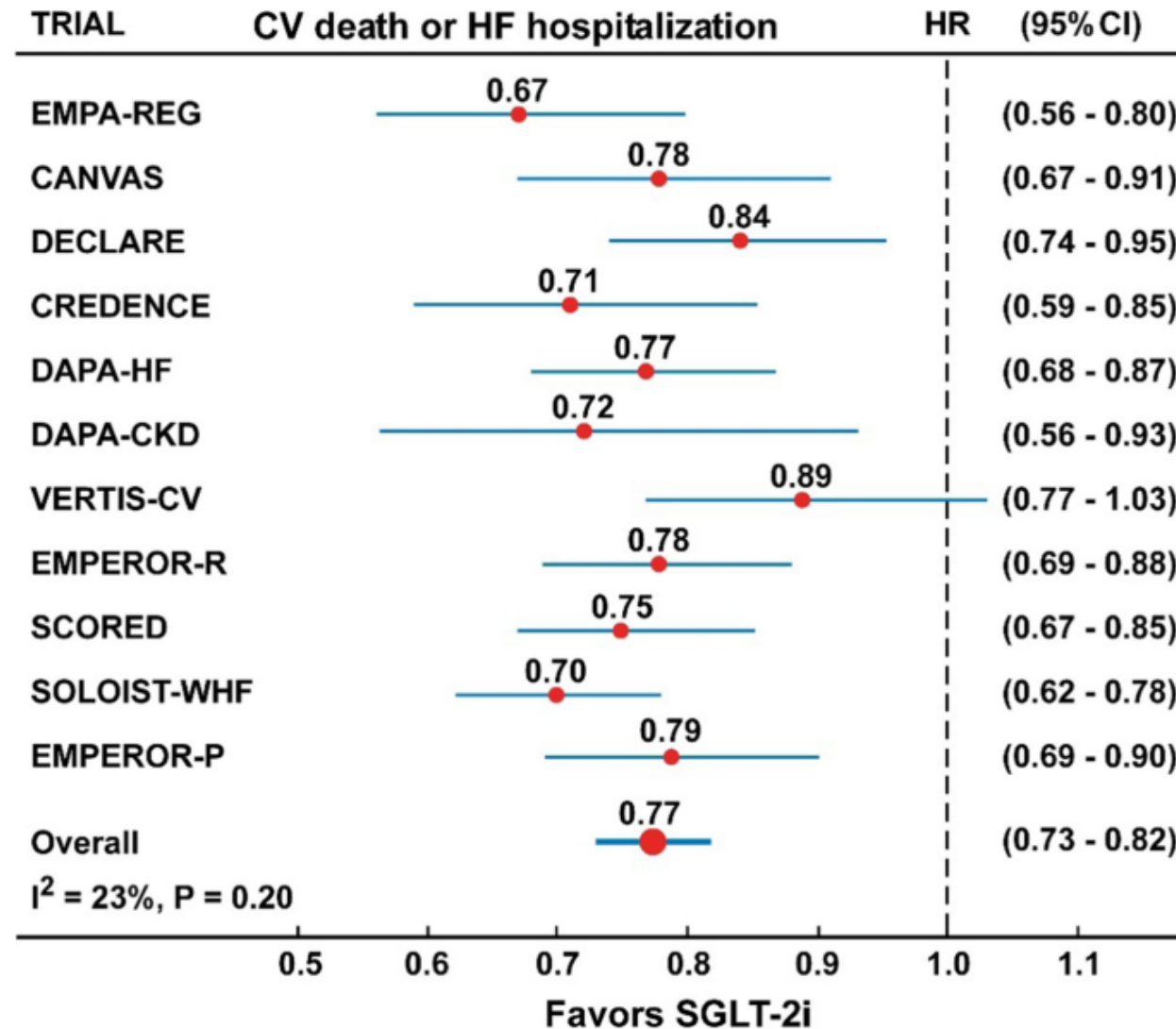


eGFR=estimated glomerular filtration rate; Hb=hemoglobin; RAAS=renin angiotensin aldosterone system; SNS=sympathetic nervous system.

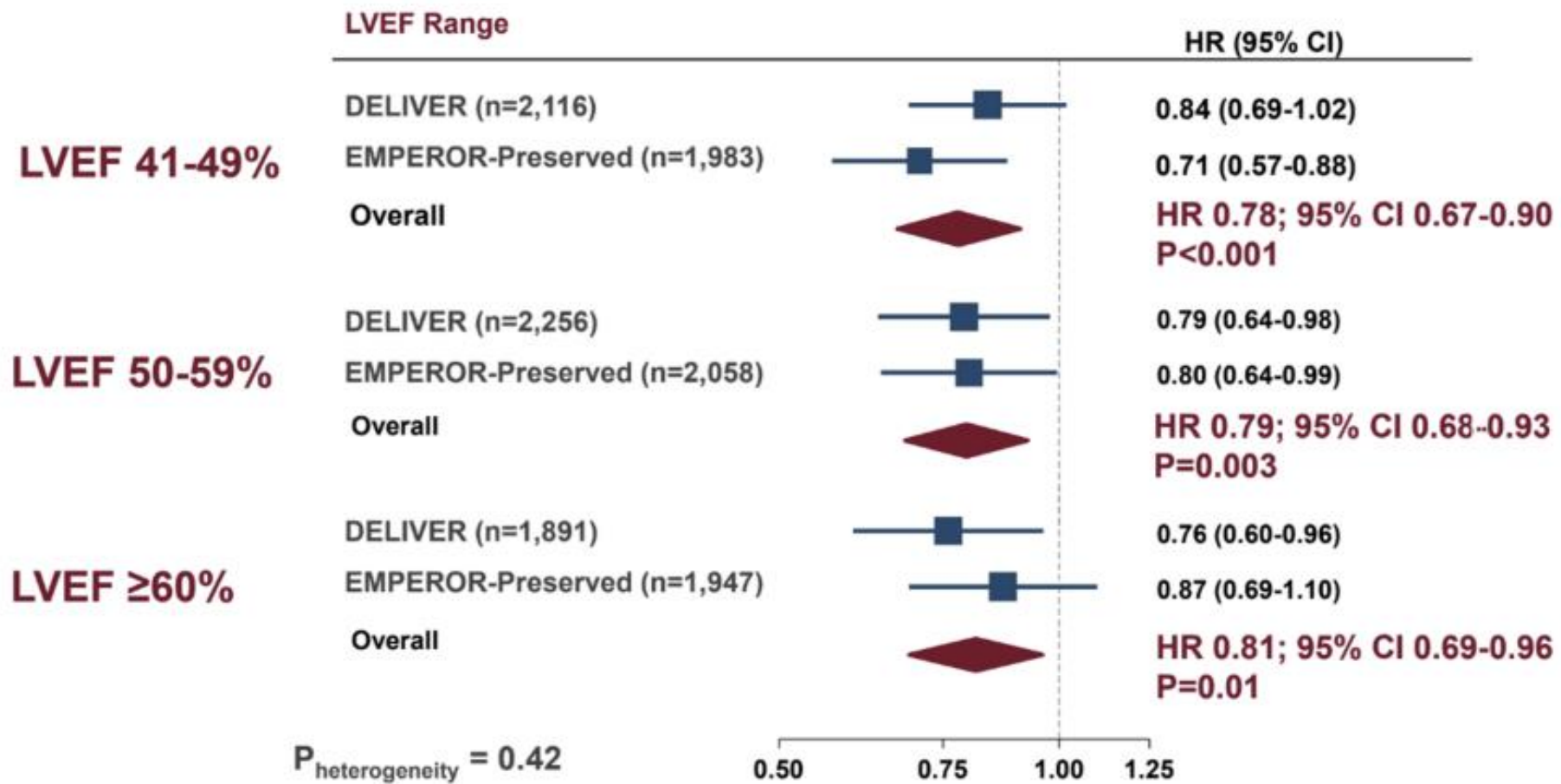
1. Heerspink HJL, et al. *Kidney Int.* 2018;94(1):26-39. 2. Tamargo J. *Eur Cardiol.* 2019;14(1):23-32. 3. Shin SJ, et al. *PLoS One.* 2016;11:e0165703. 4. Sano M. *J Cardiol.* 2018;71(5):471-476.



SGLT2i e cardioprotezione

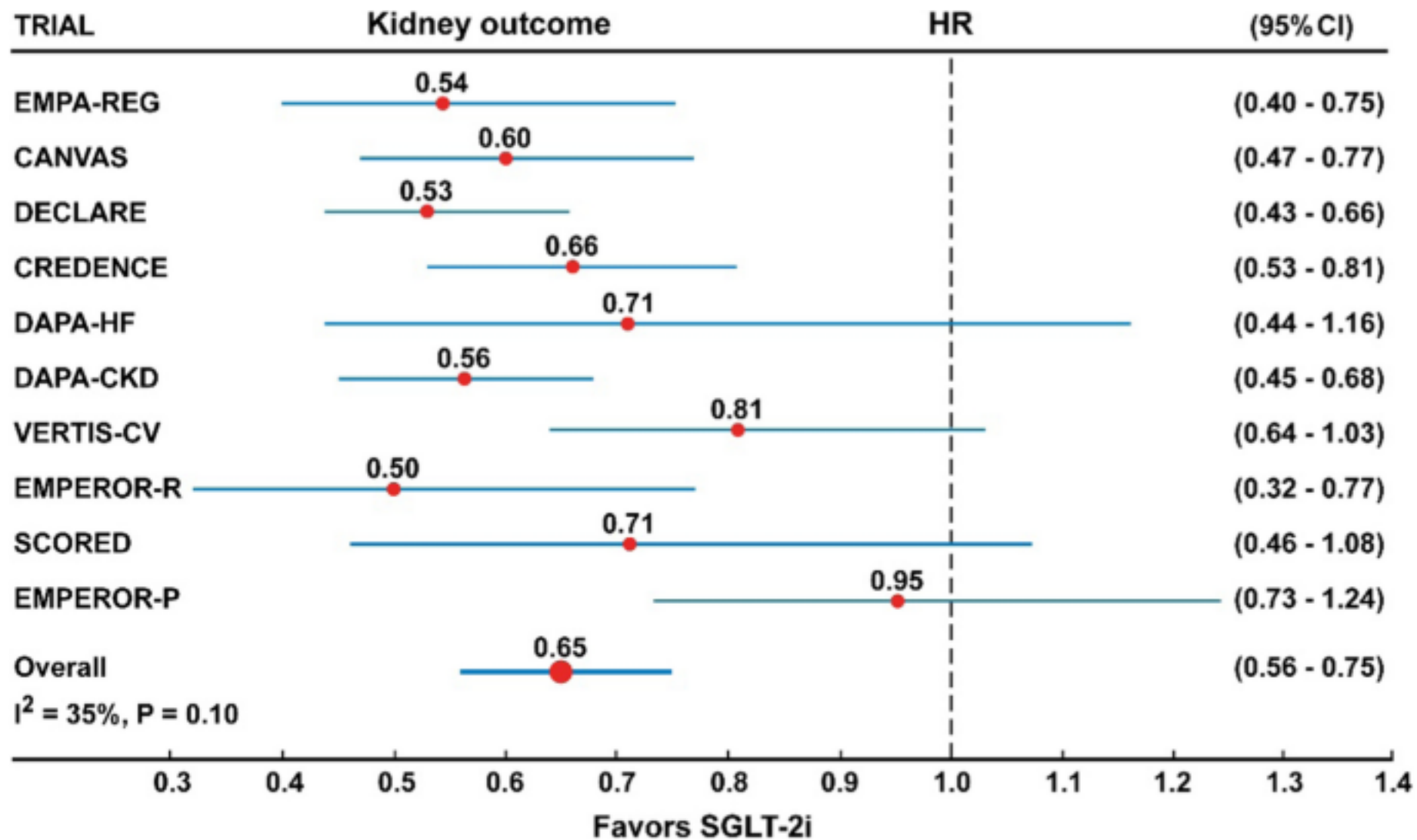


DELIVER and EMPEROR-Preserved: consistent reductions in primary endpoint (heart failure hospitalization or CV death) across LVEF range





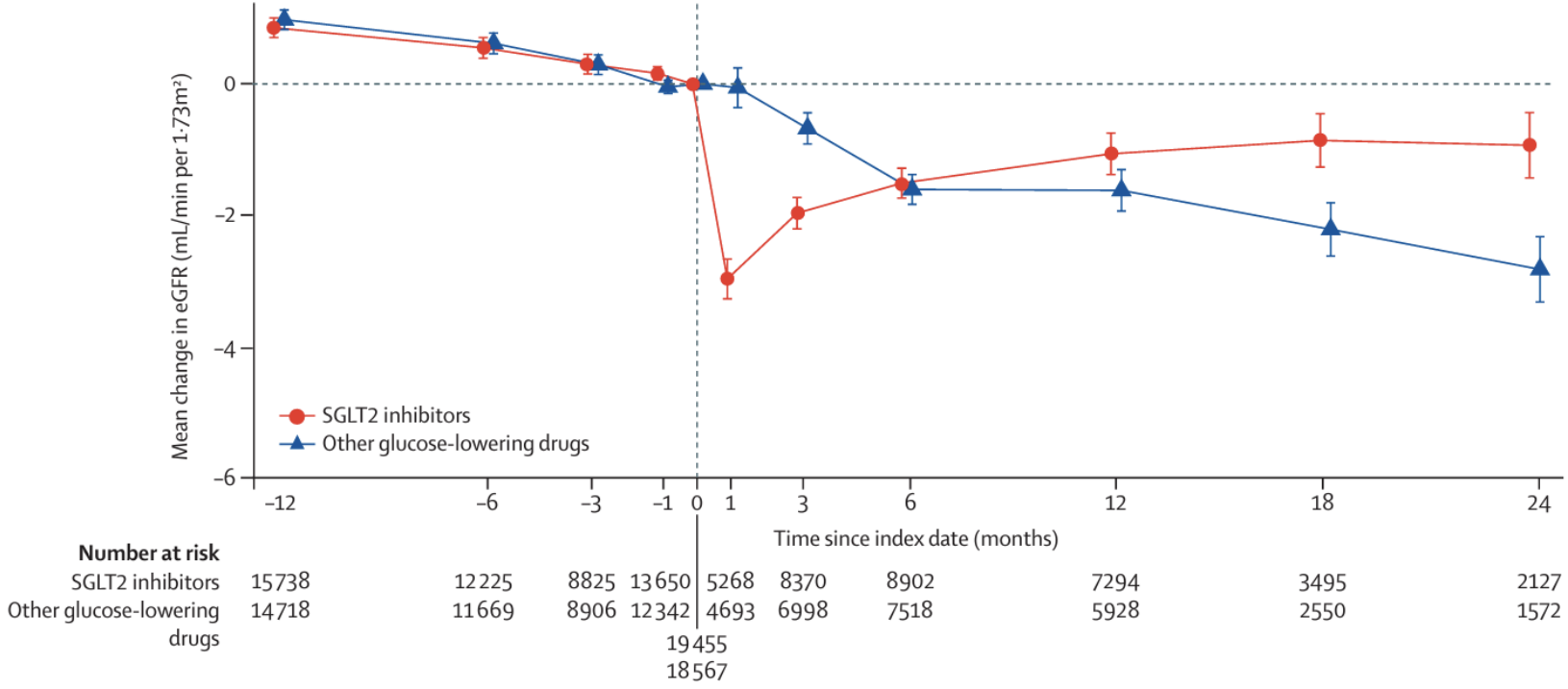
SGLT2i e Nefroprotezione





Kidney outcomes associated with use of SGLT2 inhibitors in real-world clinical practice (CVD-REAL 3): a multinational observational cohort study

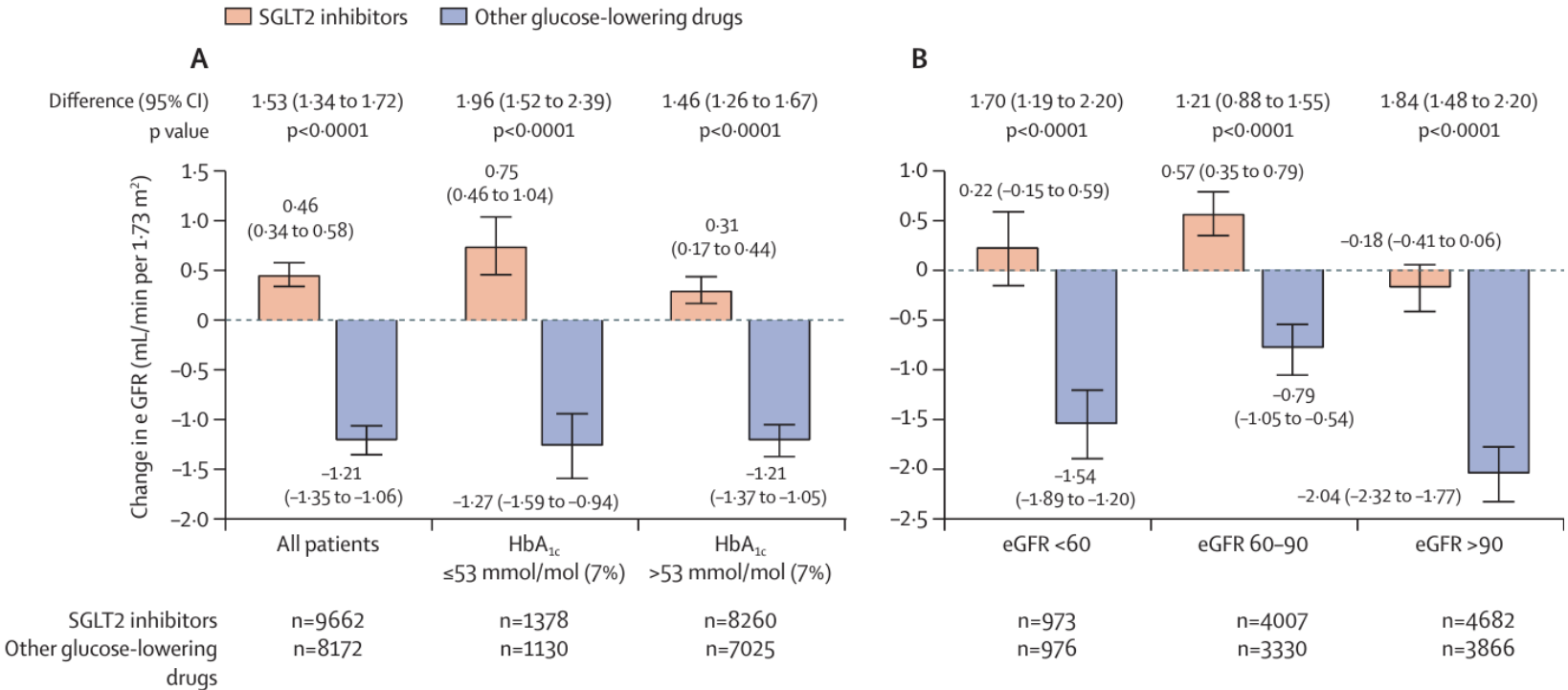
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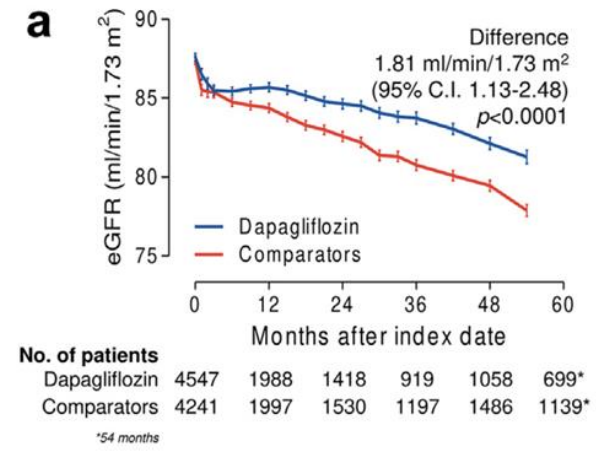
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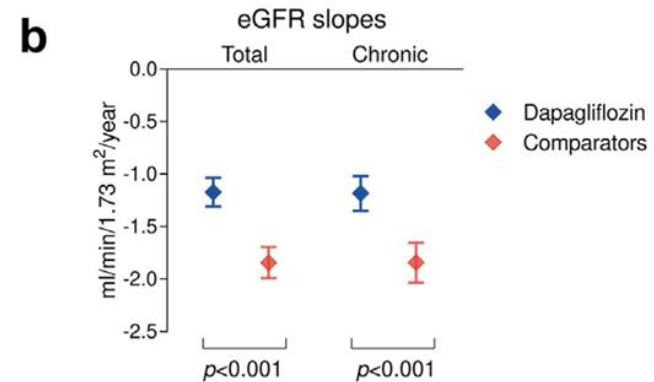
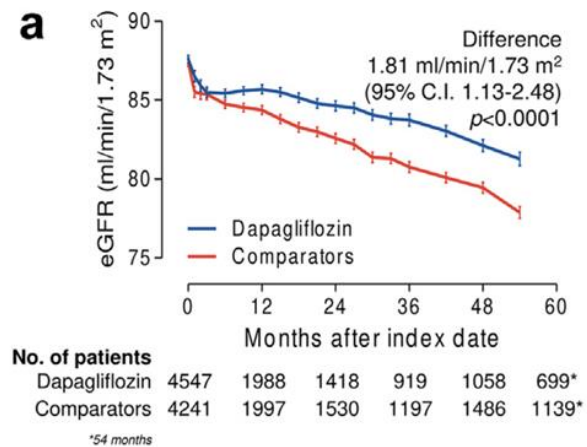
Long-term benefits of dapagliflozin on renal outcomes of type 2 diabetes under routine care: a comparative effectiveness study on propensity score matched cohorts at low renal risk

Gian Paolo Fadini,^{a,b,f,*} Enrico Longato,^{c,f} Mario Luca Morieri,^a Stefano Del Prato,^d Angelo Avogaro,^a and Anna Solini,^e
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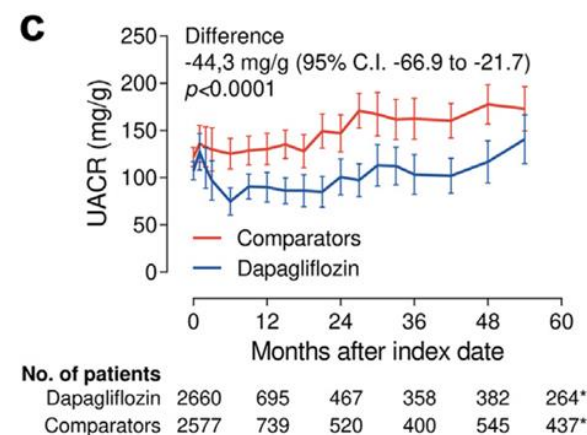
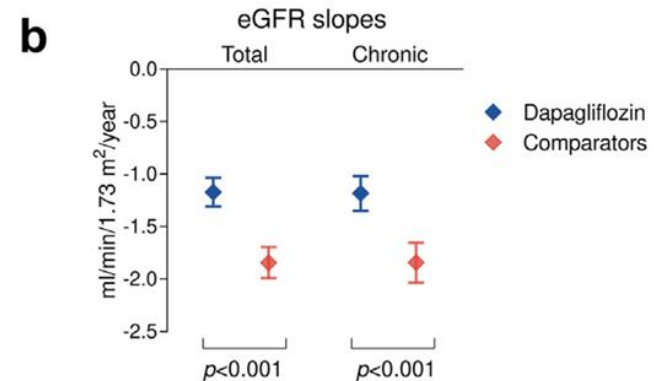
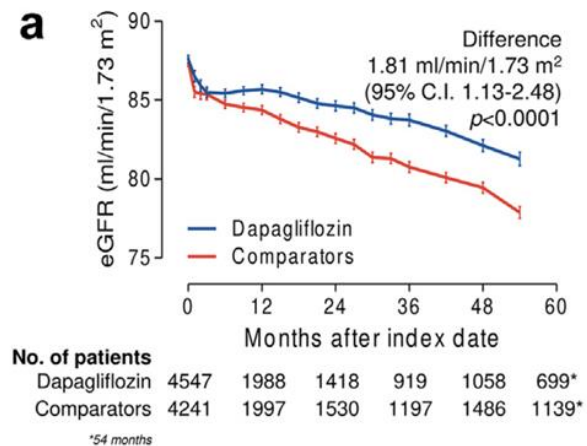
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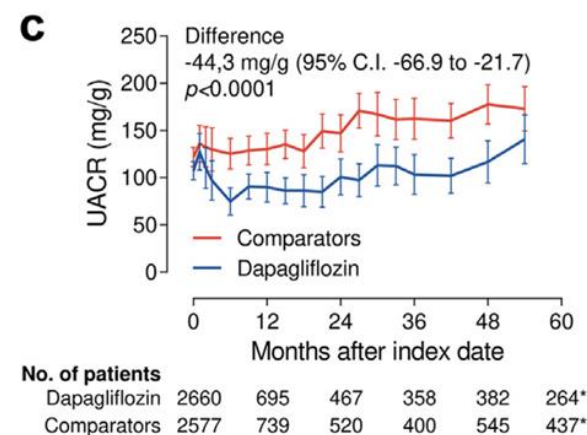
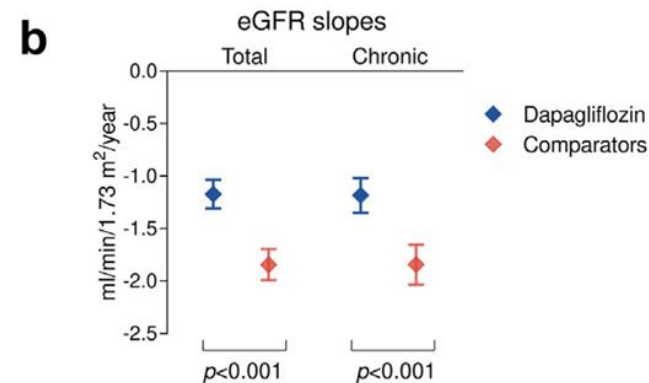
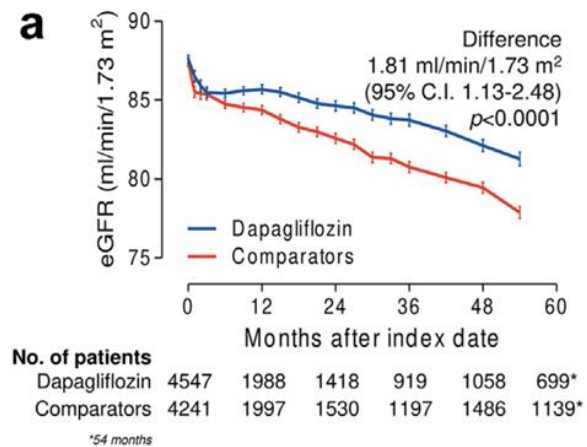
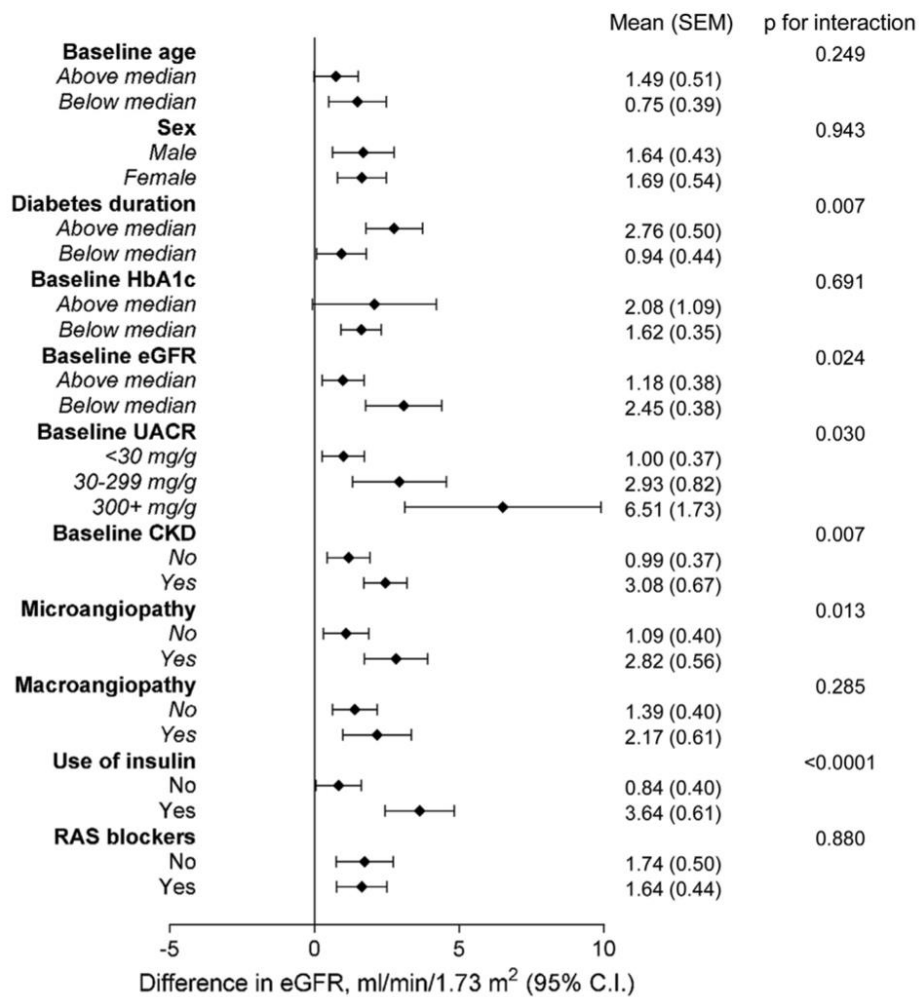
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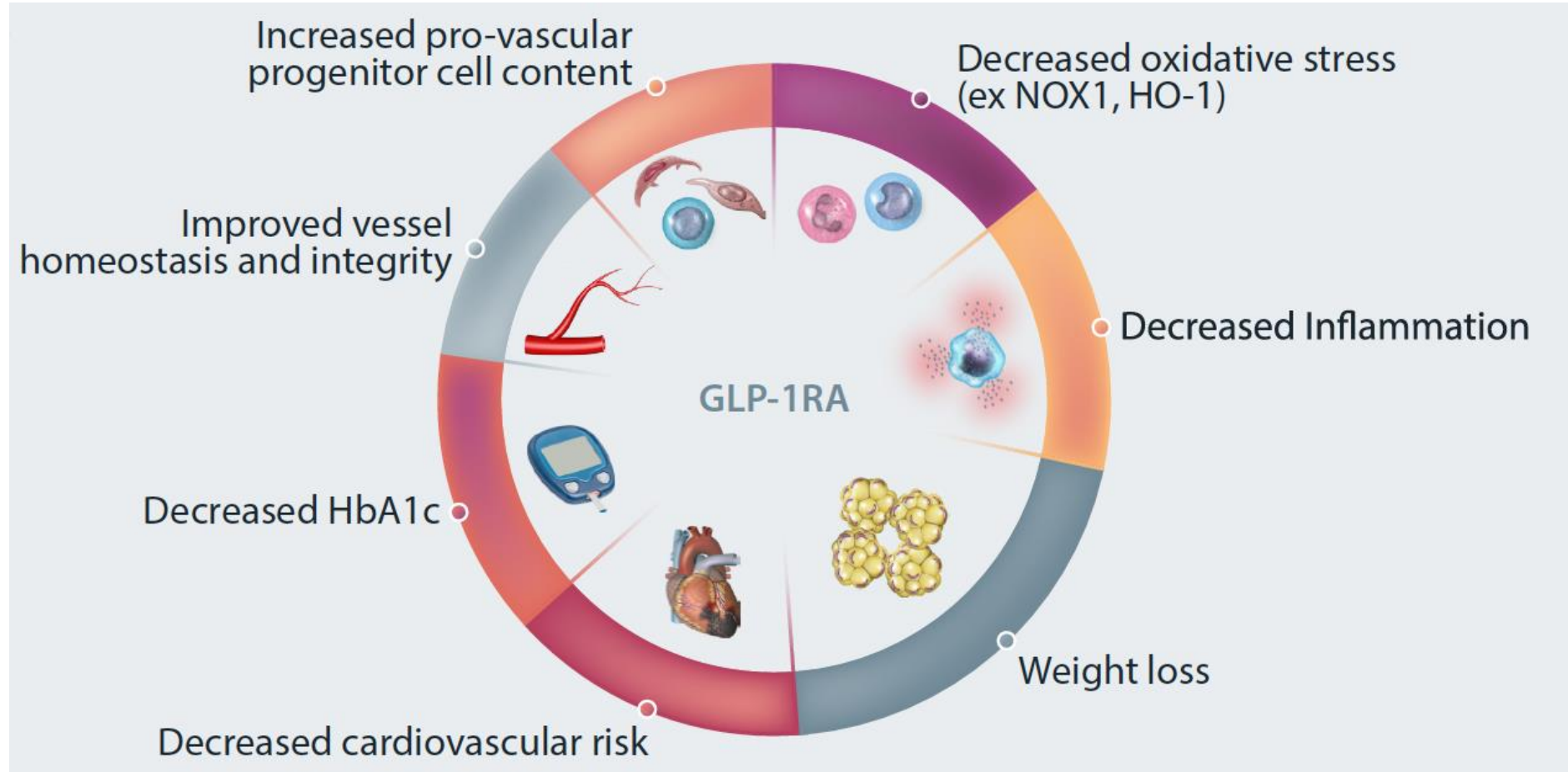
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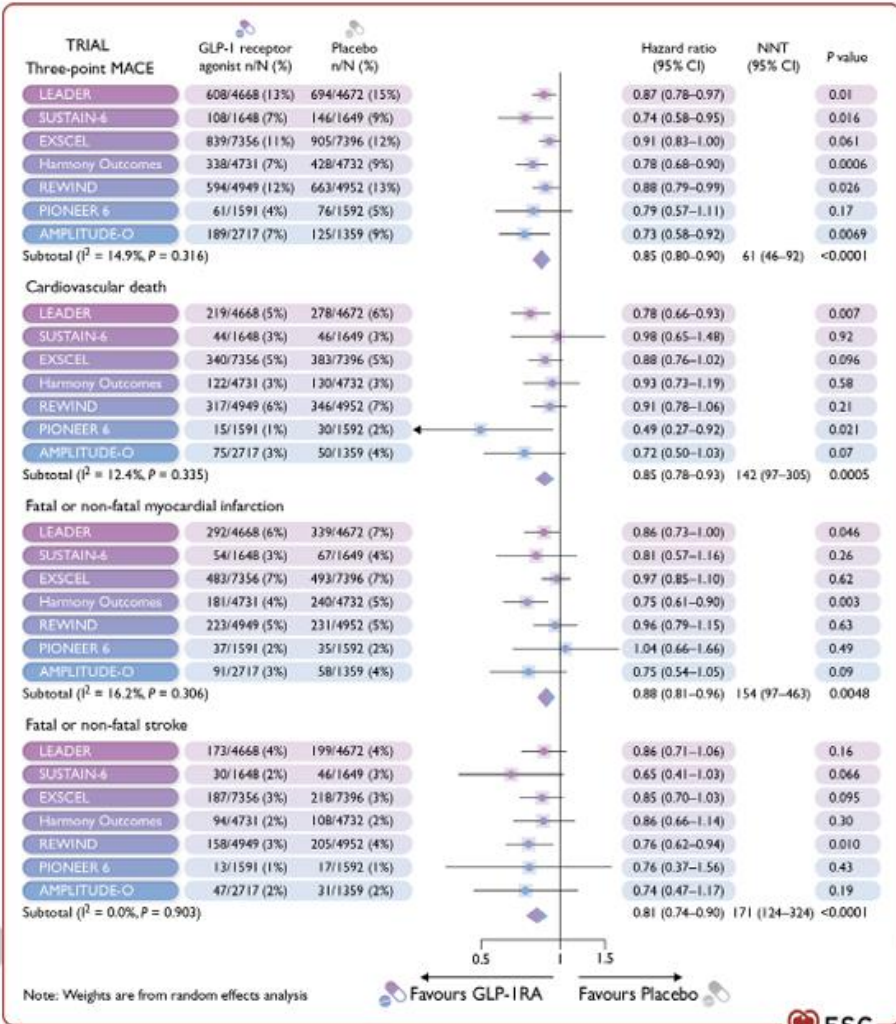
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Meta-analyses of CVOTs with GLP-1 RA (omitting ELIXA): Risk of MACE/components



Subgroup analyses for risk of three-point MACE in patients with and without ASCVD

Subgroup	GLP-1 receptor agonist n/N (%)	Placebo n/N (%)	Hazard ratio (95% CI)	p interaction
Established cardiovascular disease				
Yes	2208/20639 (11%)	2485/19398 (13%)	0.83 (0.79, 0.88)	0.068
No	492/6725 (7%)	521/6684 (8%)	0.94 (0.83, 1.06)	
Subtotal (I-squared = 70.0%, p = 0.068)			0.87 (0.77, 0.98)	



Eleggibile per SGLT2i?

Iniziare terapia con SGLT2i

HbA1c a target?

No

Si

Aggiungere GLP-1RA o DPP4-i

Continuare

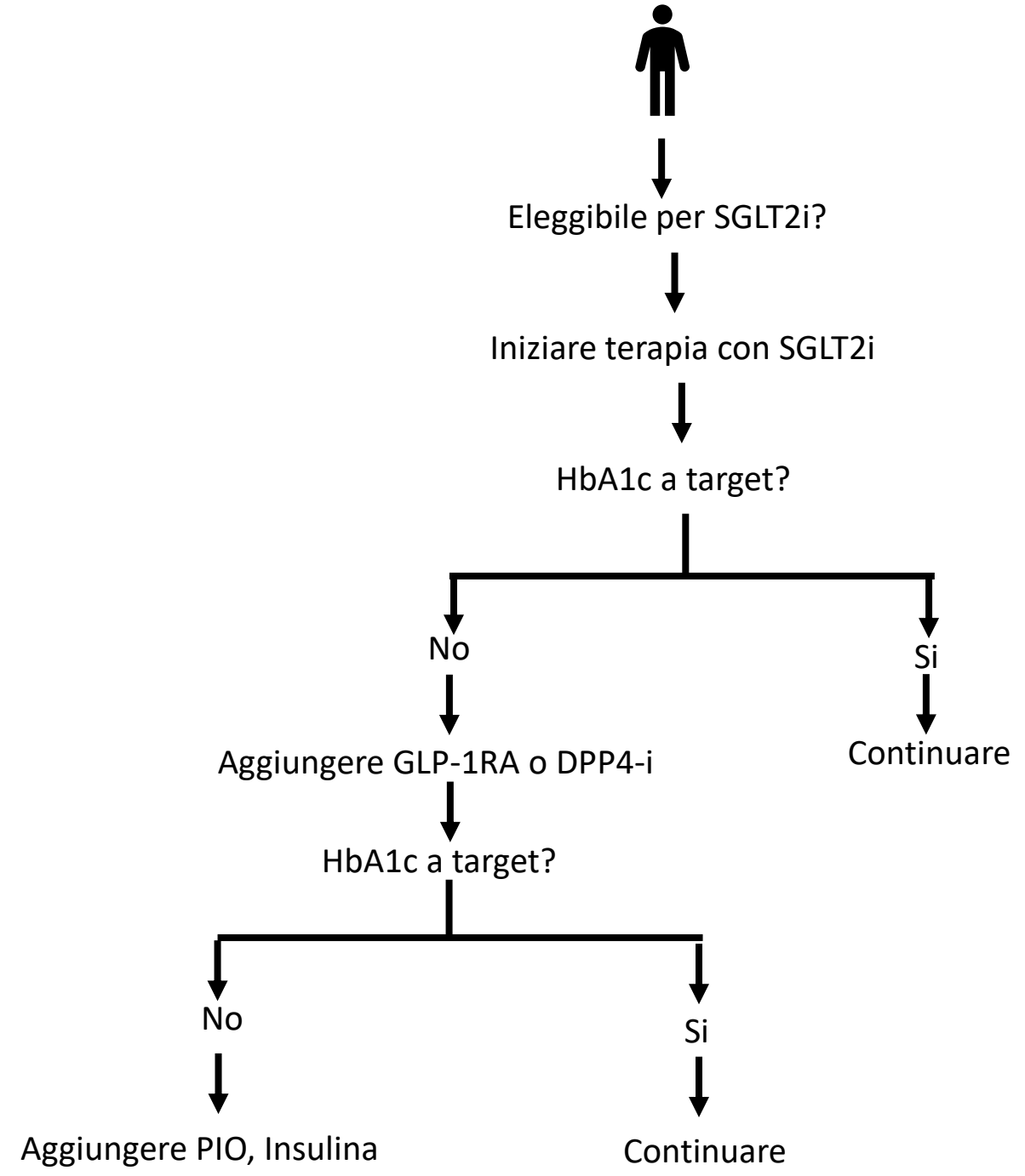
HbA1c a target?

No

Si

Aggiungere PIO, Insulina

Continuare



Metformina			
Agonisti recettore GLP1		Inibitori SGLT2	
Inibitori DPP4	Acarbose	Pioglitazione	Insulina

Le associazioni tra più farmaci devono essere prescritte secondo le indicazioni delle rispettive schede tecniche.

Metformina	Agonisti recettore GLP1	Inibitori SGLT2	
Inibitori DPP4	Acarbose	Pioglitazione	Insulina

Le associazioni tra più farmaci devono essere prescritte secondo le indicazioni delle rispettive schede tecniche.

Inibitori SGLT2		
Agonisti recettore GLP1		Metformina
Inibitori DPP4**	Acarbose	Insulina

Le associazioni tra più farmaci devono essere prescritte secondo le indicazioni delle rispettive schede tecniche. *La metformina è controindicata in classe III e IV NYHA; **Saxagliptin è associato ad un aumento di ricoveri per scompenso cardiaco

Senza Malattia CV

Con Malattia CV

Con Scompenso cardiaco



CARDIOVASCULAR CONTINUUM EARLY TREATMENT

