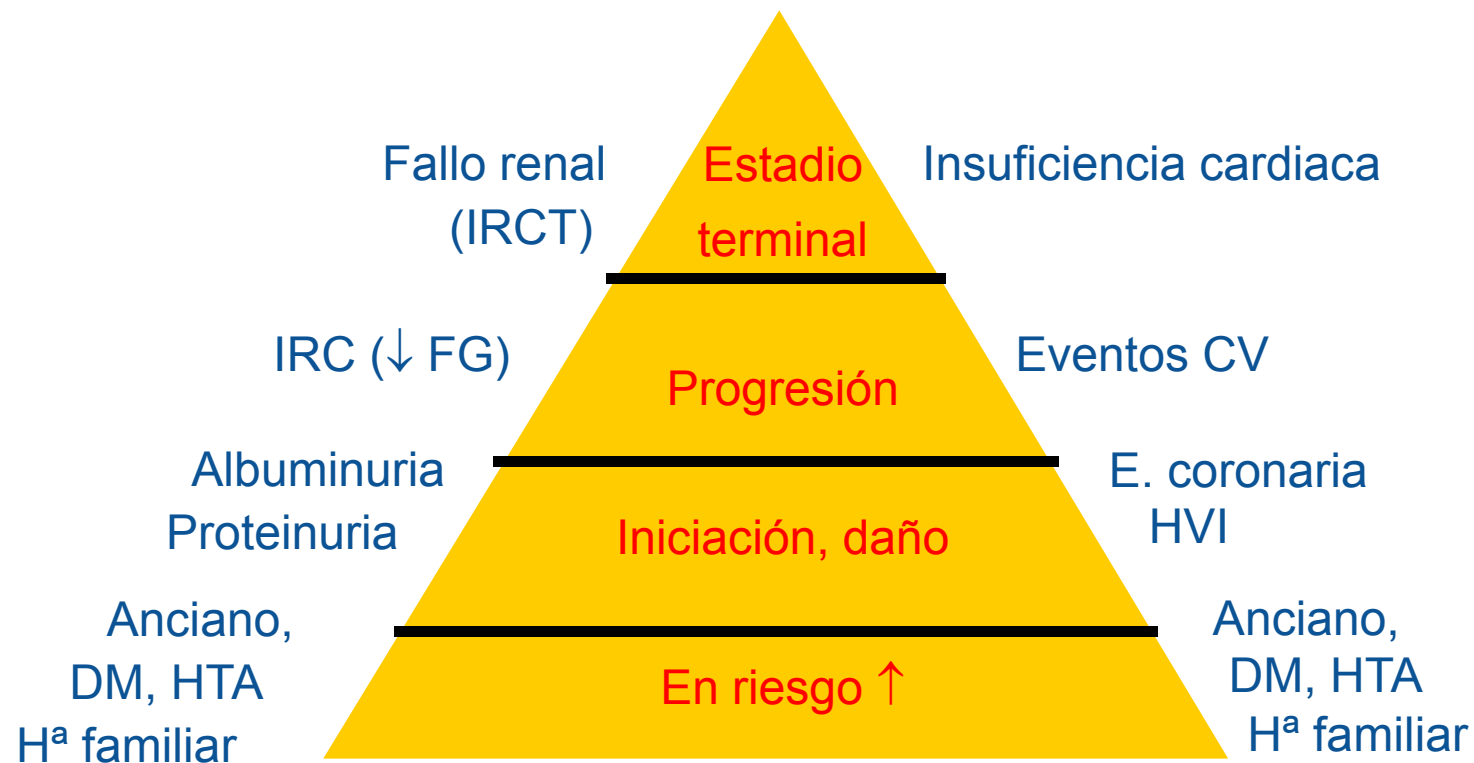




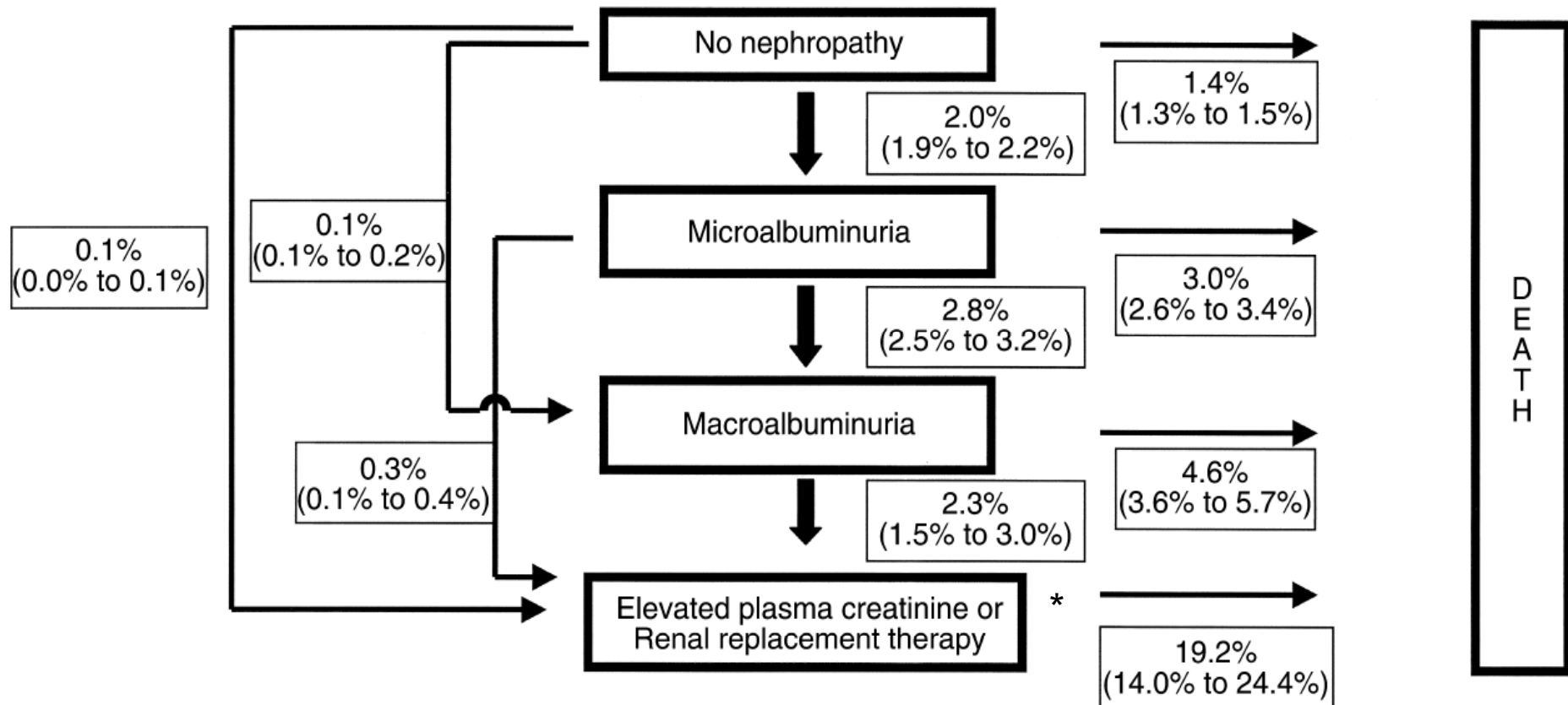
# Prevalença nefropatía diabètica i variables relacionades

Gabriel Coll de Tuero  
CAP Anglès, Girona  
Unitat de Recerca, IAS, Girona

# La concepció clàssica de la malaltia renal



# Que en els pacients amb diabetis tipus 2 no és així



\*Creat  $\geq 2$  mg/dL

Adler AI, et al. *Kidney International*, Vol. 63 (2003), pp. 225–232

# Renal Insufficiency in the Absence of Albuminuria and Retinopathy Among Adults With Type 2 Diabetes Mellitus

Holly J. Kramer, MD, MPH

Quan Dong Nguyen, MD, MSc

Gary Curhan, MD, ScD

Chi-yuan Hsu, MD, MSc

**E**ND-STAGE RENAL DISEASE (ESRD) in adults with type 2 diabetes mellitus (DM) represents a medical problem with worldwide dimensions.<sup>1</sup> Currently, approximately 40% of all prevalent ESRD cases and almost half of all new cases in the United States are attributed to type 2 DM.<sup>2</sup> Due to the increasing incidence of type 2 DM and the increased survival of these individuals due to improved medical treatment,<sup>3</sup> the number of patients with ESRD is expected to double over the next decade, with costs escalating to \$28 billion.<sup>4</sup>

Most of our knowledge concerning the nature of kidney disease in adults with type 2 DM is derived from studies of patients with type 1 DM.<sup>5-7</sup> The classic clinical course of type 1 diabetic nephropathy (glomerulosclerosis) is described as the development of microalbuminuria, which eventually leads to macroalbuminuria and then to progres-

**Context** Kidney disease in type 2 diabetes mellitus (DM) is more heterogeneous than in type 1 DM. Reduced glomerular filtration rate (GFR) among individuals with type 2 DM may not always be due to classic diabetic glomerulosclerosis, which is associated with albuminuria and retinopathy.

**Objective** To determine the prevalence of chronic renal insufficiency (CRI), defined as a GFR less than 60 mL/min per 1.73 m<sup>2</sup> body surface area (BSA) in the absence of microalbuminuria or macroalbuminuria and diabetic retinopathy among adults with type 2 DM.

**Design, Setting, and Participants** Cross-sectional analysis of adults aged 40 years or older with type 2 DM in the Third National Health and Nutrition Examination Survey, a probability sample of the total civilian US noninstitutionalized population conducted from 1988-1994.

**Main Outcome Measures** The GFR per 1.73 m<sup>2</sup> BSA, calculated with serum creatinine, urea nitrogen, and serum albumin levels using the Modification of Diet in Renal Disease Study prediction equation; albuminuria, assessed using spot urine albumin/creatinine ratio; and presence of retinopathy, determined with fundus photography.

**Results** Overall, 13% (sampled n=171) of adults with type 2 DM (n=1197) had CRI with a population estimate of 1.1 million. Among these adults with CRI, diabetic retinopathy was noted in 28% (n=58), while the frequencies of microalbuminuria and macroalbuminuria were 45% (n=64) and 19% (n=47), respectively. Retinopathy and albuminuria (microalbuminuria or macroalbuminuria) were both absent in 30% (n=51) of adults with type 2 DM and CRI. The population estimate of adults with type 2 DM and CRI in the absence of diabetic retinopathy or albuminuria was approximately 0.3 million.

**Conclusions** A substantial burden of CRI among persons with type 2 DM in the United States is likely due to renal parenchymal disease other than classic diabetic glomerulosclerosis. Approaches to screening renal disease in the type 2 DM population should incorporate assessment of GFR in addition to monitoring urine albumin excretion and fundoscopic changes to ensure that individuals with type 2 DM and CRI not due to diabetic glomerulosclerosis will receive appropriate intervention.

**Table 3.** Presence of Microalbuminuria and Macroalbuminuria and Retinopathy in Subjects With Type 2 Diabetes Mellitus With Chronic Renal Insufficiency\*

	Subjects With Type 2 Diabetes Mellitus, % (95% Confidence Interval)†	Population Estimate in Millions (95% Confidence Interval)
Microalbuminuria (sampled n = 64)	45 (31-59)	0.6 (0.3-0.7)
Macroalbuminuria (sampled n = 47)	19 (10-28)	0.2 (0.1-0.3)
Retinopathy (sampled n = 58)	28 (21-36)	0.3 (0.2-0.4)
No retinopathy or albuminuria (sampled n = 51)‡	30 (21-39)	0.3 (0.2-0.4)

\*Includes angiotensin-converting enzyme users. Chronic renal insufficiency defined as glomerular filtration rate less than 60 mL/min per 1.73 m<sup>2</sup> body surface area calculated with the Modification of Diet in Renal Disease Study formula.<sup>19</sup>

†Newly diagnosed type 2 diabetes mellitus defined by American Diabetes Association criteria.<sup>13</sup> Percentages are based on weighted data.

‡Albuminuria includes microalbuminuria or macroalbuminuria.

# Definició de malaltia renal i formes de malaltia renal

# Formes de malaltia renal

## Insuficiència renal:

- \* creatinina  $> 1,4$  mg/dl en dones i  $> 1,5$  mg/dl en homes
- \* filtrat glomerular estimat  $< 60$  ml/min/1,73 m<sup>2</sup> per les equacions de CKD-EPI, MDRD o de Cockcroft-Gault

## Malaltia renal:

- \* presència de filtrat glomerular  $< 60$  ml/min/1,73 m<sup>2</sup> o excreció urinària d'albumina elevada  $> 30$  mg/gr

# La MA NO equival a nefropatia diabètica

## En DM 2

- Excrecció urinària d'albumina  $> 300$  mg/gr (Macroalbuminuria)

ó

- Excrecció urinària d'albumina  $> 30$  mg/gr (Microalbuminuria)

i

Retinopatia diabètica

## En DM 1

- Els mateixos criteris però s'exigieix retinopatia diabètica o  $> 10$  anys d'evolució.



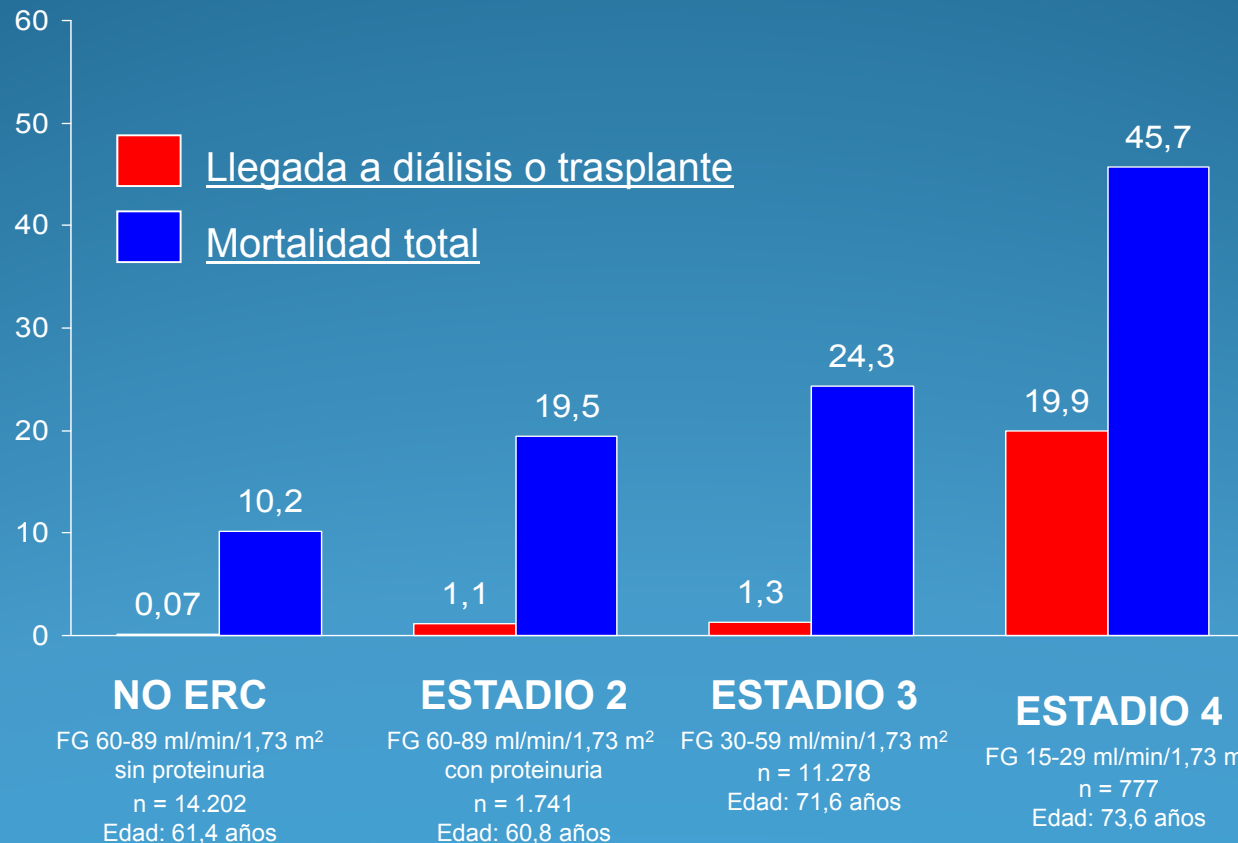
# Estadis de la malaltia renal crònica

Estadi*	Filtrat Glomerular estimat (FGe) (ml/min/1,73m <sup>2</sup> )	Descripció
1	≥ 90	Dany renal amb FGe normal
2	60-89	Dany renal con lleuger descens del FGe
3A	45-59	Disminució moderada del FGe, amb o sense altre dany renal
3B	30-44	
4	15-29	Disminució greu del FGe, amb o sense altre dany renal
5	< 15	Insuficiència renal terminal o necessitat de tractament substitutiu renal

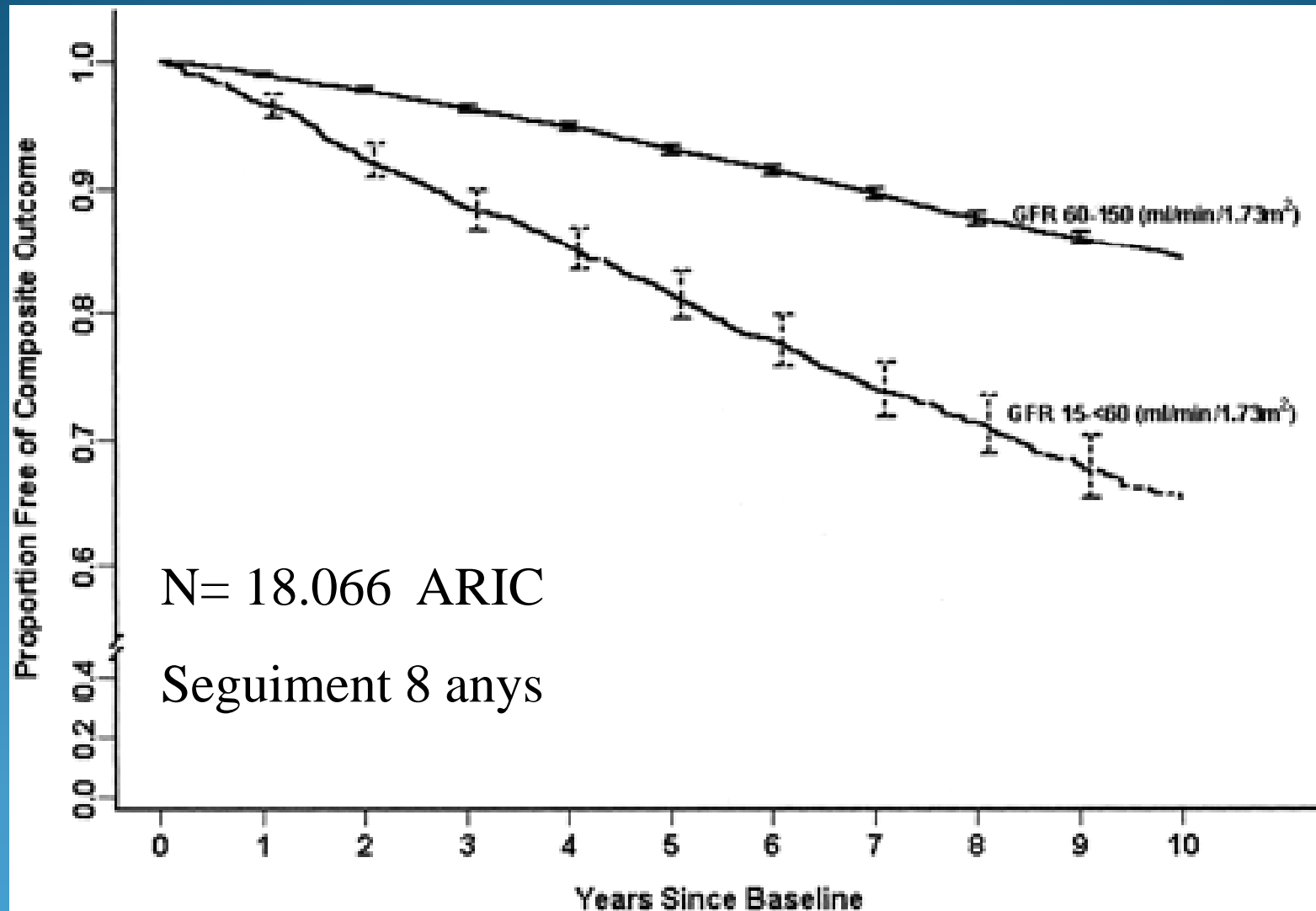
\* Afegir el sufix “p” si hi ha presència de proteinúria

# Malaltia renal en població general: insuficiència renal terminal i mortalitat total

Estudio observacional a 5 años en población con FG <90 ml/min/1,73 m<sup>2</sup> (N = 27.998)

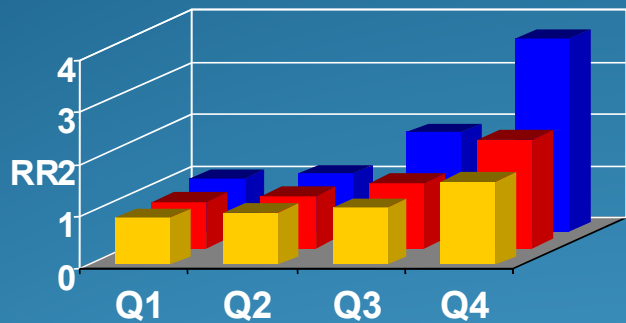


# Insuficiència renal en població general: morbimortalitat CV



# Microalbuminuria a la població general i els pacients amb DM

## Población general



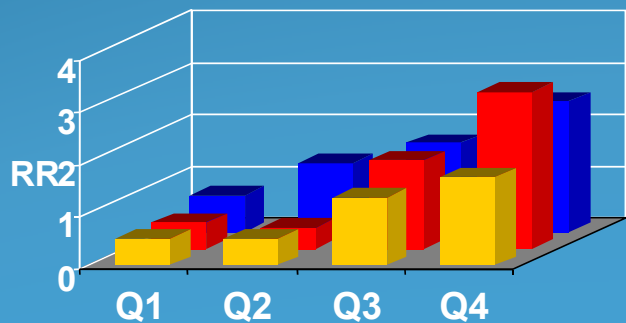
Microalbuminuria clínica  
Cociente A/Cr  $\geq 2 \mu\text{g}/\text{mmol}$

- IAM, AVC o muerte CV
- Mortalidad
- Ingreso por IC

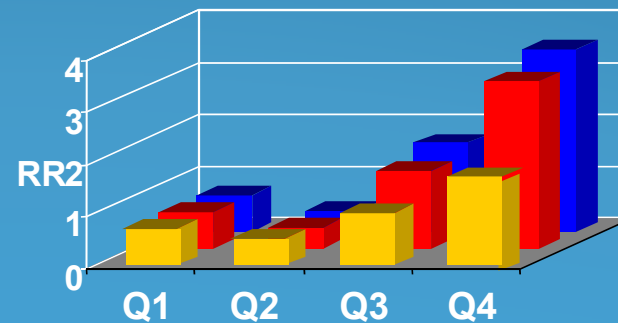
n= 9493 ; 3498 DM2. HOPE

Seguiment:4,5 anys

## No diabéticos



## Diabéticos

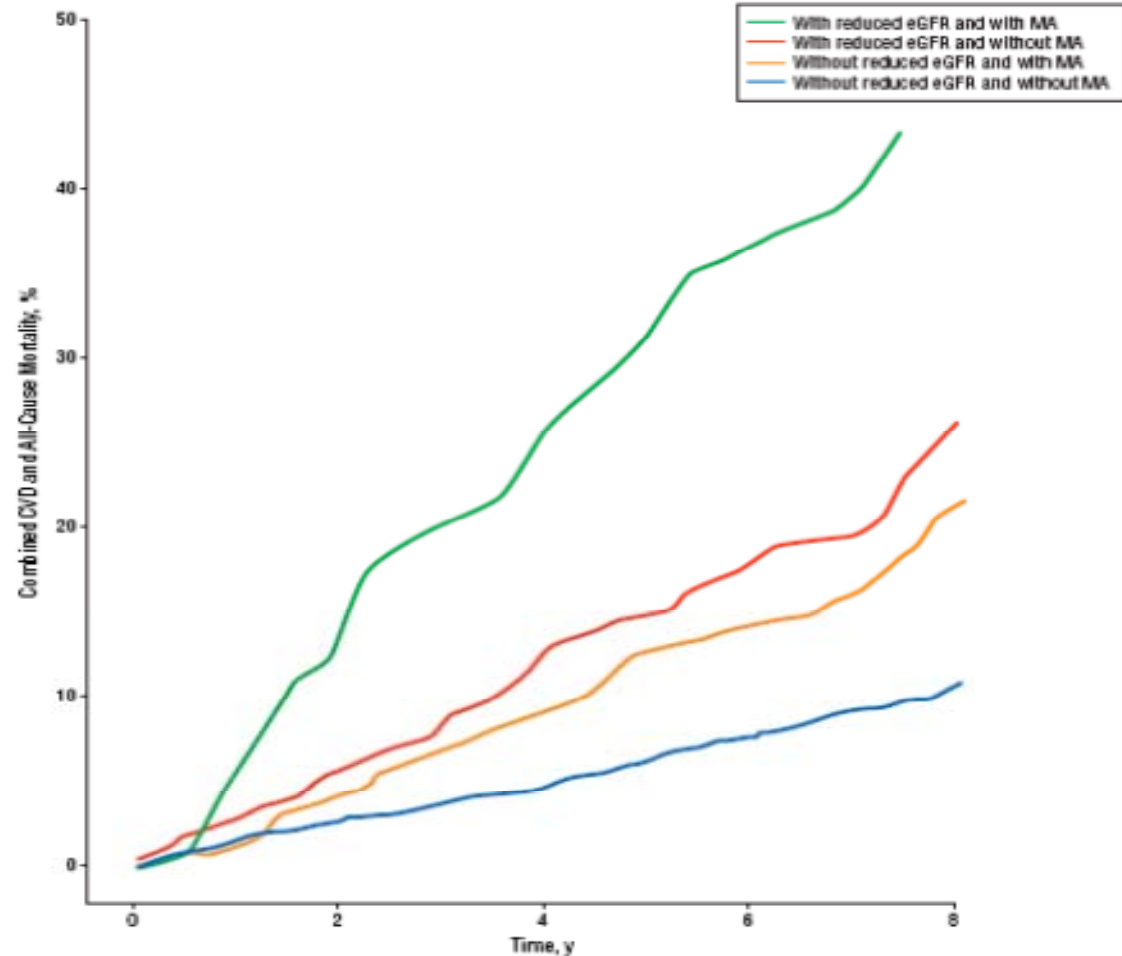


MA  
↓

Gerstein HC et al. JAMA 2001;286:421-6.

# IR i MA a la població general

N= 2966.  
Framingham  
Seguiment:  
8 anys



	0	2	4	6	8
With reduced eGFR and with MA	83	69	59	50	
With reduced eGFR and without MA	212	198	181	140	
Without reduced eGFR and with MA	279	266	250	237	
Without reduced eGFR and without MA	2392	2322	2261	2195	

Foster MC, et al. Arch Intern Med. 2007; 167:1386-92

# MRC i risc de mortalitat cardiovascular

<b>EUA</b>	<b>FGe <math>\geq 60</math></b> (ml/min/1,73m <sup>2</sup> )	<b>FGe 45-59</b> (ml/min/1,73m <sup>2</sup> )	<b>FGe 30-44</b> (ml/min/1,73m <sup>2</sup> )	<b>FGe 15-29</b> (ml/min/1,73m <sup>2</sup> )
<b>Normal</b>	1,0	1,4	1,8	1,9
<b>Microalbuminúria</b>	1,1	1,8	2,3	2,9
<b>Proteinúria</b>	2,0	3,1	4,5	4,0

EUA: Excreció urinària d'albúmina  
FGe: Filtrat glomerular estimat

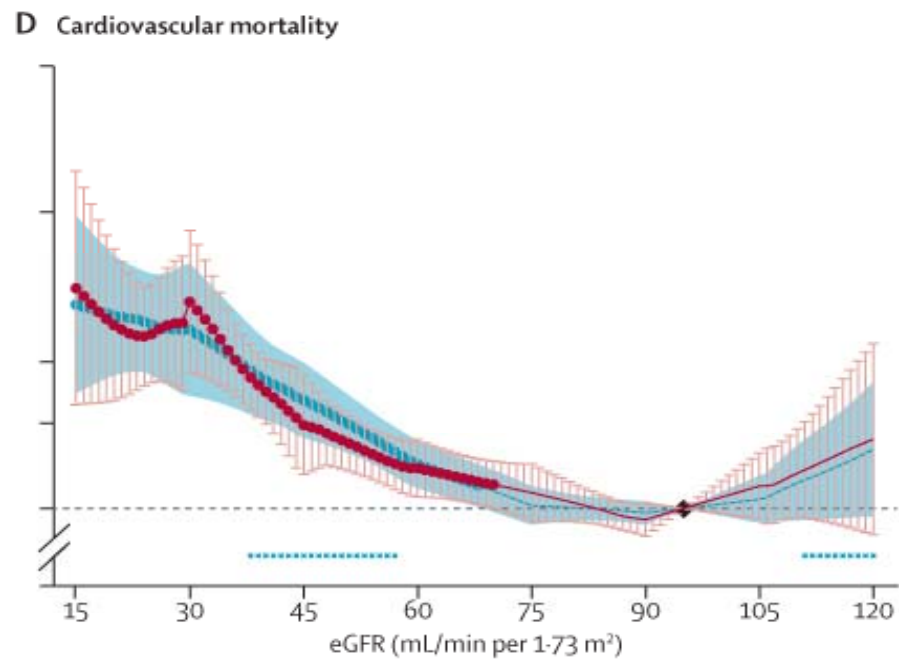
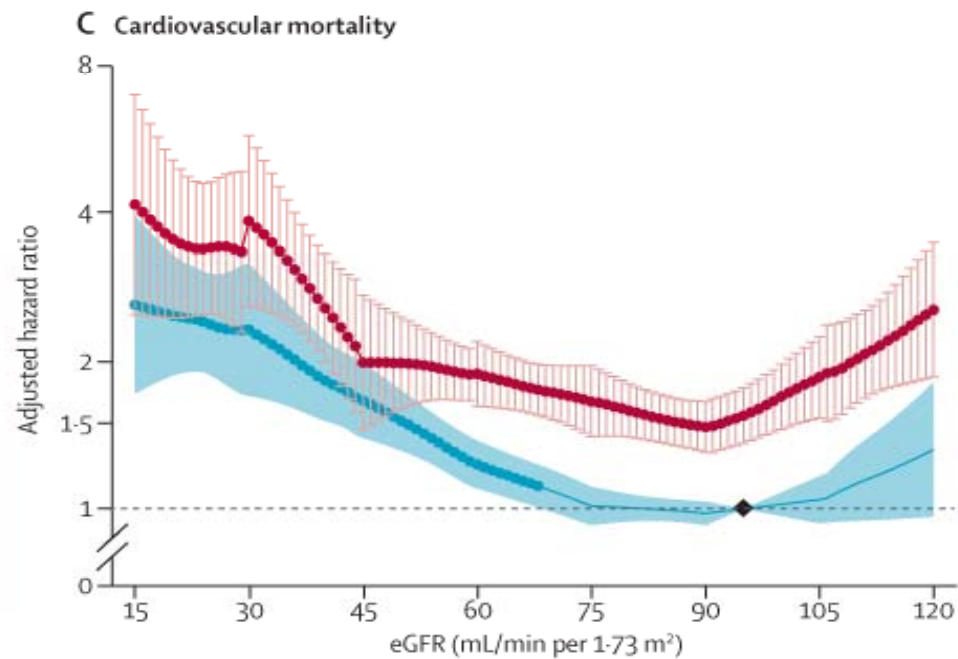
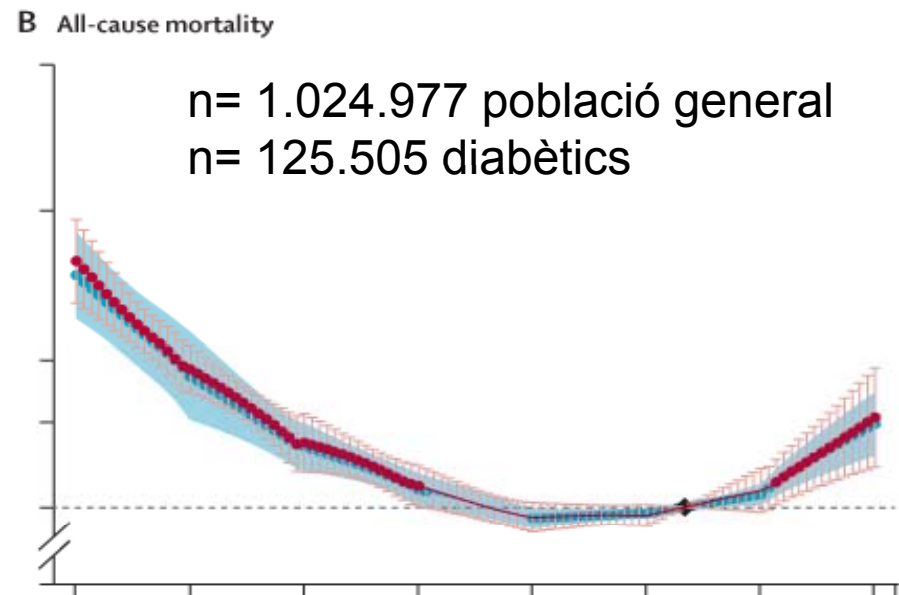
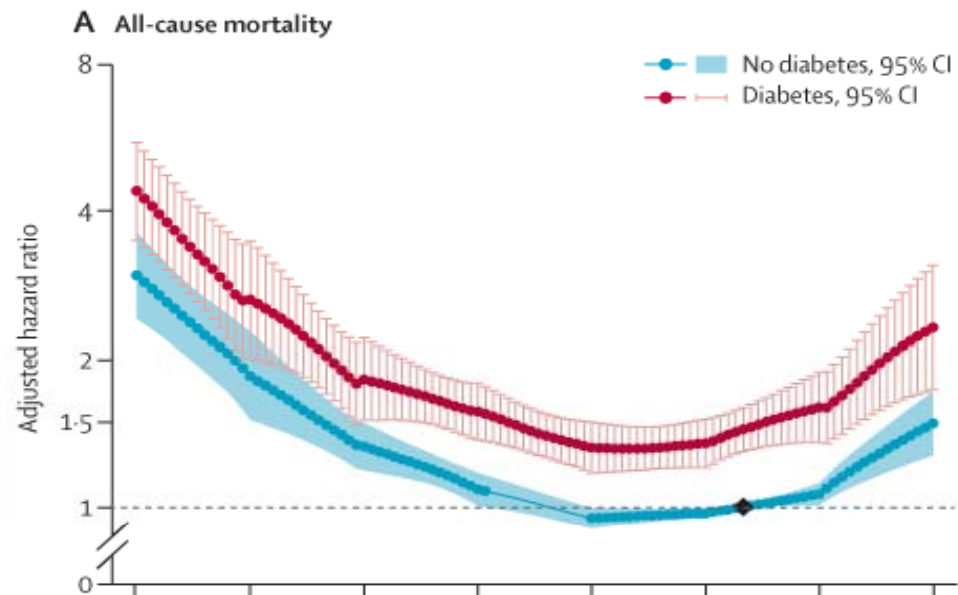
# MRC i risc de progressió a insuficiència renal terminal

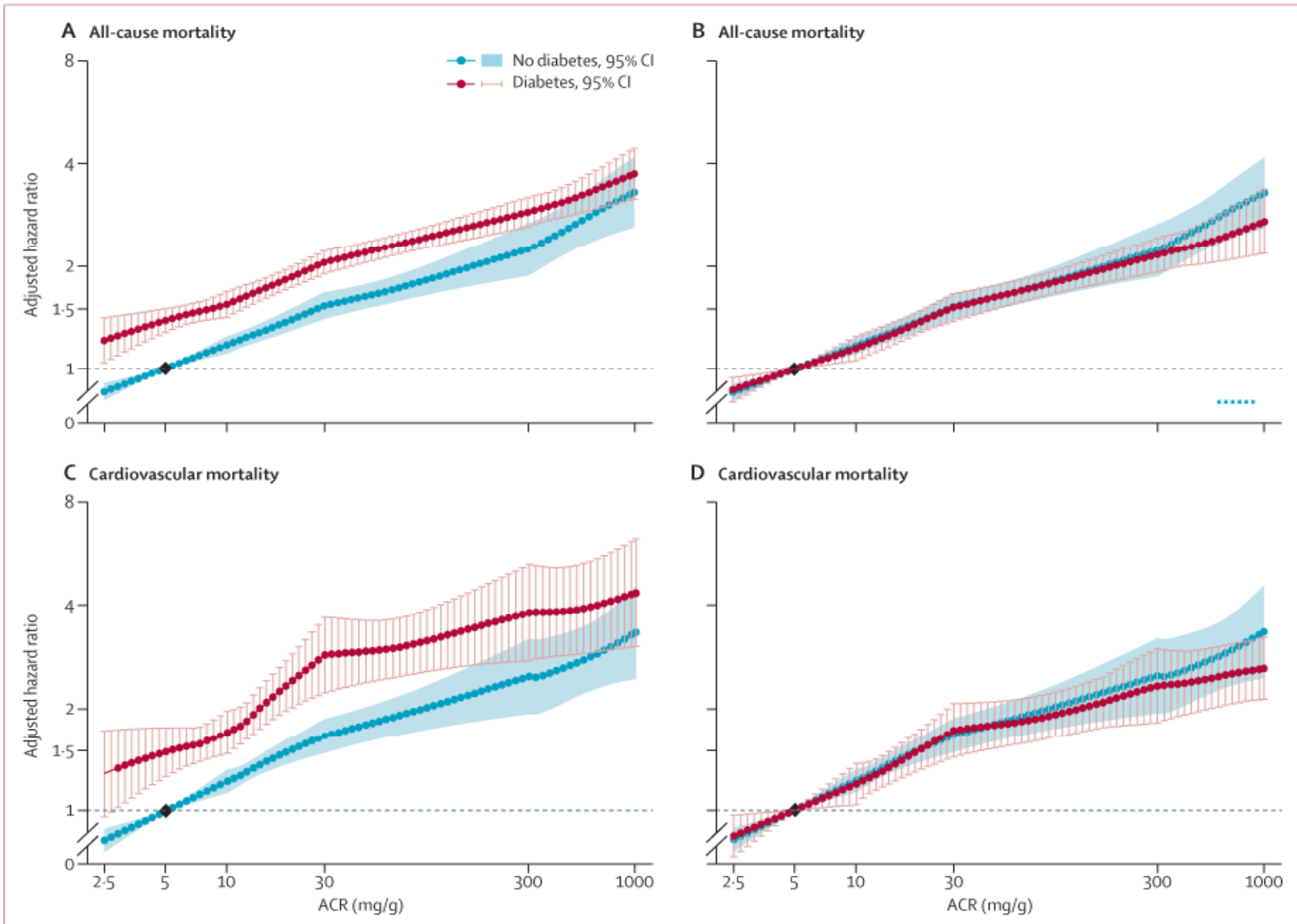
<b>EUA</b>	<b>FGe <math>\geq 60</math></b> (ml/min/1,73m <sup>2</sup> )	<b>FGe 45-59</b> (ml/min/1,73m <sup>2</sup> )	<b>FGe 30-44</b> (ml/min/1,73m <sup>2</sup> )	<b>Fue 15-29</b> (ml/min/1,73m <sup>2</sup> )
<b>Normal</b>	Molt baix	Baix	Baix	Moderat
<b>Microalbuminúria</b>	Baix	Moderat	Moderat	Alt
<b>Proteinúria</b>	Moderat	Moderat	Alt	Alt

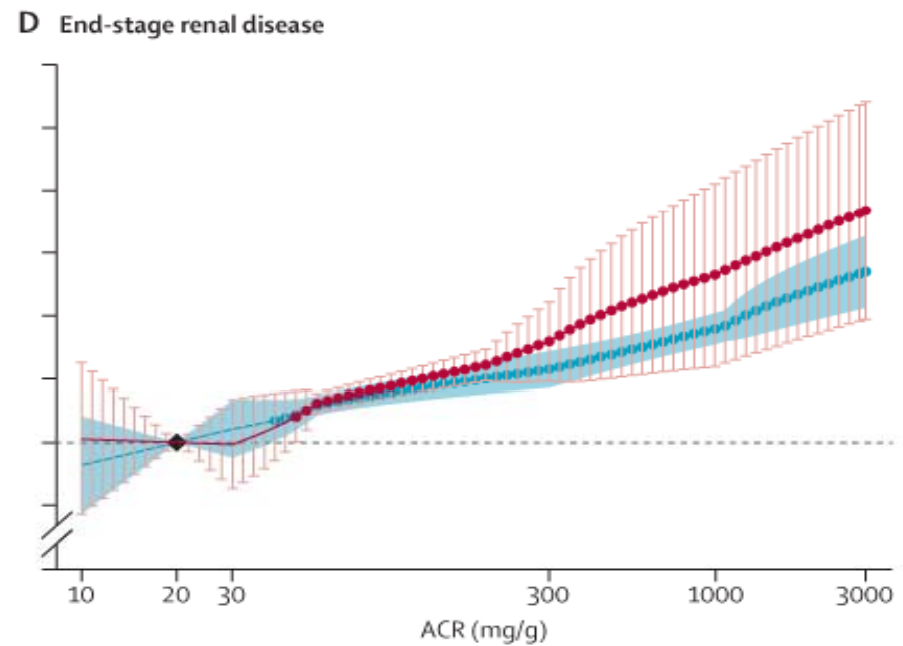
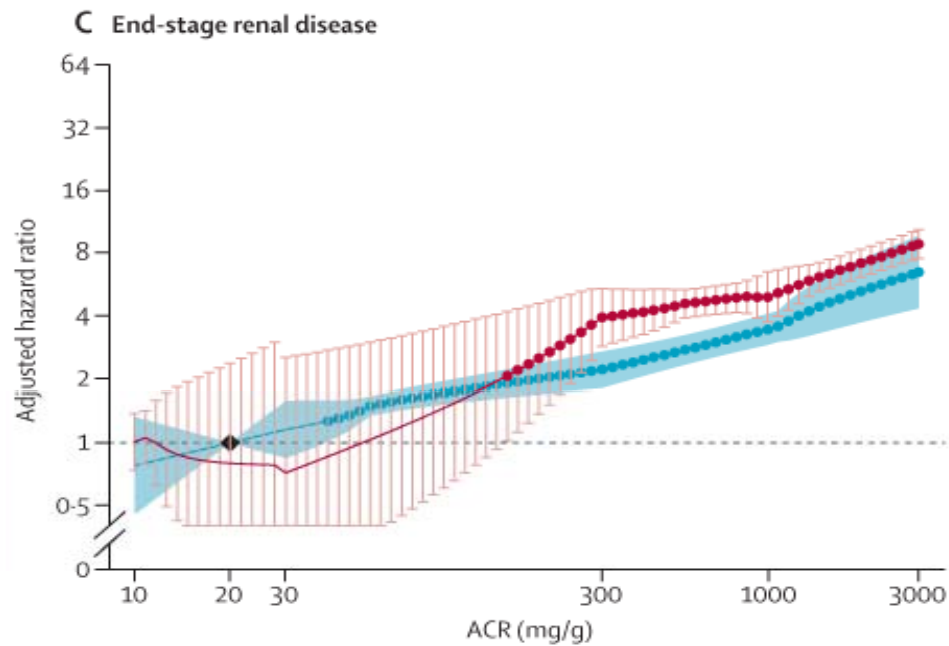
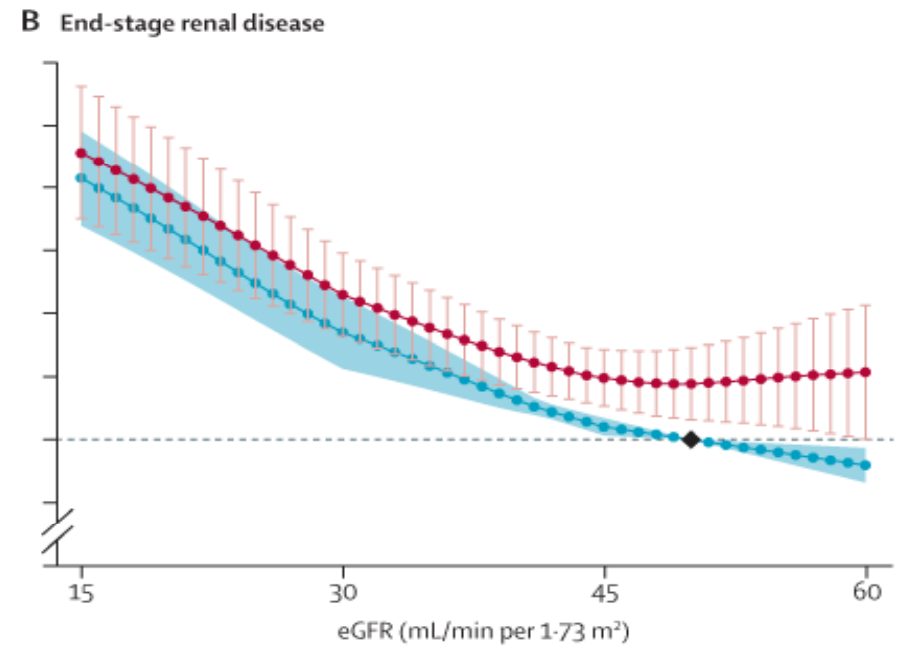
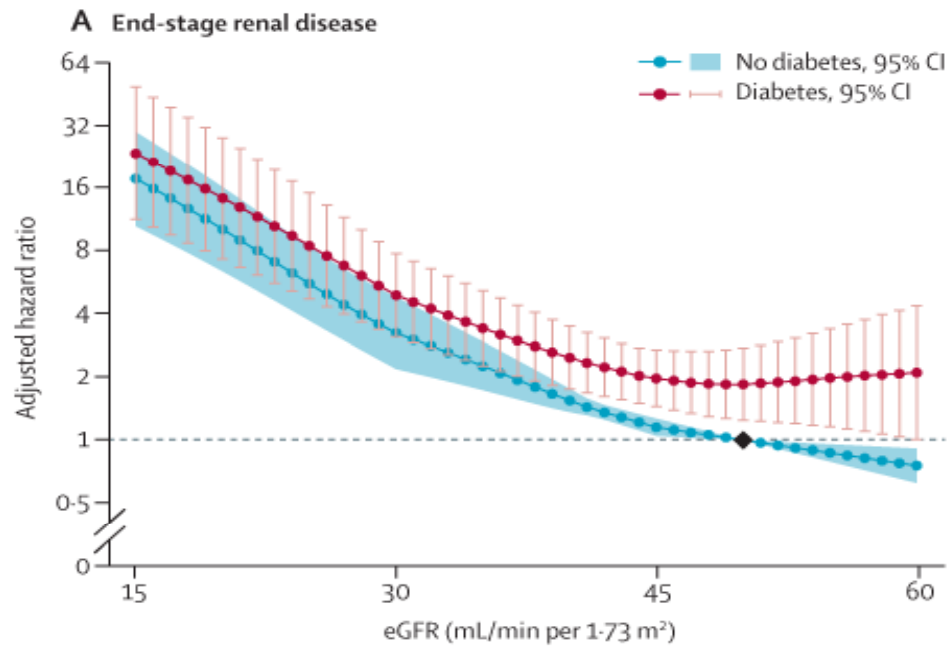
EUA: Excreció urinària d'albumina  
FGe: Filtrat glomerular estimat

I en els pacients amb diabetis?









Original

## Prevalencia de insuficiencia renal oculta y variables asociadas en una población de pacientes con diabetes tipo 2

Antonio Rodríguez-Poncelas<sup>a,b,\*</sup>, Miquel Quesada Sabate<sup>b</sup>, Gabriel Coll De Tuero<sup>a,c</sup>, Jacint Caula Ros<sup>b</sup>, Esther Gelada-Batlle<sup>a</sup>, Manuel Ángel Gómez-Marcos<sup>d</sup>, Josep Garre-Olmo<sup>c</sup>, Luis García-Ortiz<sup>d</sup>, Carme Comalada Daniel<sup>a</sup> y Rafel Ramos Blanes<sup>b</sup>

<sup>a</sup> Àrea Bàsica de Salut d'Anglès, Institut d'Assistència Sanitària de Girona, Girona, España

<sup>b</sup> Unitat de Recerca en Atenció Primària de Girona, IDIAP J Gol, Institut Català de la Salut, Girona, España

<sup>c</sup> Unitat de Recerca, Institut d'Assistència Sanitària de Girona, Girona, España

<sup>d</sup> Unidad de Investigación, Centro de Salud La Alamedilla, Salamanca, España

Estudi de la base de dades ICS de la Regió Sanitària de Girona

**Tabla 2**Características de los participantes según los valores de creatinina plasmática y el filtrado glomerular estimado según la fórmula de *Modification of Diet in Renal Disease*

	Cr normal FG normal	Cr normal FG reducido	Cr elevada FG reducido
<i>n</i> = 3.197, <i>n</i> (%)	2.665 (83,4)	321 (10,0)	211 (6,6)
Edad (años), media (DE)	65,9 (11,5)	76,3 (7,9)	76 (8,5)
Sexo (varones), <i>n</i> (%)	1.465 (54,9)	124 (36,6)	133 (63,0)
IMC (kg/m <sup>2</sup> ), media (DE)	30,3 (5,2)	29,8 (4,9)	29,8 (5,0)
Cr sérica, media (DE)	0,8 (0,1)	1,2 (0,1)	2 (0,8)
Cociente albúmina/Cr			
Media (DE), mg/g	46 (205,8)	135 (474,8)	499 (1.069,2)
Mediana (rango), mg/g	8,4 (0,1–4.409)	12,7 (1,6–4.751)	57 (0,2–5.847)
Anormal según valores de la ESH <sup>a</sup> , <i>n</i> (%)	550 (20,6)	111 (34,5)	133 (63,0)
FG según MDRD (ml/min/1,73 m <sup>2</sup> ), media (DE)	91,2 (19,4)	52,6 (5,4)	34,5 (9,5)
PAS (mmHg), media (DE)	138 (13,8)	141 (15,5)	143 (17,0)
PAD (mmHg), media (DE)	77 (8,6)	73 (8,9)	72 (9,8)
PA ≥ 130/80 mmHg, <i>n</i> (%)	2.191 (82,2)	261 (81,3)	172 (81,5)
HbA <sub>1c</sub> (%), media (DE)	6,9 (1,5)	6,75 (1,3)	6,8 (1,5)
Control de DM (HbA <sub>1c</sub> < 6,5%), <i>n</i> (%)	1.253 (47,0)	159 (49,5)	106 (50,2)
Colesterol total (mg/dl), media (DE)	191 (35,5)	192 (39,9)	178 (36,4)
cHDL (mg/dl), media (DE)	52 (13,6)	52 (13,0)	48 (14,2)
cLDL (mg/dl), media (DE)	111 (29,9)	108 (31,6)	102 (28,2)
Triglicéridos (mg/dl), media (DE)	140 (69,1)	151 (67,4)	156 (70,5)

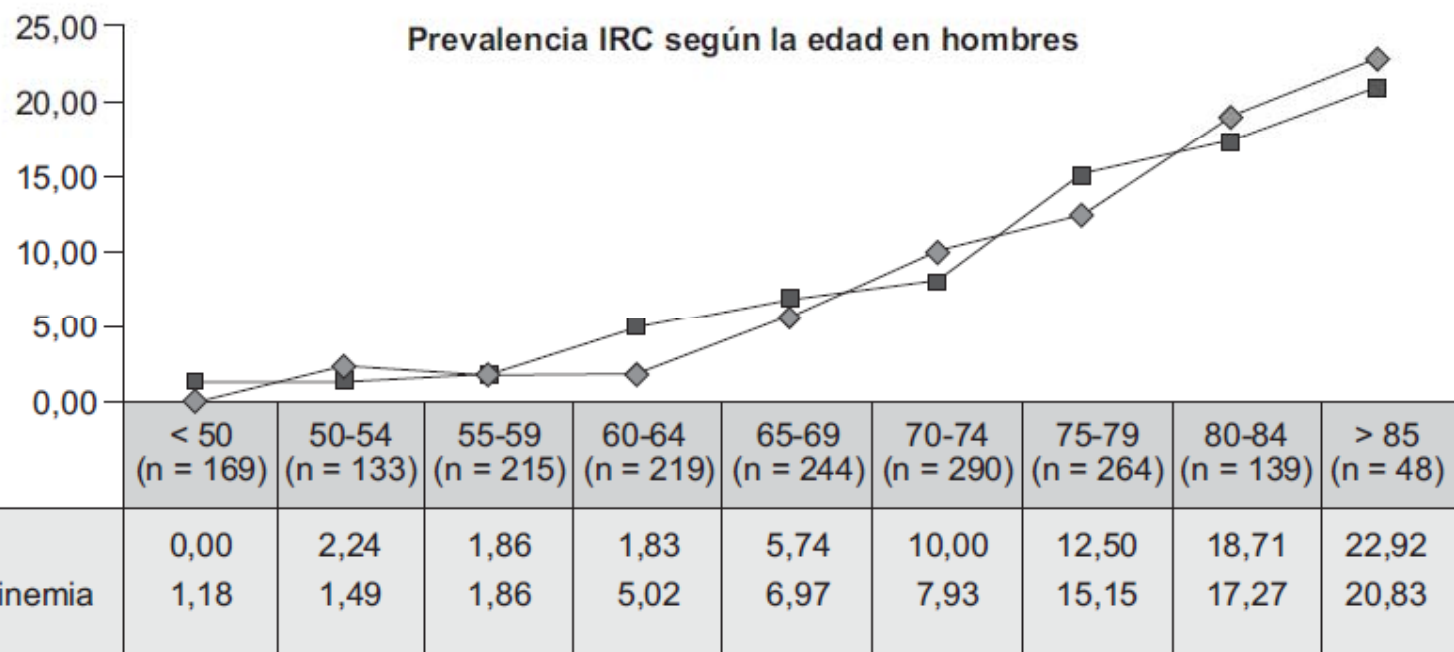
A. Rodríguez-Poncelas et al./Med Clin(Barc).2010;134:239–245

Modelos de regresión logística. Variables asociadas a la insuficiencia renal crónica y a la insuficiencia renal crónica oculta determinada con la fórmula Modification of Diet in Renal Disease de estimación del filtrado glomerular

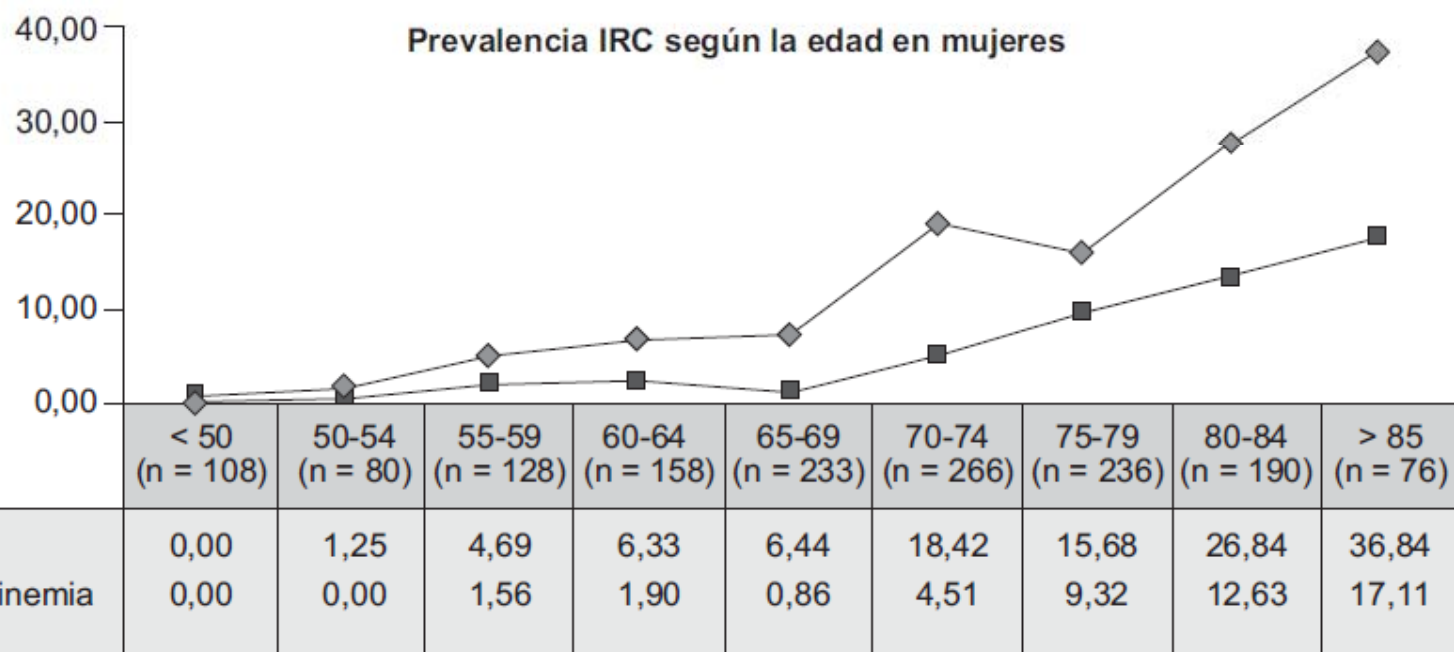
	No IRC frente a IRC		IRC frente a IRC oculta	
	OR (IC del 95%)	p	OR (IC del 95%)	p
<i>Edad, años</i>				
< 60	1		1	
60-69	2,26 (1,49-3,42)	< 0,001	1,48 (0,64-3,43)	0,356
70-74	3,42 (2,54-4,60)	< 0,001	1,90 (0,93-3,90)	0,076
74-80	3,05 (2,35-3,95)	< 0,001	0,99 (0,50-2,66)	0,980
80-84	3,82 (2,92-4,99)	< 0,001	1,22 (0,61-2,47)	0,564
≥ 85	5,13 (3,47-7,57)	< 0,001	1,16 (0,50-2,66)	0,718
<i>Sexo</i>				
Varón	1	0,525	1	< 0,001
Mujer	1,07 (0,86-1,32)		2,70 (1,83-3,99)	
<i>PA, mmHg</i>				
< 130/80	1		1	
130-139/80-89	0,80 (0,60-1,07)	0,135	0,90 (0,53-1,53)	0,717
140-149/90-99	1,15 (0,88-1,52)	0,298	0,66 (0,36-1,22)	0,192
≥ 150/100	1,42 (1,06-1,89)	0,017	0,59 (0,32-1,09)	0,097
<i>HbA<sub>1c</sub></i>	0,98 (0,90-1,05)	0,556	0,98 (0,85-1,12)	0,768
<i>Cardiopatía isquémica</i>	1,48 (1,13-1,95)	0,004	0,75 (0,47-1,19)	0,227
<i>Ictus</i>	0,84 (0,40-1,75)	0,641	0,82 (0,23-2,93)	0,771
<i>Insuficiencia cardíaca</i>	2,22 (1,56-3,17)	< 0,001	0,62 (0,35-1,09)	0,102
<i>Arteriopatía periférica</i>	1,69 (1,11-2,59)	0,014	0,89 (0,45-1,76)	0,745
<i>Dislipidemia</i>	1,23 (1,00-1,51)	0,043	0,92 (0,63-1,33)	0,668
<i>Tabaquismo</i>	0,93 (0,59-1,47)	0,760	0,75 (0,31-1,80)	0,520
<i>IMC</i>	1,01 (0,99-1,03)	0,162	0,55 (0,95-1,03)	0,667

A. Rodríguez-Poncelas et al./MedClin (Barc).2010;134:239-245

Prevalencia IRC según la edad en hombres



Prevalencia IRC según la edad en mujeres



RESEARCH ARTICLE

Open Access

# Chronic kidney disease in the type 2 diabetic patients: prevalence and associated variables in a random sample of 2642 patients of a Mediterranean area

Gabriel Coll-de-Tuero<sup>1</sup>, Manel Mata-Cases<sup>2</sup>, Antonio Rodriguez-Poncelas<sup>3\*</sup>, Josep MA Pepió<sup>4</sup>, Pilar Roura<sup>5</sup>, Belen Benito<sup>6</sup>, Josep Franch-Nadal<sup>7</sup> and Marc Saez<sup>8</sup>

Mostra aleatòria de DM 2 a Atenció primària Catalunya (Centres adherits a GEDAPS)



	<b>Total</b>	<b>Men</b>	<b>Women</b>	<b>p value</b>
<b>KD, n (%) (1)</b>	505 (34.1)	235 (15.9)	270 (18.2)	0.028
<b>RI, n (%) (2)</b>	606 (22.9)	239 (9.0)	367 (13.9)	<0.001
<b>Diabetic nephropathy, n (%) (1)</b>	243 (16.4)	139 (9.4)	104 (7.0)	0.06
<b>Albuminuria, n (%) (1)</b>	288 (19.5)	184 (12.4)	104 (7.1)	<0.001

# Prevalence of chronic kidney disease in patients with type 2 diabetes in Spain: PERCEDIME2 study

Antonio Rodriguez-Poncelas<sup>1,2</sup>, Josep Garre-Olmo<sup>2</sup>, Josep Franch-Nadal<sup>3,4</sup>, Javier Diez-Espino<sup>5</sup>,  
Xavier Mundet-Tuduri<sup>4,6</sup>, Joan Barrot-De la Puente<sup>7</sup>, Gabriel Coll-de Tuero<sup>1,2\*</sup> and RedGDPS Study Group

Rodriguez-Poncelas *et al.* *BMC Nephrology* 2013, **14**:46  
<http://www.biomedcentral.com/1471-2369/14/46>



Mostreig sistemàtic a les consultes d'AP d'Espanya  
2 determinacions de creatinina i EUA en tres mesos

**Table 2 Prevalence of different types of chronic kidney disease in Spain**

eGFR, mL/min per 1.73 m <sup>2</sup>	Normoalbuminuria ACR < 30 mg/g	Microalbuminuria ACR 30–300 mg/g	Macroalbuminuria ACR > 300 mg/g
≥ 90 (Stage 1)	298 (26%)	36 (3.14%)	4 (0.35%)
60-89.9 (Stage 2)	528 (46.1%)	68 (6%)	5 (0.45%)
45-59.9 (Stage 3A)	99 (8.65%)	26 (2.3%)	8 (0.7%)
30–44.9 (Stage 3B)	40 (3.5%)	15 (1.3%)	5 (0.45%)
< 30 (Stages 4–5)	4 (0.35%)	4 (0.35%)	5 (0.45%)
UACR	Normoalbuminuria	Microalbuminuria	Macroalbuminuria
N (%)	969 (84.6%)	149 (13.0%)	27 (2.4%)
eGFR ≥ 60 mL/min per 1.73 m <sup>2</sup>	939 (82%)		
eGFR < 60 mL/min per 1.73 m <sup>2</sup>	206 (18%)		
Any type of CKD	319 (27.9%)		

eGFR = estimated glomerular filtration rate. ACR = albumin-creatinine ratio. CKD = Chronic Kidney Disease.

# Prevalences de Malaltia renal crònica

	GEDAPS	PERCEDIME	GIRONA-ICS
MRC	34.1 %	27.9%	-
IR	22.9%	18%	16.6%
ND	16.4%	-	-
Albuminuria	19.5%	15.4%	-

**Additional file 2. Classification of patients with creatinine and albumin excretion rate available according to KDIGO 2009**

	n (%)			Albuminuria stages (mg/g)					
				A1		A2	A3	All	
				Optimal and high normal		High	Very high		
				< 10	10-29	30-299	≥ 300		
GFR stages (ml/min per 1.73m <sup>2</sup> )	G1	Increased and optimal	≥ 105	128 (8.6)	47 (3.2)	31 (2.1)	1 (0.06)	207 (14.0)	
			90-104	142 (9.6)	42 (2.8)	40 (2.8)	4 (0.3)	228 (15.4)	
	G2	Mild	75-89	269 (18.2)	109 (7.4)	71 (4.8)	5 (0.3)	454 (30.7)	
			60-74	165 (11.1)	71 (4.8)	42 (2.8)	6 (0.4)	284 (19.2)	
	G3a	Mild-moderate	45-59	73 (5.0)	36 (2.4)	34 (2.3)	9 (0.6)	152 (10.3)	
	G3b	Moderate-severe	30-44	20 (1.3)	11 (0.7)	12 (0.8)	4 (0.3)	47 (3.2)	
	G4	Severe	15-29	13 (0.9)	20 (1.4)	8 (0.5)	2 (0.1)	43 (2.9)	
	G5	Kidney failure	<15	24 (1.6)	20 (1.4)	11 (0.7)	8 (0.5)	63 (4.3)	
	All				834 (56.4)	356 (24.1)	249 (16.8)	39 (2.6)	1478 (100)

Albuminuria alone

Nonalbuminuric RI

GFR: glomerular filtration rate

**Table 2 Prevalence of different types of chronic kidney disease in Spain**

eGFR, mL/min per 1.73 m <sup>2</sup>	Normoalbuminuria ACR < 30 mg/g	Microalbuminuria ACR 30–300 mg/g	Macroalbuminuria ACR > 300 mg/g
≥ 90 (Stage 1)	298 (26%)	36 (3.14%)	4 (0.35%)
60-89.9 (Stage 2)	528 (46.1%)	68 (6%)	5 (0.45%)
45-59.9 (Stage 3A)	99 (8.65%)	26 (2.3%)	8 (0.7%)
30-44.9 (Stage 3B)	40 (3.5%)	15 (1.3%)	5 (0.45%)
< 30 (Stages 4-5)	4 (0.35%)	4 (0.35%)	5 (0.45%)
UACR	Normoalbuminuria	Microalbuminuria	Macroalbuminuria
N (%)	969 (84.6%)	149 (13.0%)	27 (2.4%)
eGFR ≥ 60 mL/min per 1.73 m <sup>2</sup>	939 (82%)		
eGFR < 60 mL/min per 1.73 m <sup>2</sup>	206 (18%)		
Any type of CKD	319 (27.9%)		

eGFR = estimated glomerular filtration rate. ACR = albumin-creatinine ratio. CKD = Chronic Kidney Disease.

# Prevalences de subtipus

	GEDAPS	PERCEDIME
Albuminuria sola	13.5%	10%
IR sense albuminuria	14.7%	12.5%
IR+albuminuria	5.8%	5.5%

# Variables relacionadas



**Table 4 Factors associated with CKD in patients with type 2 diabetes**

	OR (95% CI)
Age (years)	
< 50	1
50-59	2.02 (0.93-4.41)
60-69	1.75 (0.82-3.76)
70-79	<b>3.24 (1.53-6.86)</b>
>80	<b>7.84 (3.50-17.54)</b>
Gender	
Men	1
Women	<b>1.36 (1.01-1.84)</b>
Systolic Blood Pressure (mmHg)	
< 130	1
130-139	0.85 (0.60-1.22)
140-149	1.01 (0.67-1.51)
≥ 150	<b>1.61 (1.03-2.53)</b>
Duration of DM 2 (years)	<b>1.02 (1.01-1.04)</b>
Coronary heart disease	<b>1.54 (1.04-2.28)</b>
Heart failure	<b>2.69 (1.64-4.40)</b>
Peripheral vascular disease	<b>2.71 (1.69-4.35)</b>

(CKD compared with "no CKD").

CKD = Chronic Kidney Disease. OR = Odds Ratio. CI = Confident Interval.

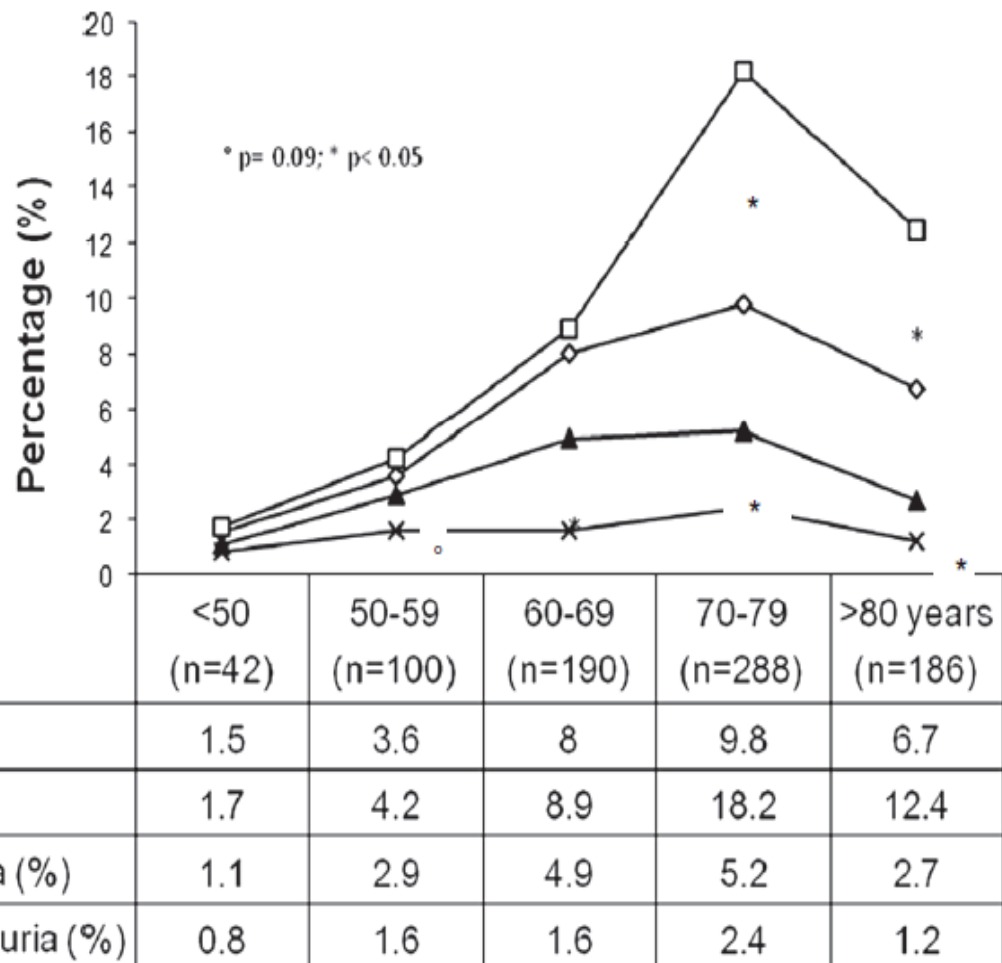


Figure 2 Prevalence of renal impairment and albuminuria alone stratified according to age and gender (n = 806).

doi:10.1186/1471-2369-13-87

Cite this article as: Coll-de-Tuero *et al.*: Chronic kidney disease in the type 2 diabetic patients: prevalence and associated variables in a random sample of 2642 patients of a Mediterranean area. *BMC Nephrology* 2012 13:87.

**Table 4 Multivariate analysis of types of kidney disease and associated variables in type 2 diabetic patients**

	Renal impairment OR (CI 95%)	Albuminuria without RI	Diabetic nephropathy OR (CI 95%)
Gender (men) women	2.20 (1.86–2.54)	0.27 (0.21–0.35)	0.56 (0.40–0.78)
Diabetes duration ( $\leq 10$ ) > 10 years	1.43 (1.18–1.74)	0.66 (0.48–1.08)	0.80 (0.54–1.19)
D Diabetes duration <i>For year</i>	1.03 (1.02–1.05)	0.94 (0.91–0.97)	0.97 (0.94–1.1)
ACEI/ARB treatment (No) Yes	1.51 (1.27–1.79)	1.42 (1.09–1.84)	0.98 (0.70–1.37)
BP ( $\leq 130/80$ mmHg) > 130/80 mmHg	0.86 (0.69–1.06)	2.16 (0.90–3.57)	1.18 (0.60–2.32)
HbA1c for each 1% of increase	0.85 (0.80–0.91)	1.19 (1.09–1.30)	1.21 (0.96–1.37)
Insulin treatment (No) Yes	1.82 (1.39–2.38)	1.42 (1.08–1.84)	4.17 (2.33–7.44)
Microvascular disease (No) Yes	2.14 (1.80–2.54)	-	-

In bold:  $p < 0.01$ ;

Adjusted also for age, body mass index, total cholesterol and non-HDL cholesterol, pulse pressure and macrovascular disease.

RI: renal impairment. Glomerular filtration rate  $< 60$  ml/min/1.73 m<sup>2</sup>. Diabetic nephropathy: albuminuria  $> 300$  mg/gr or albuminuria 30–300 mg/gr plus retinopathy. Albuminuria: albuminuria  $> 30$  mg/gr.; ACEI: angiotensin-converting enzyme inhibitor; ARB: angiotensin receptor blocker; BP: blood pressure; HbA1c; glycated haemoglobin; Microvascular disease: albuminuria and/or diabetic retinopathy.

doi:10.1186/1471-2369-13-87

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# Conclusions 1

- 1/3 dels pacients amb DM2 presenten MRC
- 1/5 dels pacients amb DM2 tenen IRC
- 1/6 dels pacients amb DM2 tenen albuminuria
- <1/6 dels pacients amb DM2 presenten nefropatia diabètica

## Conclusions 2

La presència de IR i albuminuria al mateix temps és poc freqüent: <6%

L'albuminuria o la IR en solitari són de prevalença similar

El perfil clínic dels pacients amb cada subtipus de MRC és diferent

Aquestes diferències poden orientar el tractament preventiu en aquests pacients en funció del subtipus de MRC



Moltes gràcies per  
la vostra atenció!