

La malattia renale cronica e il rischio cardiovascolare

Angelo Avogaro. Dpt. di Medicina (DIMED)-Università of Padova

Diapositiva preparata da **ANGELO AVOGARO** e redatta alla Società Italiana di Diabetologia.
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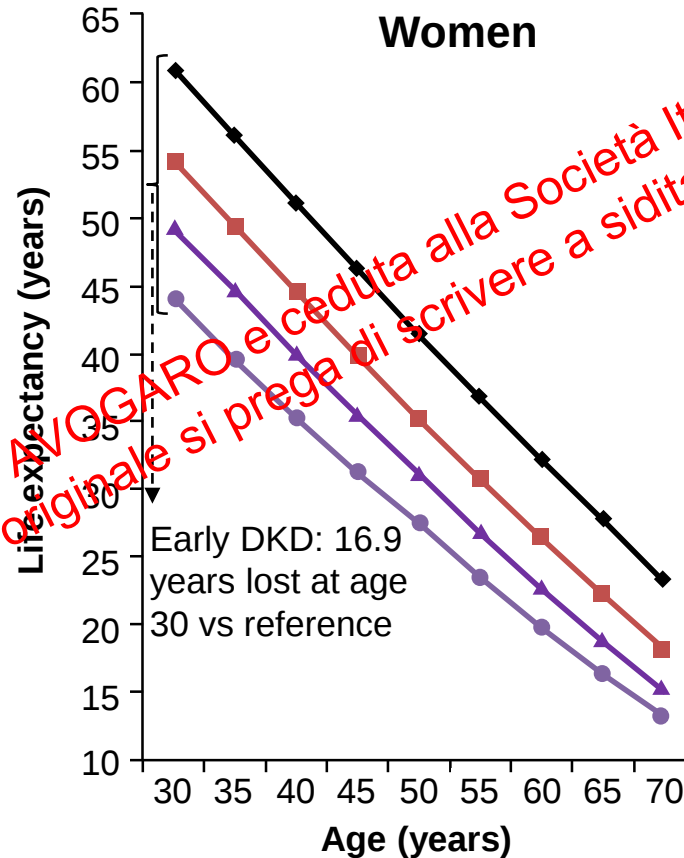
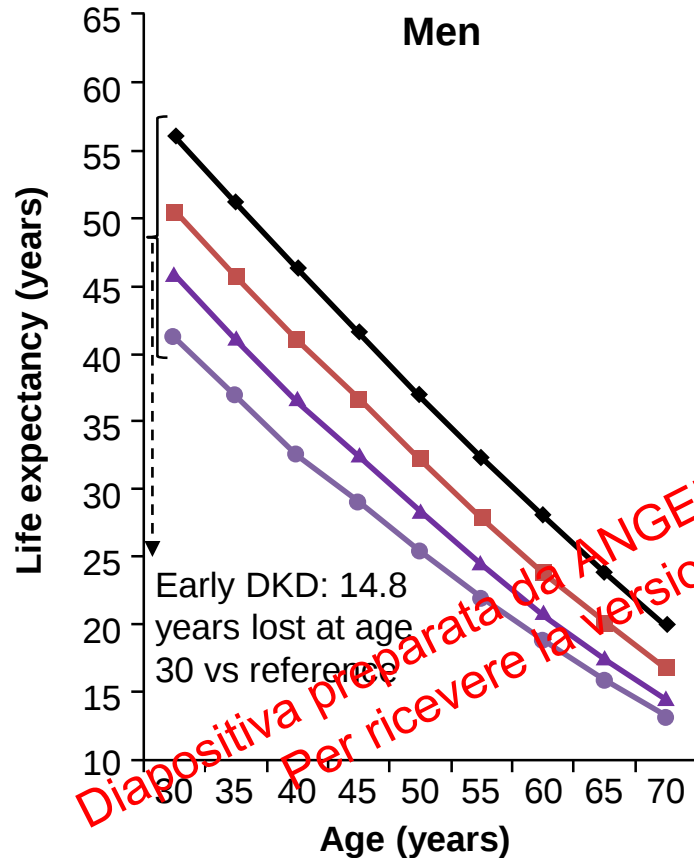
Conflitti di Interesse di Angelo Avogaro

Dichiaro che negli ultimi 5 anni ho ricevuto compensi per advisory board e relazioni dalle seguenti aziende.

AstraZeneca, Boehringer Ingelheim, Eli Lilly, GSK, Mundipharma, Amgen, Servier, Merck Sharp & Dohme, Novartis, Novo Nordisk, Sanofi, e Takeda.

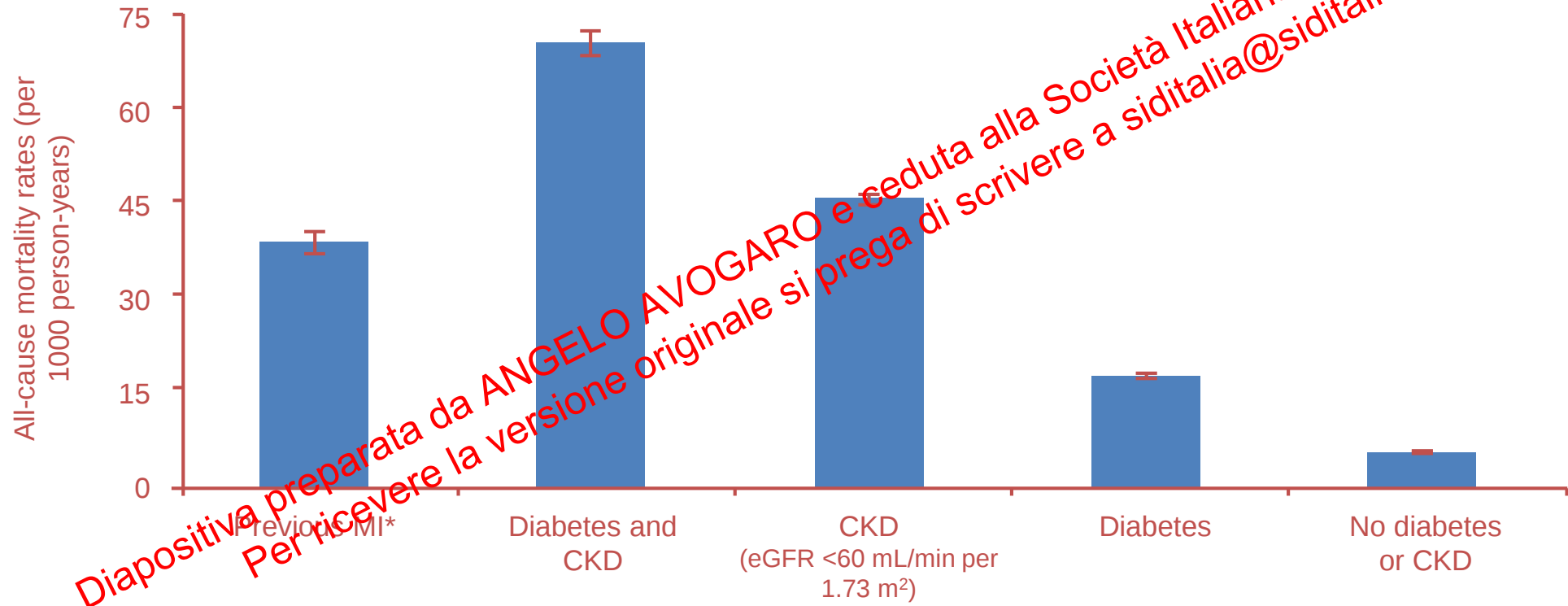
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Diabetic Kidney Disease Shortens Life Span by 16 Years



- Life span loss with:
- Early CKD: 6 years
 - Diabetes: 10 years
 - Early DKD: 16 years

Renal disease is associated with increased all-cause mortality



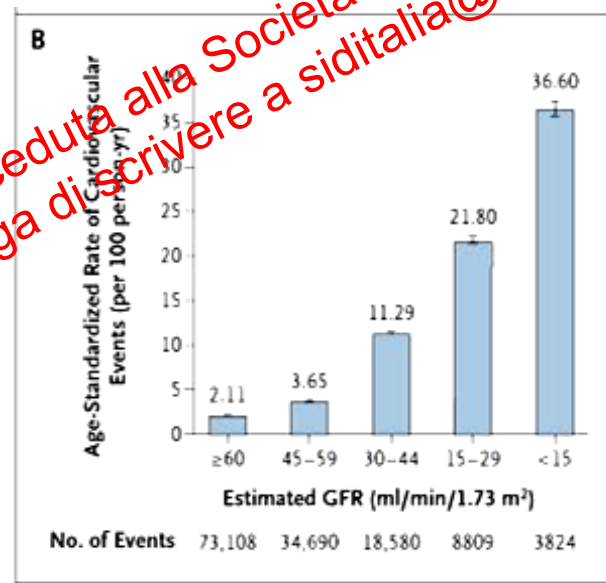
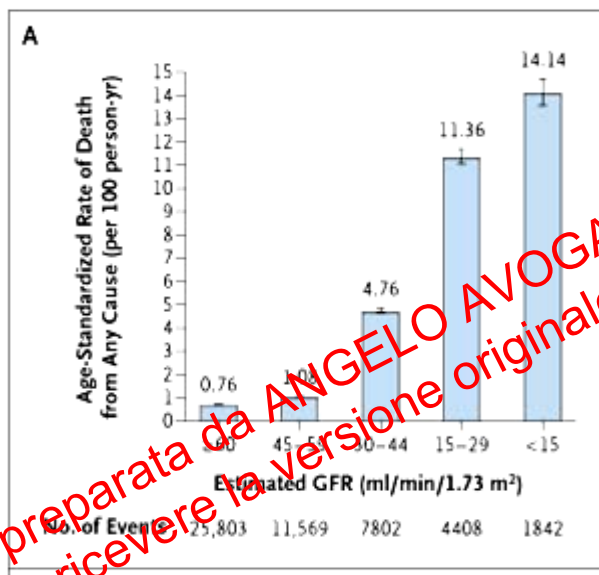
CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; MI, myocardial infarction

*Includes participants with or without diabetes and chronic kidney disease

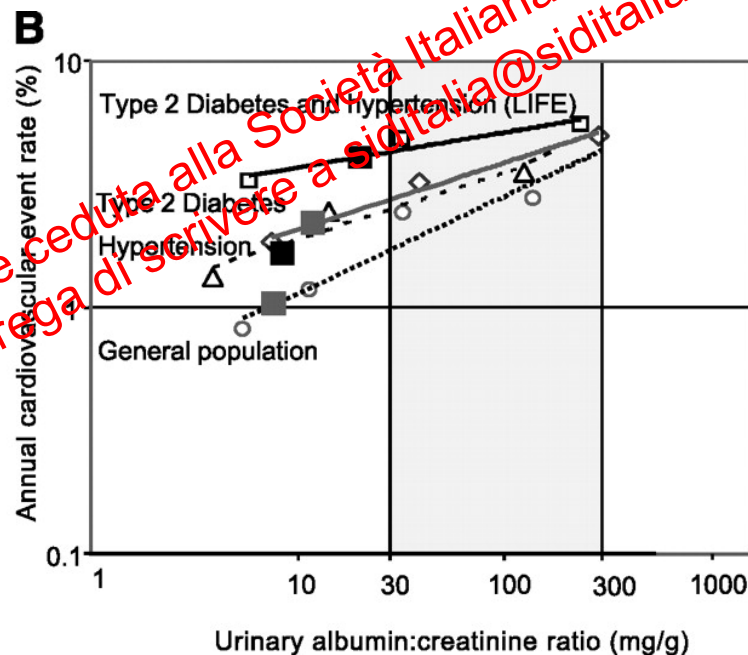
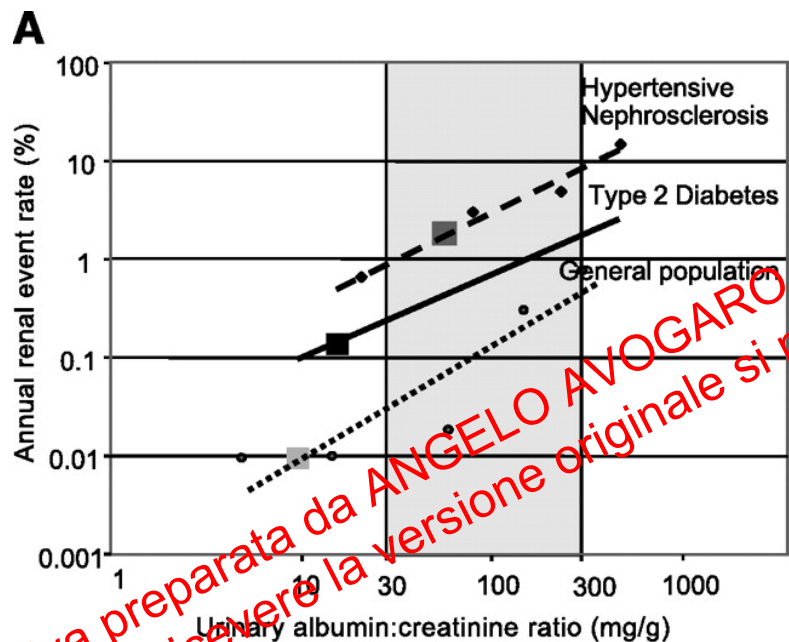
Tonelli et al. *Lancet* 2012;380(9844):807–14.



Age-Standardized Rates of Death from Any Cause and Cardiovascular Events, According to the Estimated GFR



Association between albuminuria level and the risk for renal outcomes in different populations.

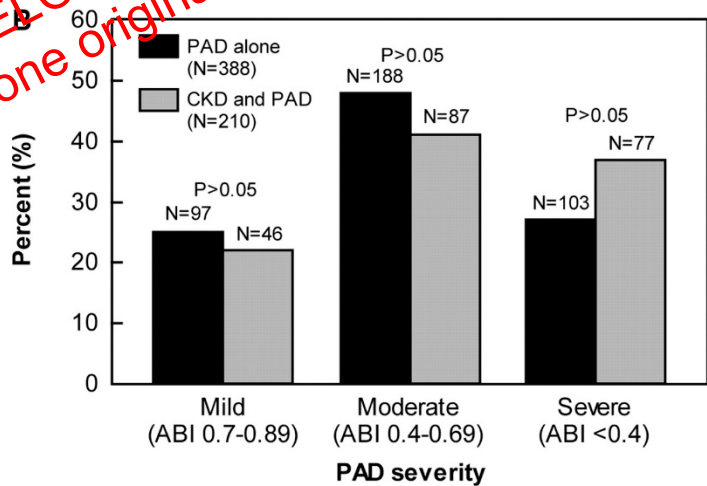
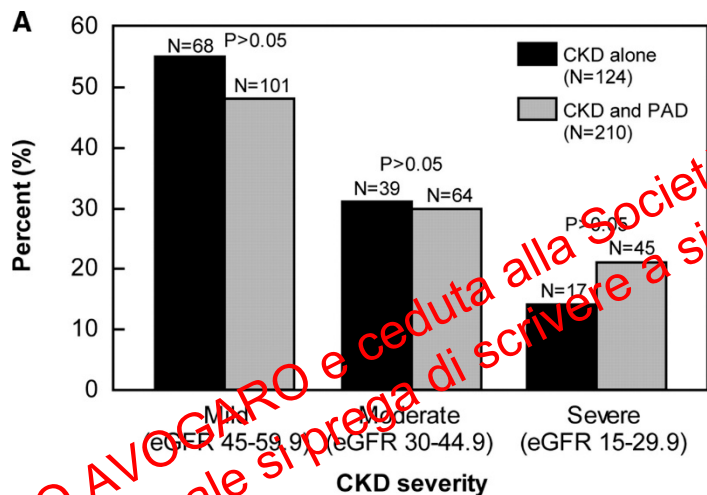


**Prognosis of CKD by GFR
and Albuminuria Categories**

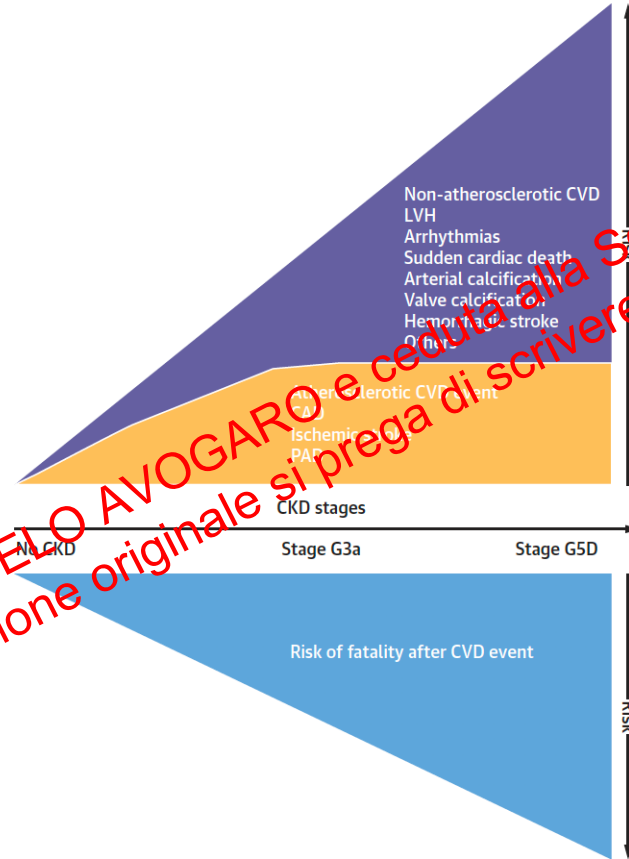
				Albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30-299 mg/g 3-29 mg/mmol	≥300 mg/g ≥30 mg/mmol
GFR categories (ml/min/1.73 m ²) Description and range	G1	Normal or high	≥90	Green	Yellow	Orange
	G2	Mildly decreased	60-89	Green	Yellow	Orange
	G3a	Mildly to moderately decreased	45-59	Yellow	Orange	Red
	G3b	Moderately to severely decreased	30-44	Orange	Red	Red
	G4	Severely decreased	15-29	Red	Red	Red
	G5	Kidney failure	<15	Red	Red	Red
Green: low risk (if no other markers of kidney disease, no CKD); Yellow: moderately increased risk; Orange: high risk; Red, very high risk. KDIGO 2012						



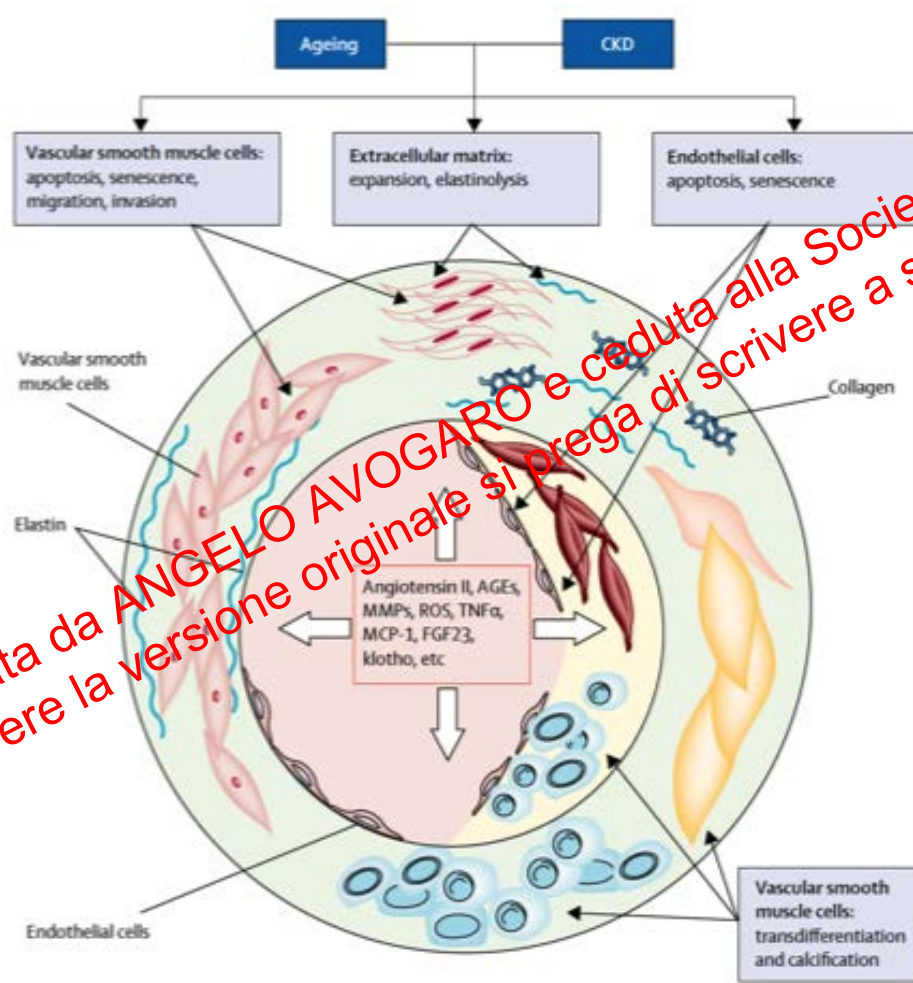
(A) Distributions of chronic kidney disease (CKD) severity in the single disease CKD group and the combined CKD and peripheral arterial disease (PAD) disease group.



CENTRAL ILLUSTRATION Changes in Cardiovascular Disease Risk During Chronic Kidney Disease Progression

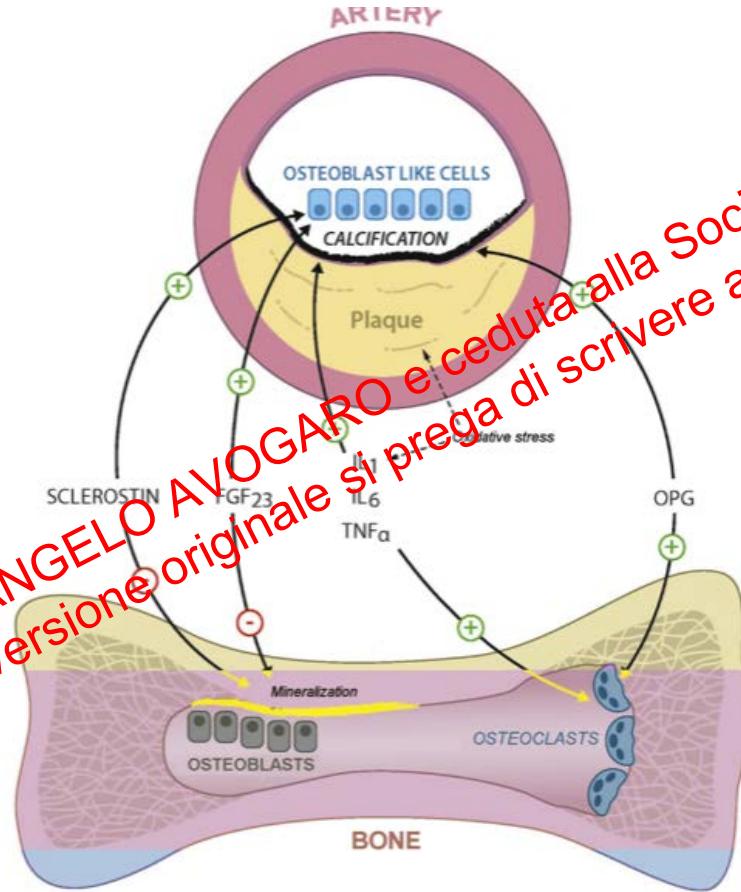


Main causes of vascular ageing in CKD



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Vicious cycle of Osteoporosis and atherosclerosis



The role of circulating calcifying cells in the bone-vascular axis

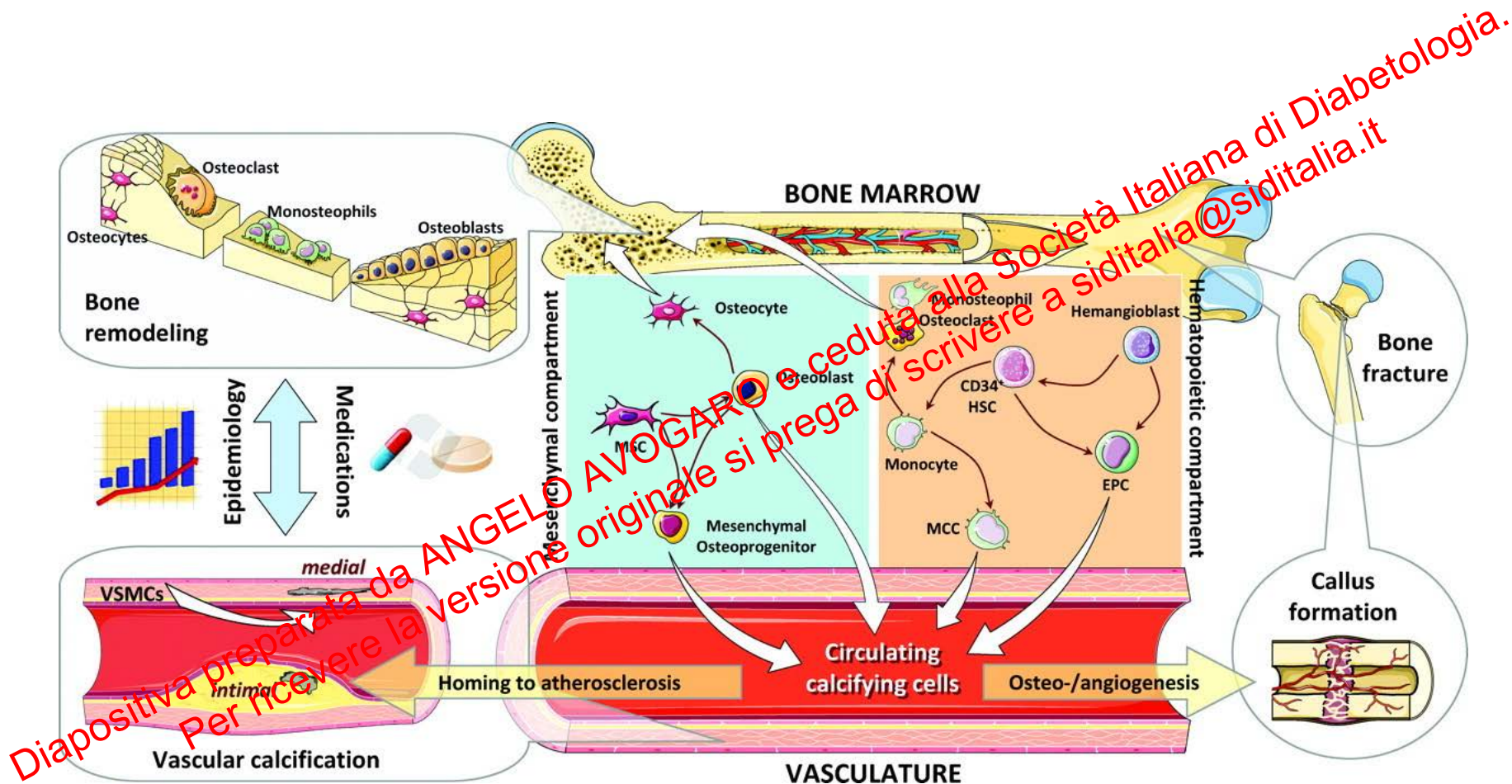
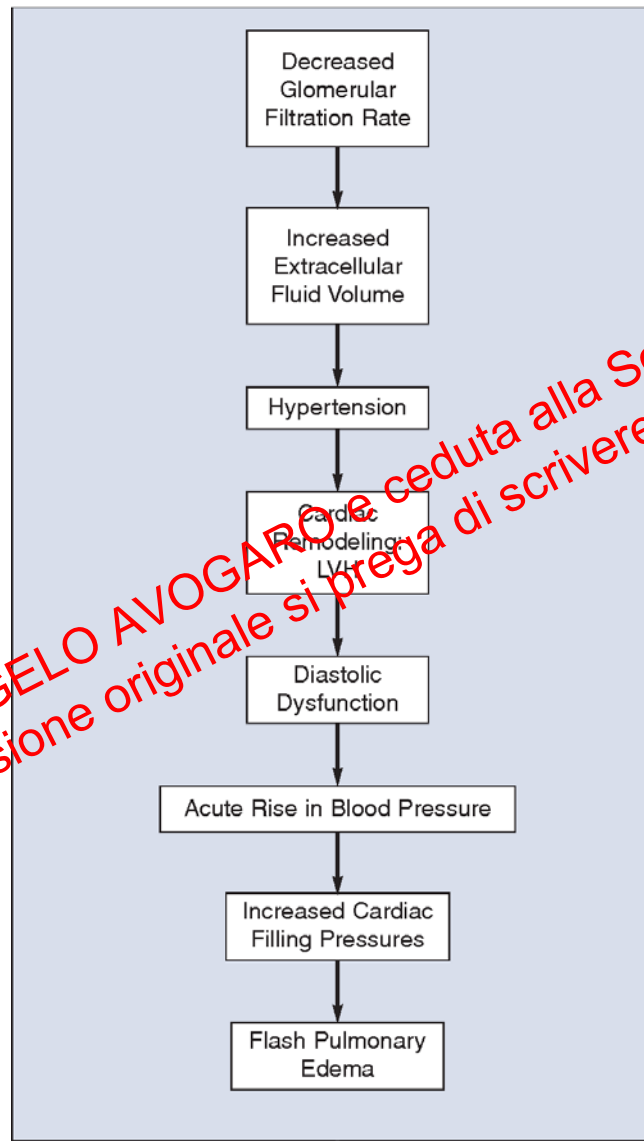


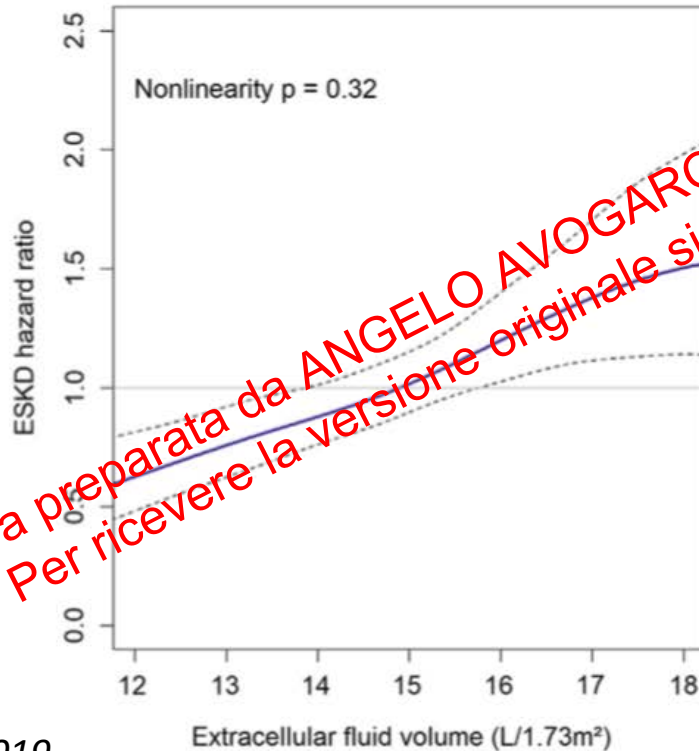
Figure 3
Pathogenesis of Diastolic Heart Failure in CKD



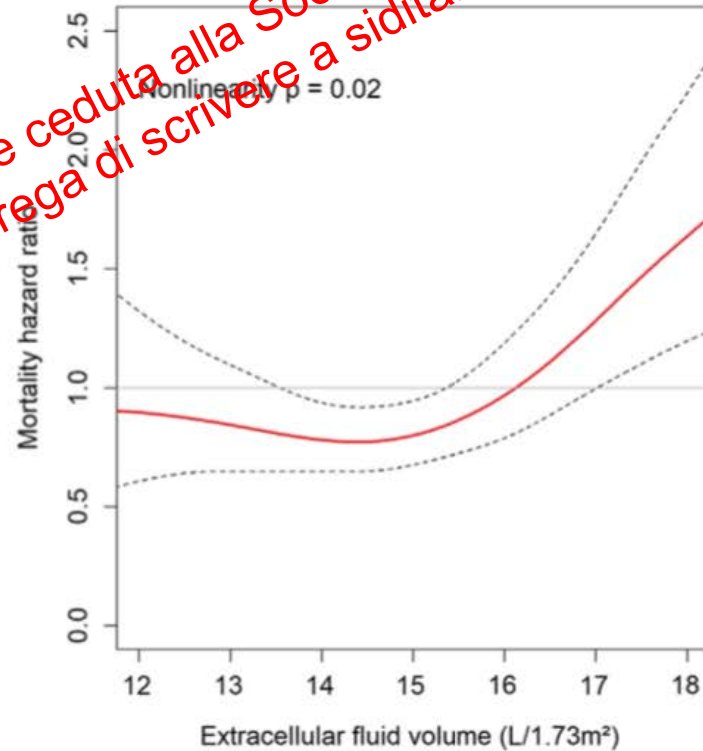
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Estimated adjusted hazard ratios and 95% confidence intervals for the association of ECF with end-stage kidney disease (ESKD) and with mortality

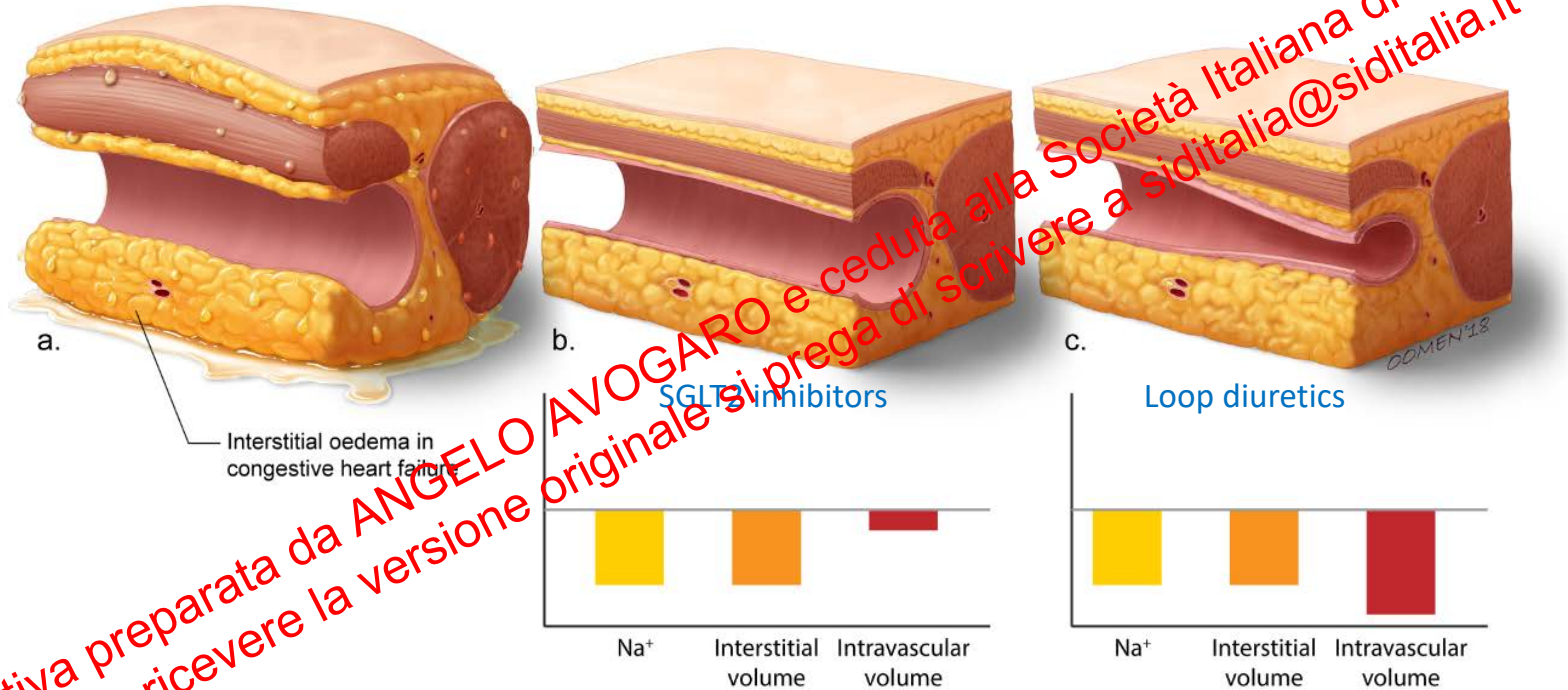
Estimated adjusted hazard ratio for the association of ECF with ESKD



Estimated adjusted hazard ratio for the association of ECF with mortality

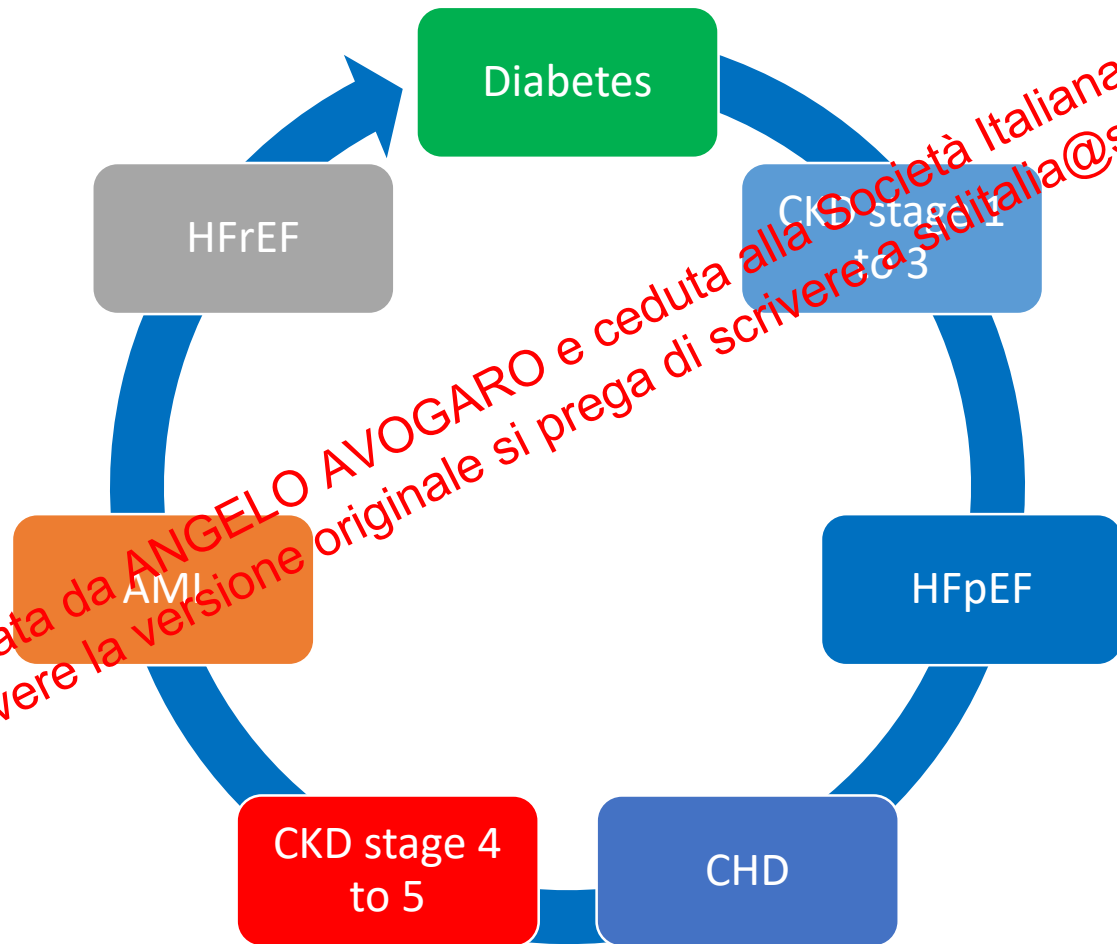


SGLT2 inhibitors may differentially regulate the interstitial vs intravascular compartment when compared with loop diuretics



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The cardio-renal continuum



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Risk enhancers in Diabetes



AMERICAN
COLLEGE of
CARDIOLOGY®

Long duration (≥ 10 years for type 2 diabetes mellitus^{S4.3-20} or ≥ 20 years for type 1 diabetes mellitus^{S4.3-6})

Albuminuria ≥ 30 mcg of albumin/mg creatinine^{S4.3-25}

eGFR < 60 mL/min/1.73 m²^{S4.3-25}

Retinopathy^{S4.3-19}

Neuropathy^{S4.3-16}

ABI < 0.9 ^{S4.3-22, S4.3-24}

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