



Creazione dell'interazione

DIABETOLOGO e
CARDIOLOGO nel paziente con
diabete mellito di tipo 2
con multipli fattori di rischio cardiovascolare
o malattia cardiovascolare concomitante

10 luglio 2020



Approccio diagnostico terapeutico al paziente
con diabete tipo 2 con multipli fattori di rischio
cardiovascolare o malattia cardiovascolare conclamata

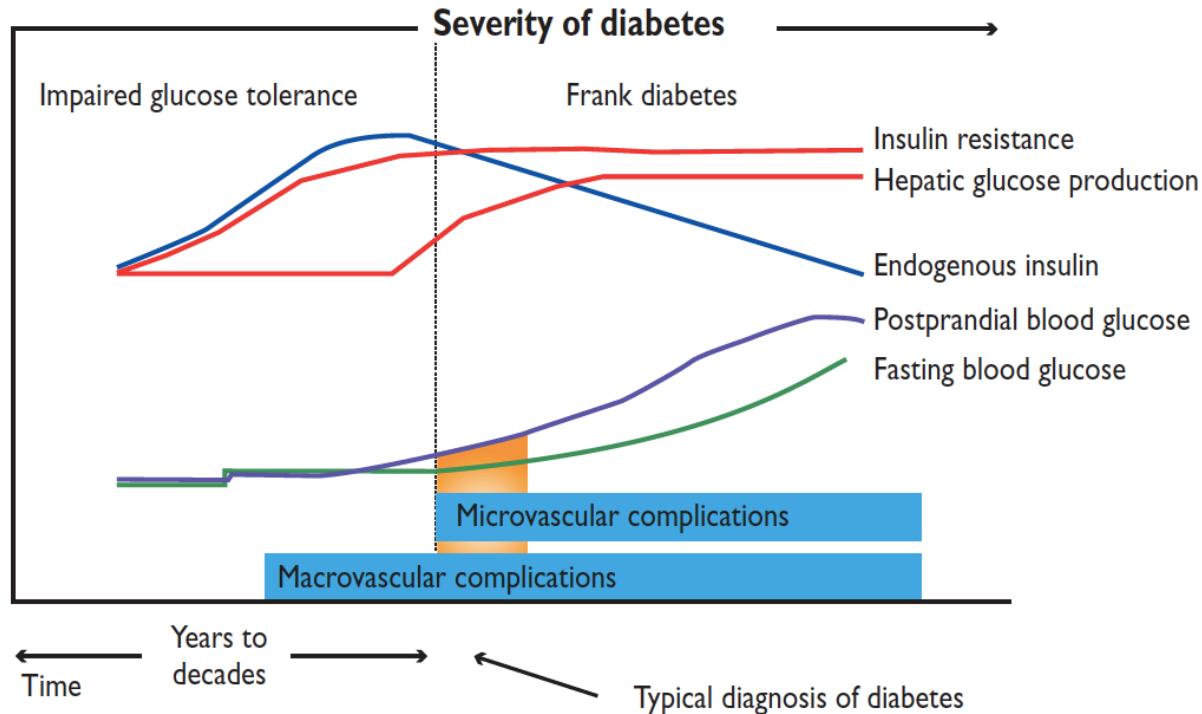
QUALI ALTRI DISTRETTI VALUTARE?
CAROTIDI, ARTI INFERIORI, RENE, OCCHI



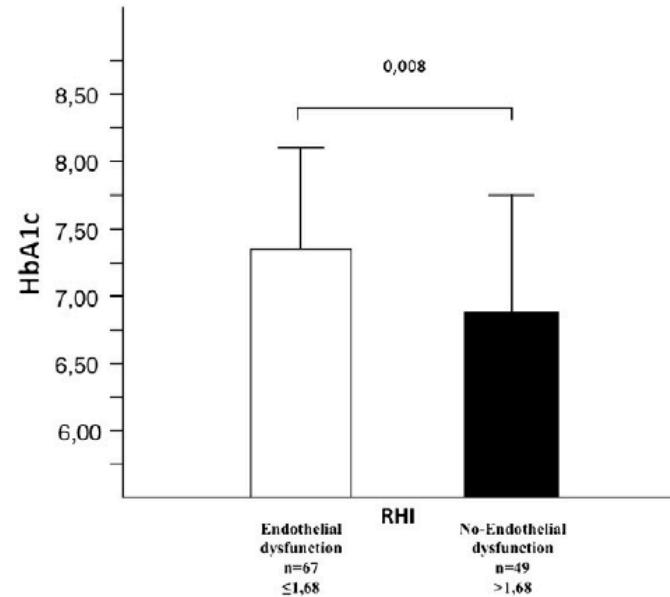
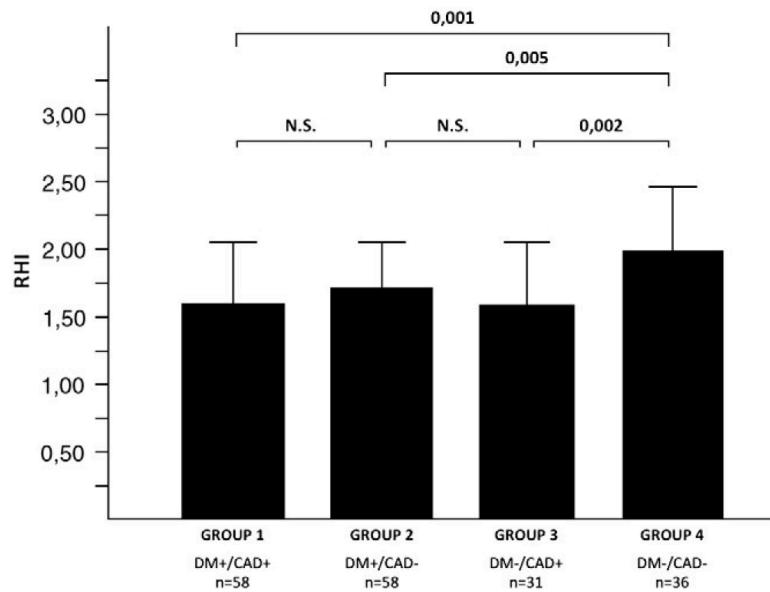
Stefania Paolillo

Dipartimento di Scienze Biomediche Avanzate
Università degli Studi di Napoli Federico II

Glycemic continuum and CV disease



Diabetes and endothelial dysfunction



CAROTIDI

Assessment of carotid and/or femoral plaque burden with arterial ultrasonography should be considered as a risk modifier in asymptomatic patients with DM.^{60–62}

IIa

B

Carotid ultrasound intima–media thickness screening for CV risk assessment is not recommended.

III

A

Common Carotid Intima-Media Thickness Measurements in Cardiovascular Risk Prediction

A Meta-analysis

Without events

		Framingham Risk With CIMT		
		<5%	5%-20%	>20%
Framingham Risk	<5%	20271 →	867	-
	5-20%	1115	← 17280 →	362
	>20%		315	← 1611

Total without events, No. (%)

39162 (93.6) No change
 1229 (2.9%) Up classification
 1430 (3.4%) Down classification

With events

		Framingham Risk With CIMT		
		<5%	5%-20%	>20%
Framingham Risk	<5%	537 →	67	-
	5-20%	69	← 2410 →	102
	>20%		85	← 737

Total with events, No. (%)

3684 (91.9%) No change
 169 (4.2%) Up classification
 154 (3.8%) Down classification

Stima del rischio CV

Moderato

- DM in pazienti giovani con durata di malattia <10 anni senza altri fattori di rischio

Alto

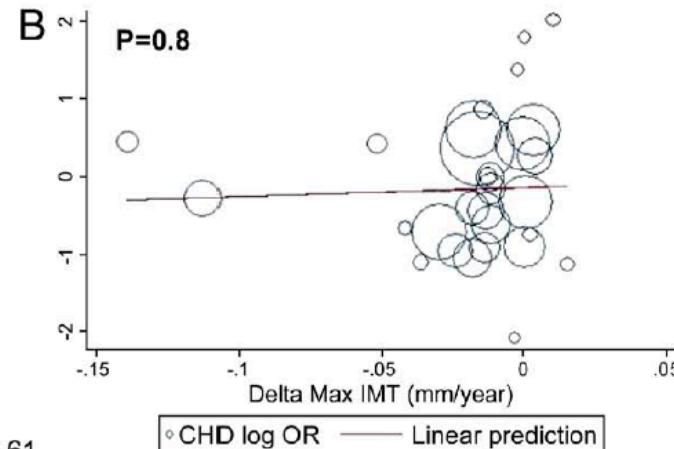
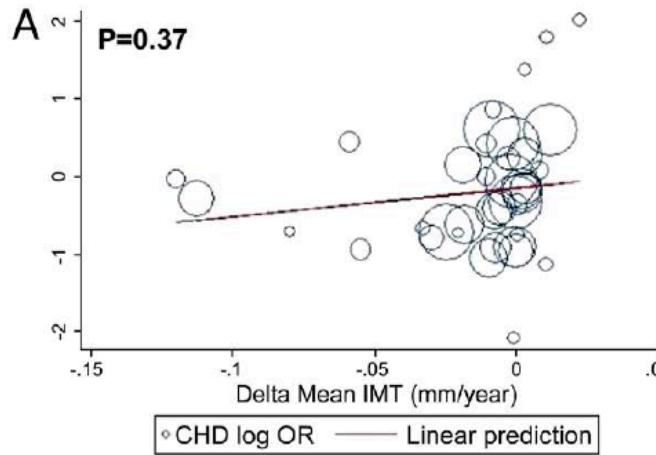
- DM senza danno d'organo, con durata del diabete >/= 10 anni o con un fattore di rischio CV aggiuntivo

Molto alto

- Diabete Mellito (DM) con danno d'organo o almeno 3 altri fattori di rischio CV o insorgenza precoce di DM tipo 1 di lunga durata (>20 anni)

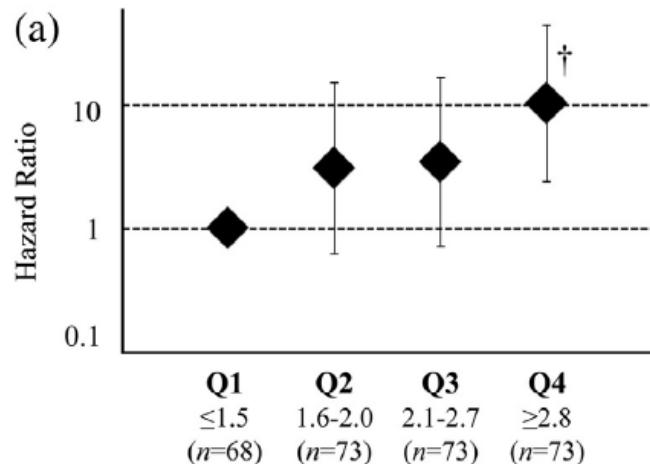
Does Carotid Intima-Media Thickness Regression Predict Reduction of Cardiovascular Events?

A Meta-Analysis of 41 Randomized Trials

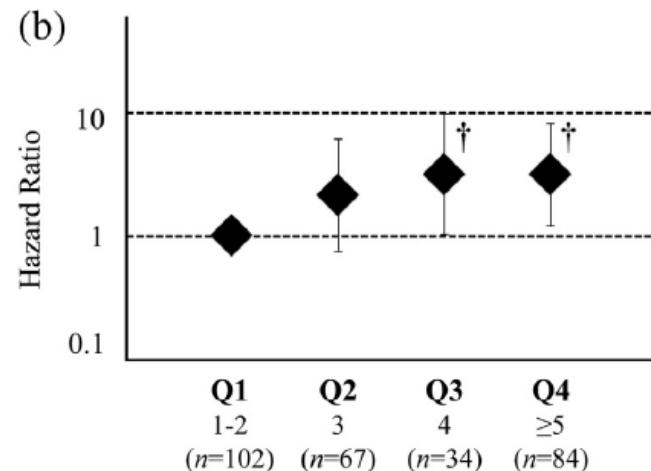


The utility of ultrasonic tissue characterization of carotid plaque in the prediction of cardiovascular events in diabetic patients

Plaque thickness



Plaque number



CAROTIDI

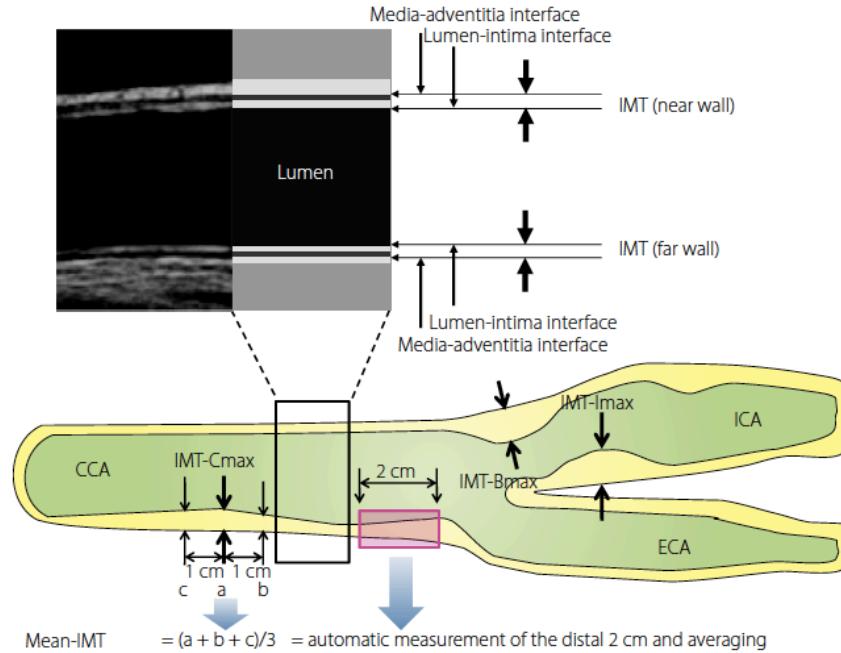
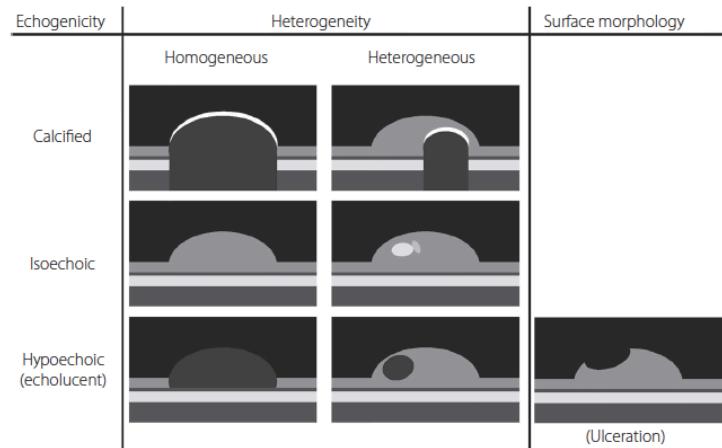


Table 1 | Basic points of attention in carotid ultrasonography and comparisons of predictive ability for cardiovascular disease among carotid ultrasound measures

	Predictive ability for CVD	
	Higher	Lower
Mean or max	Max	Mean
Plaque or CIMT	Plaque	CIMT
Plaque-incorporated	Plaque-incorporated	Plaque non-incorporated
CIMT or not	CIMT	CIMT
Whole carotid tree or CCA only	Whole carotid tree	CCA only

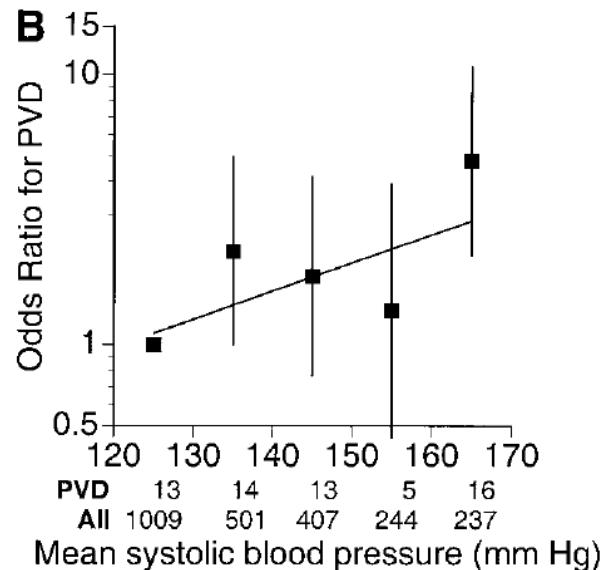
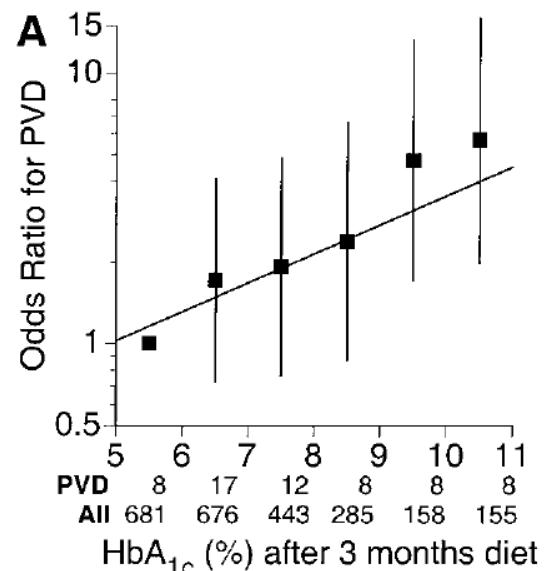


Peripheral arterial disease epidemiological aspects

Table 2 Independent risk factors for PAD.

Variable	Relative risk	95% CI
Reported diabetes ¹⁶	4.05 ^a	2.8–5.9
Current smoker ¹⁶	2.55 ^a	1.76–3.68
Age (5-year increments) ¹⁶	1.54 ^a	1.50–1.92
Reported hypertension ¹⁶	1.51 ^a	1.15–1.99
Hyperhomocysteinemia ²⁸	1.44 ^b	1.10–1.87
Total cholesterol (per 10 mg/dl increment) ¹⁶	1.10 ^a	1.06–1.14

UKPDS 59: Hyperglycemia and Other Potentially Modifiable Risk Factors for Peripheral Vascular Disease in Type 2 Diabetes

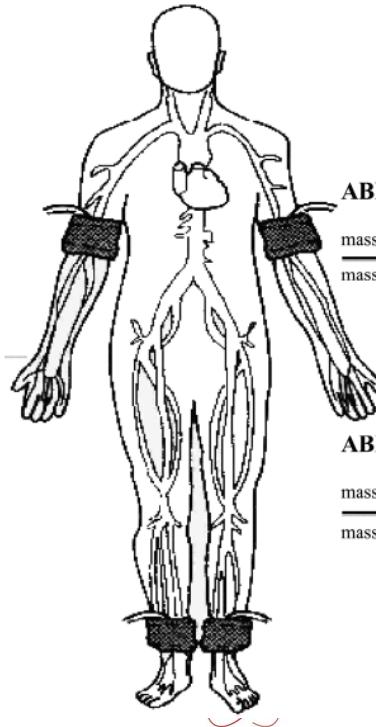


ARTI INFERIORI

ABI may be considered as a risk modifier in CV risk assessment.

IIb

B



ABI destro = rapporto tra

massima pressione sistolica alla caviglia destra (posterotibiale o pedidia dorsale)
massima pressione sistolica al braccio (destro o sinistro)

ABI sinistro = rapporto tra

massima pressione sistolica alla caviglia sinistra (posterotibiale o pedidia dorsale)
massima pressione sistolica al braccio (destro o sinistro)

- 0.91–1.30: normal;
- 0.70–0.90: mild occlusion;
- 0.40–0.69: moderate occlusion;
- <0.40: severe occlusion; and
- >1.30: poorly compressible vessels.

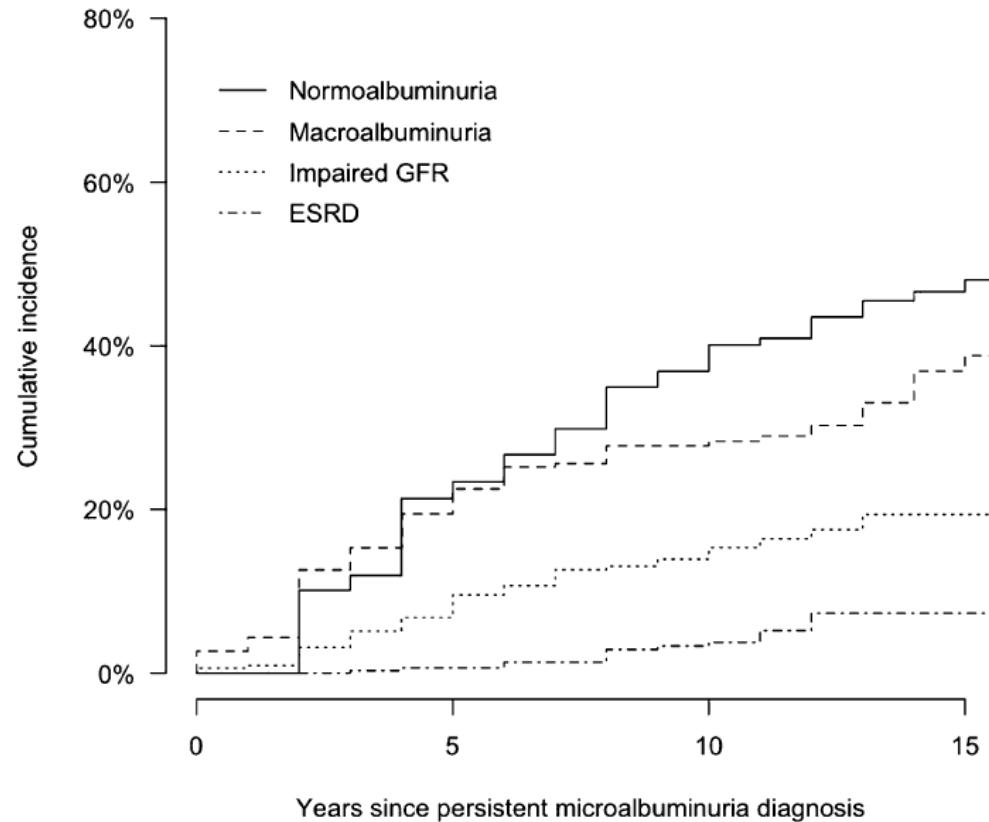
ARTI INFERIORI

		INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT
PHYSICAL EXAMINATION	<ul style="list-style-type: none">▪ Height, weight, and BMI; growth/pubertal development in children and adolescents▪ Blood pressure determination▪ Orthostatic blood pressure measures (when indicated)▪ Fundoscopic examination (refer to eye specialist)▪ Thyroid palpation▪ Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy)▪ Comprehensive foot examination<ul style="list-style-type: none">• Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails)**• Screen for PAD (pedal pulses—refer for ABI if diminished)• Determination of temperature, vibration or pinprick sensation, and 10-g monofilament exam	✓	✓	✓

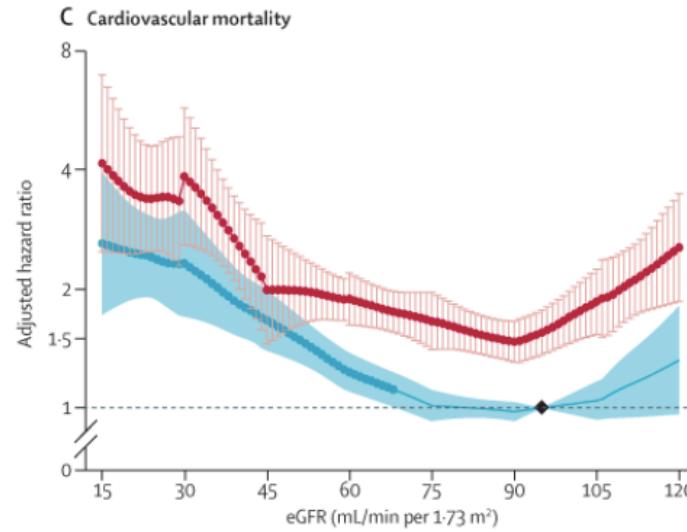
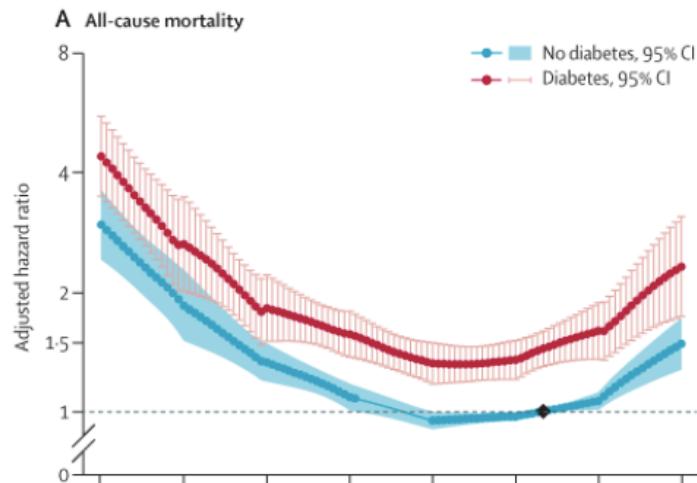
ARTI INFERIORI

Tabella 11.9. Classificazione clinica dell'arteriopatia obliterante degli arti inferiori.

Classificazione di Fontaine		Classificazione di Rutherford		
Stadio	Sintomi	Grado	Categoria	Sintomi
I	Asintomatico	0	0	Asintomatico
II a	Autonomia di marcia > 200 m; Claudicatio lieve	I	1	Claudicatio lieve
II b	Autonomia di marcia < 200 m; Claudicatio moderata-severa	I	2	Claudicatio moderata
		I	3	Claudicatio severa
III	Dolore ischemico a riposo	II	4	Dolore ischemico a riposo
IV	Ulcera e gangrena	III	5	Perdita tissutale minore
		III	6	Perdita tissutale maggiore



Associations of kidney disease measures with mortality and end-stage renal disease in individuals with and without diabetes: a meta-analysis



Recommendations

- 11.1** At least once a year, assess urinary albumin (e.g., spot urinary albumin-to-creatinine ratio) and estimated glomerular filtration rate (eGFR) in patients with type 1 diabetes with duration of ≥ 5 years and in all patients with type 2 diabetes regardless of treatment. **B** Patients with urinary albumin >30 mg/g creatinine and/or an eGFR <60 mL/min/1.73 m² should be monitored twice annually to guide therapy. **C**

eGFR Quale formula?

Cockroft-Gault

Considera il peso, ma non BSA
Può sovrastimare <60 ml/min, nei pz obesi e negli edematosi

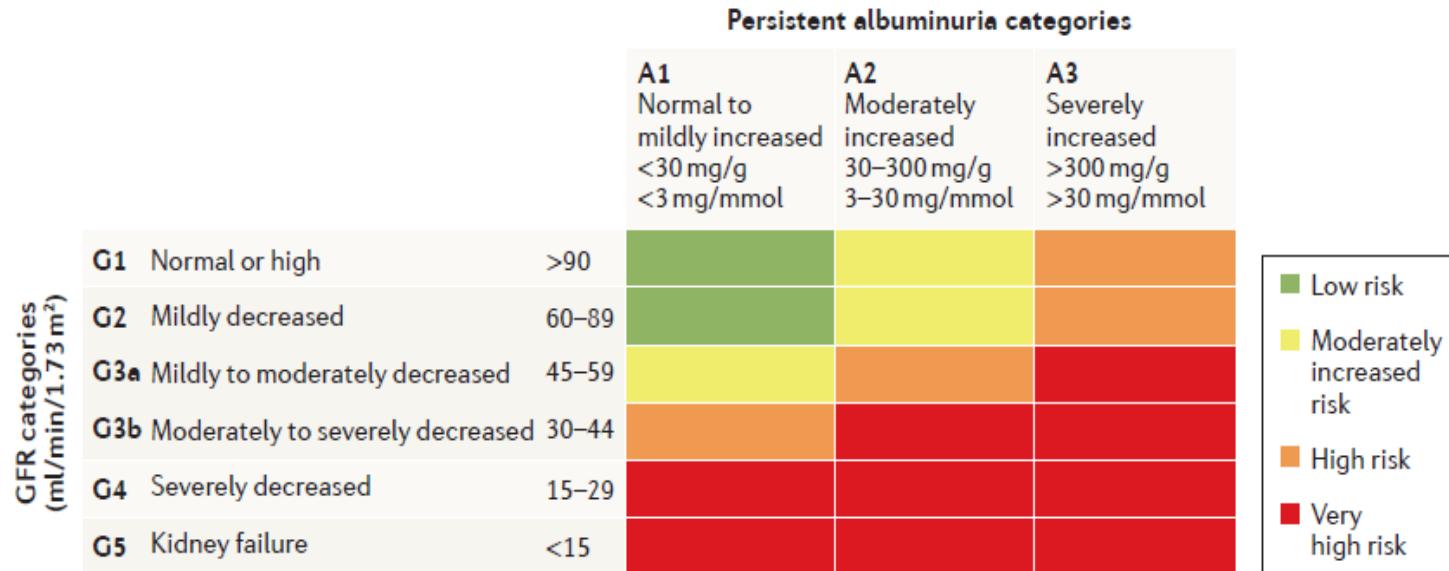
MDRD

Sviluppata in pz con IRC, non validata negli anziani
Discreta performance <60 ml/min

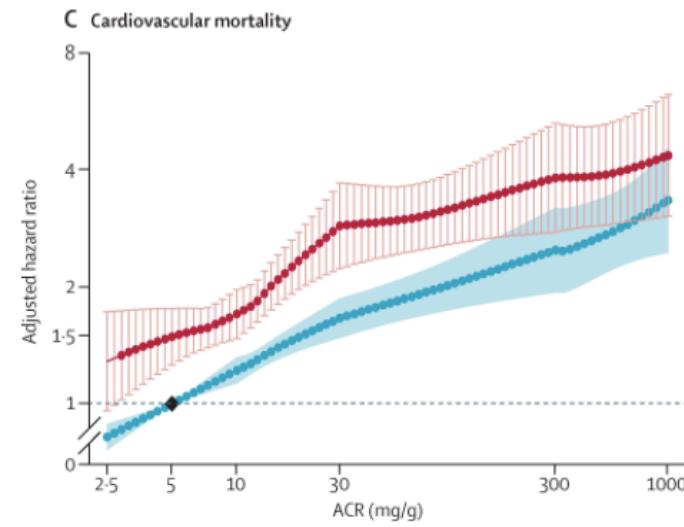
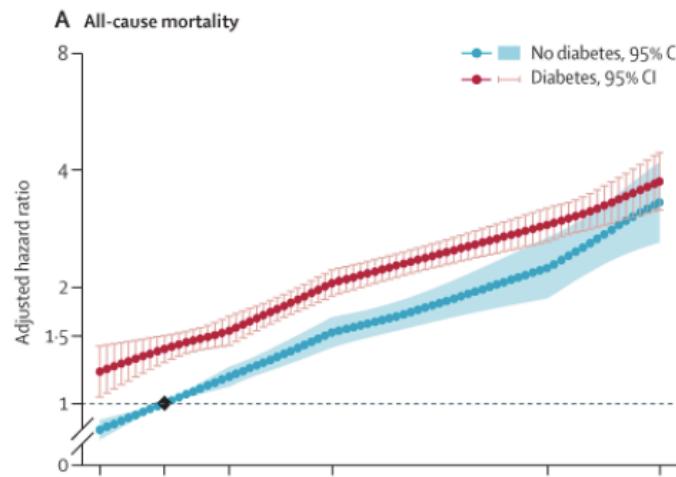
CKD-EPI

Sviluppata in un'ampia popolazione mista
Accurata come MDRD <60 ml/min
Più accurata delle altre >60 ml/min
Attuale formula di riferimento tra i 18 e i 75 anni

CDK classification



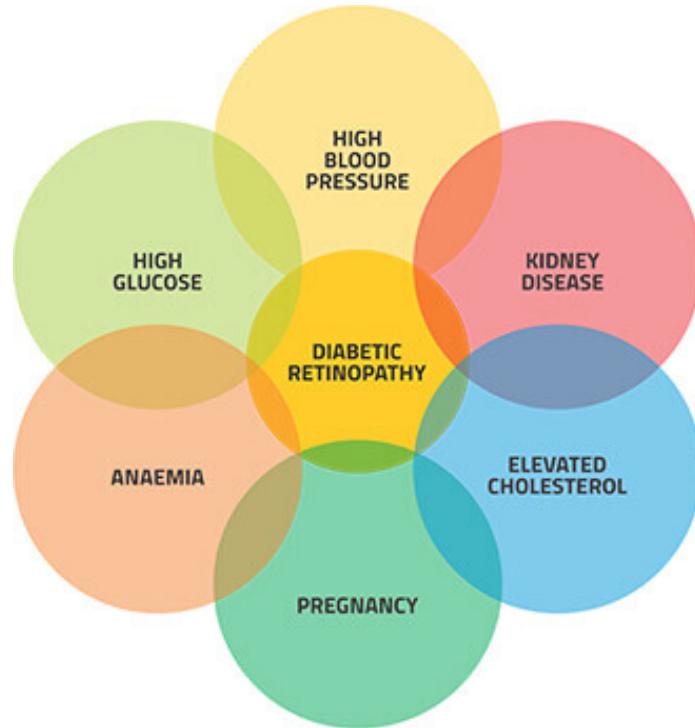
Associations of kidney disease measures with mortality and end-stage renal disease in individuals with and without diabetes: a meta-analysis



RENE

CKD is classified based on:				Albuminuria categories Description and range		
GFR categories (ml/min/1.73m ²) Description and range			A1	A2	A3	
			Normal to mildly increased	Moderately increased	Severely increased	
	<30 mg/g <3 mg/mmol		30-299 mg/g 3-29 mg/mmol		≥300 mg/g ≥30 mg/mmol	
	G1	Normal or high	≥90	1 if CKD	Treat 1	Refer* 2
	G2	Mildly decreased	60-89	1 if CKD	Treat 1	Refer* 2
	G3a	Mildly to moderately decreased	45-59	Treat 1	Treat 2	Refer 3
G3b	Moderately to severely decreased	30-44	Treat 2	Treat 3	Refer 3	
G4	Severely decreased	15-29	Refer* 3	Refer* 3	Refer 4+	
G5	Kidney failure	<15	Refer 4+	Refer 4+	Refer 4+	

OCCHIO



QUANDO VALUTARE SEgni DI RETINOPATIA?

11.15 Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist at the time of the diabetes diagnosis. **B**

AT DIAGNOSIS

11.16 If there is no evidence of retinopathy for one or more annual eye exams and glycemia is well controlled, then screening every 1–2 years may be considered. If any level of diabetic

NO RETINOPATHY - - EVERY 1/2 YEARS

sidered. If any level of diabetic retinopathy is present, subsequent dilated retinal examinations should be repeated at least annually by an ophthalmologist or optometrist. If retinopathy is progressing or sight-threatening, then examinations will be required more frequently. **B**

ANY LEVEL OF RETINOPATHY - - ANNUALLY

11.19 Eye examinations should occur before pregnancy or in the first trimester in patients with pre-existing type 1 or type 2 diabetes, and then patients should be monitored every trimester and for 1 year postpartum as indicated by the degree of retinopathy. **B**

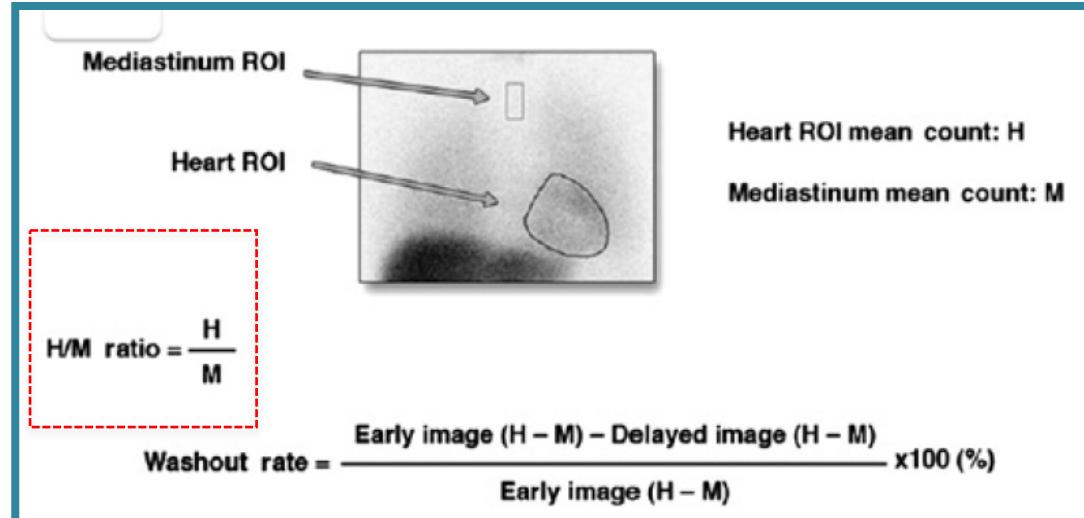
PREGNANCY

NEUROPATHIA

Scintigrafia miocardica con I^{123} meta-iodobenzilguanidina (MIBG)



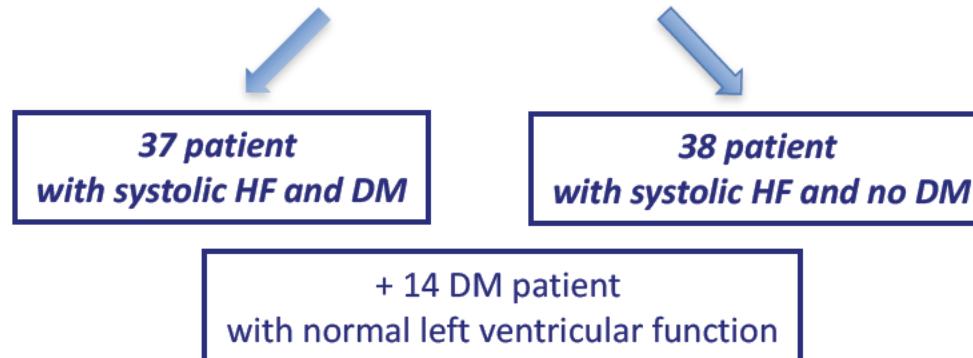
analogo della NE
(meccanismi di storage, release e uptake)



Impact of Diabetes Mellitus on Cardiac Sympathetic Innervation in Patients With Heart Failure

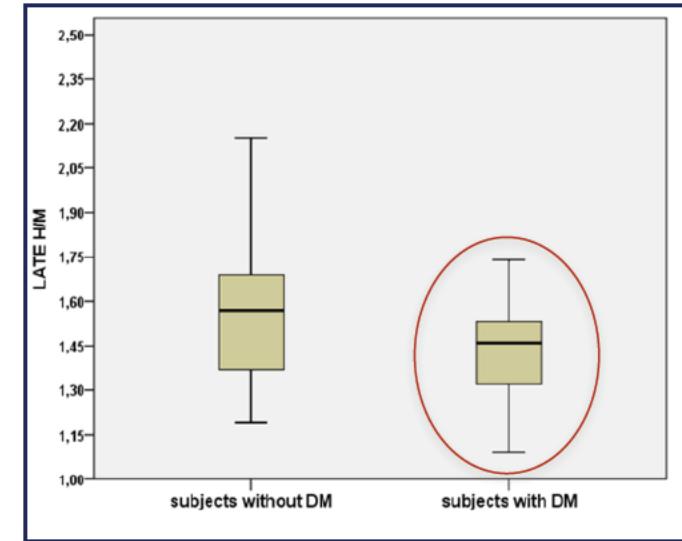
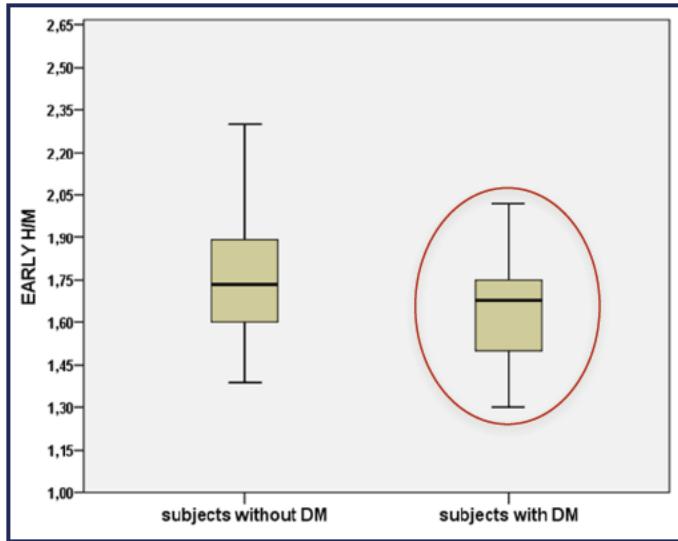
A ^{123}I meta-iodobenzylguanidine ($^{123}\text{IMIBG}$) scintigraphic study

75 patient
with moderate to severe systolic HF (mean LVEF $31 \pm 7\%$)



NEUROPATHIA

$\text{I}^{123}\text{MIBG}$ in the two groups of diabetic and non diabetic subjects



NEUROPATHIA

Correlation between HbA1c and H/M ratios in HF diabetic patients

