
51
CONGRESO
NACIONAL
DE LA SER
MADRID
13/16 MAYO
2025
Sociedad Española de
Reumatología

51 CONGRESO NACIONAL DE LA SER
MADRID 13-16/05/25

FÓRMATE CON GEACSER: NOVEDADES EN LAS ARTROPATIAS MICROCRISTALINAS

(o como intentar hablar casi un hora y que interese a reumatólogos y gotólogos)

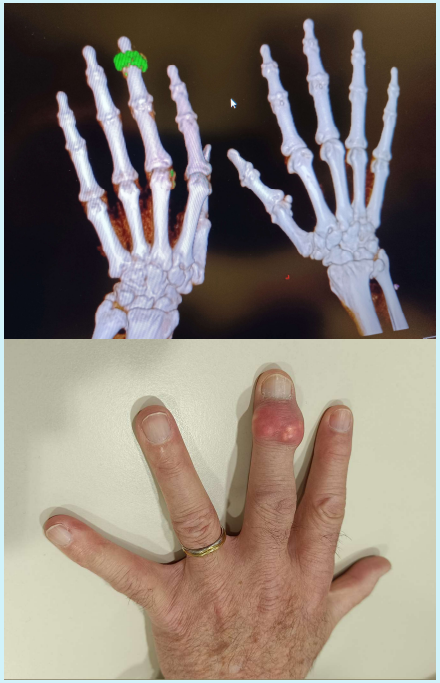
Cèsar Díaz Torné, MD, PhD

Reumatología, Hospital de la Santa Creu i Sant Pau.

Universitat Autònoma de Barcelona

Miembro de GEACSER

Congreso SER, Madrid, 16 de mayo de 2025



Sociedad Española de Reumatología

– Conflictos de interés:

- Ayudas en estudios y publicaciones: ASACpharma
- Ayudas en estancias en otros centros: SER y Fundació Privada Sant Pau

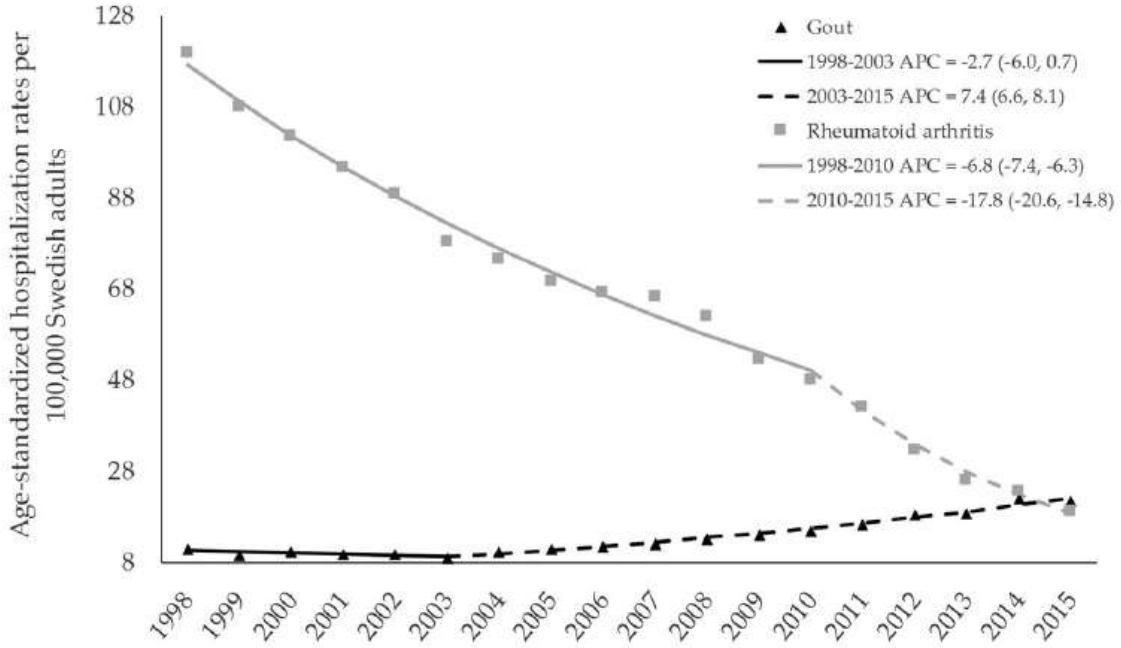
¿Por qué gota?

1. Es prevalente: 2,4% (Hombre 4,55%-Mujer 0,38%)
2. Y más que será…
3. Las consecuencias del depósito van más allá de las articulaciones.
4. No es difícil de tratar (si sabes como).
5. En general, su manejo es deficiente.

Quilis N, Sivera F, Seoane-Mato D, Pérez-Ruiz F, Sánchez-Piedra C, Díaz-González F, et al. Prevalence of gout in the adult general population in Spain: Estimating the proportion of undiagnosed cases. Joint Bone Spine. 2022 Jan;89(1):105257

Algunas consecuencias del mal manejo

Fig. 2 Annual age-standardized hospitalization rates per 100,000 Swedish adults for rheumatoid arthritis and gout, 1998–2015. Symbols display the observed values and solid lines indicate fitted values using joinpoint regression. For each joinpoint, the annual percentage change (APC) and its 95% confidence interval are reported



Está aumentando el número de hospitalizaciones por gota, mientras que el de AR disminuye

Kiadaliri AA, Englund M. Temporal trends and regional disparity in rheumatoid arthritis and gout hospitalizations in Sweden, 1998-2015. Clin Rheumatol. 2018 Mar;37(3):825-830.

Algunas consecuencias del mal manejo

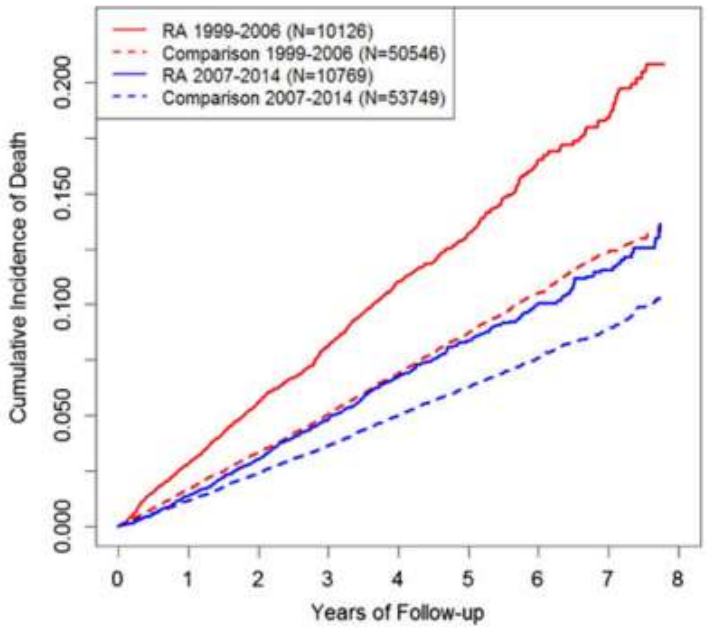


Figure 1.
Graph showing the cumulative mortality of patients with rheumatoid arthritis (RA) and corresponding individuals without RA in early versus late cohorts (1999–2006 vs 2007–2014, respectively).

Fisher MC, Rai SK, Lu N, Zhang Y, Choi HK. The unclosing premature mortality gap in gout: a general population-based study. Ann Rheum Dis. 2017 Jul;76(7):1289-1294

Algunas consecuencias del mal manejo

Todos los enfermos con gota

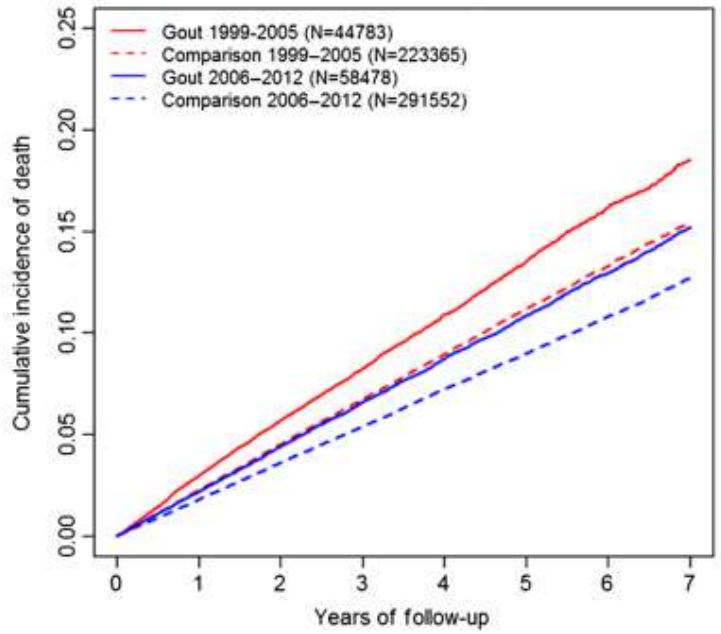


Figure 1 Cumulative mortality of patients with gout and corresponding individuals with no gout in the early versus late cohorts (1999–2006 vs 2007–2014, respectively).

Enfermos con gota que han recibido al menos una prescripción de terapia reductora de la uricemia

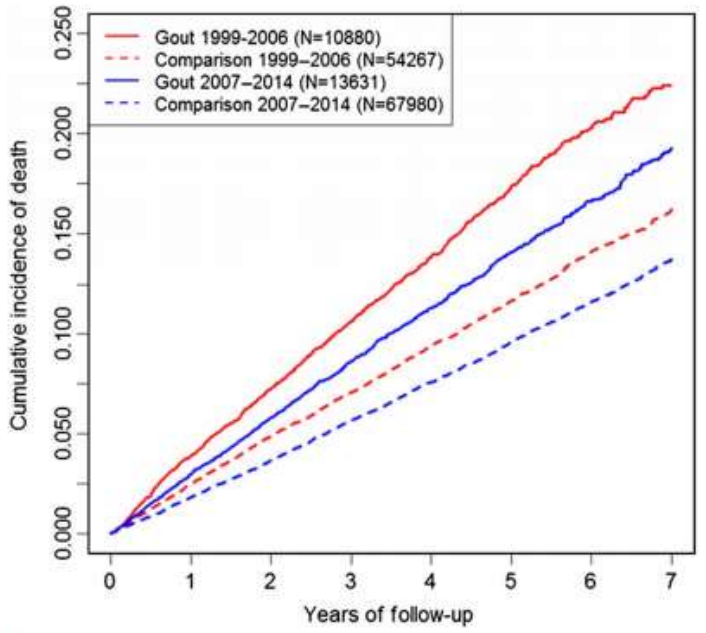


Figure 2 Cumulative mortality of patients with gout who received at least one prescription for urate-lowering therapy and corresponding individuals with no gout in the early versus late cohorts (1999–2006 vs 2007–2014, respectively).

Fisher MC, Rai SK, Lu N, Zhang Y, Choi HK. The unclosing premature mortality gap in gout: a general population-based study. Ann Rheum Dis. 2017 Jul;76(7):1289-1294

Algunas consecuencias del mal manejo

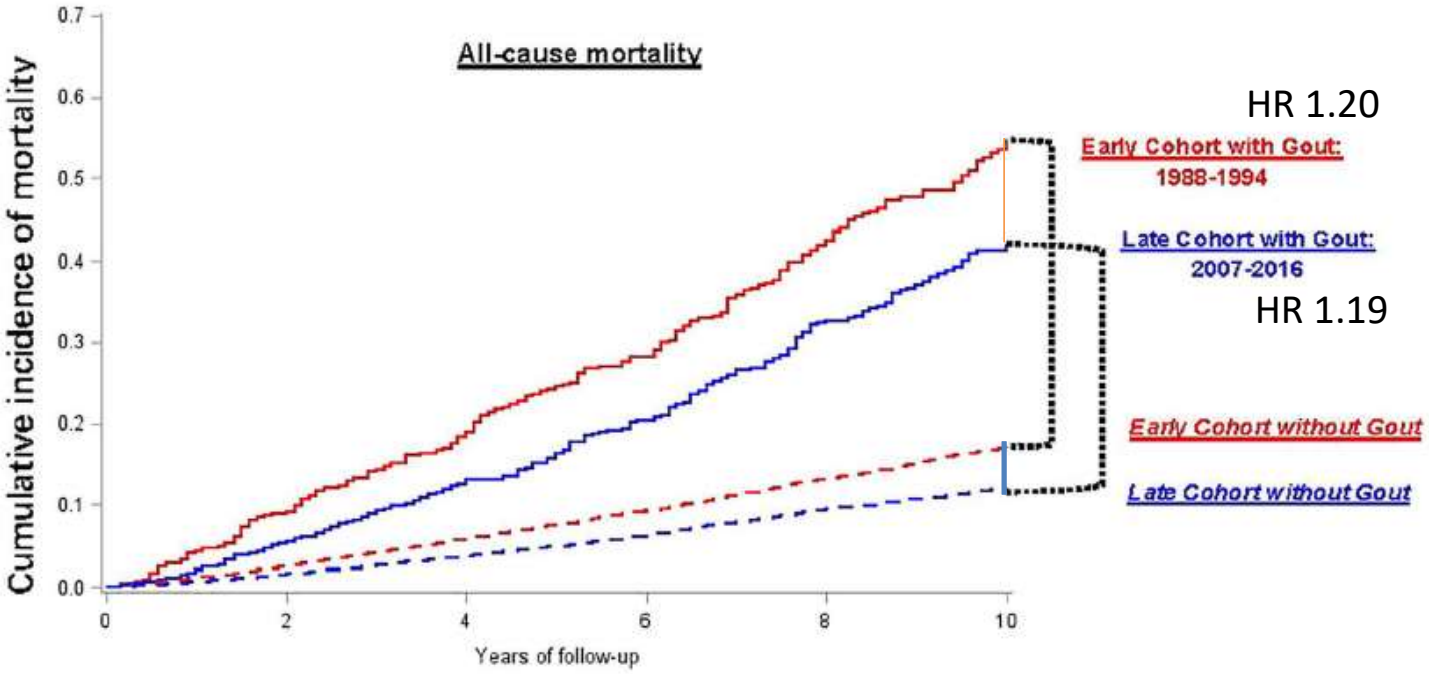


Figure 1. Cumulative incidence of all-cause mortality by time period and gout status in the nationwide US cohort.

McCormick N, Lin K, Yokose C, Lu N, Zhang Y, Choi HK. Unclosing Premature Mortality Gap Among Patients With Gout in the US General Population, Independent of Serum Urate and Atherosclerotic Cardiovascular Risk Factors. Arthritis Care Res (Hoboken). 2024 May;76(5):691-702.

Algunas consecuencias del mal manejo

Table 5. Association between incident gout and adverse circulatory endpoints in the nationwide UK cohort (2006–2010), HRs, and 95% confidence intervals*

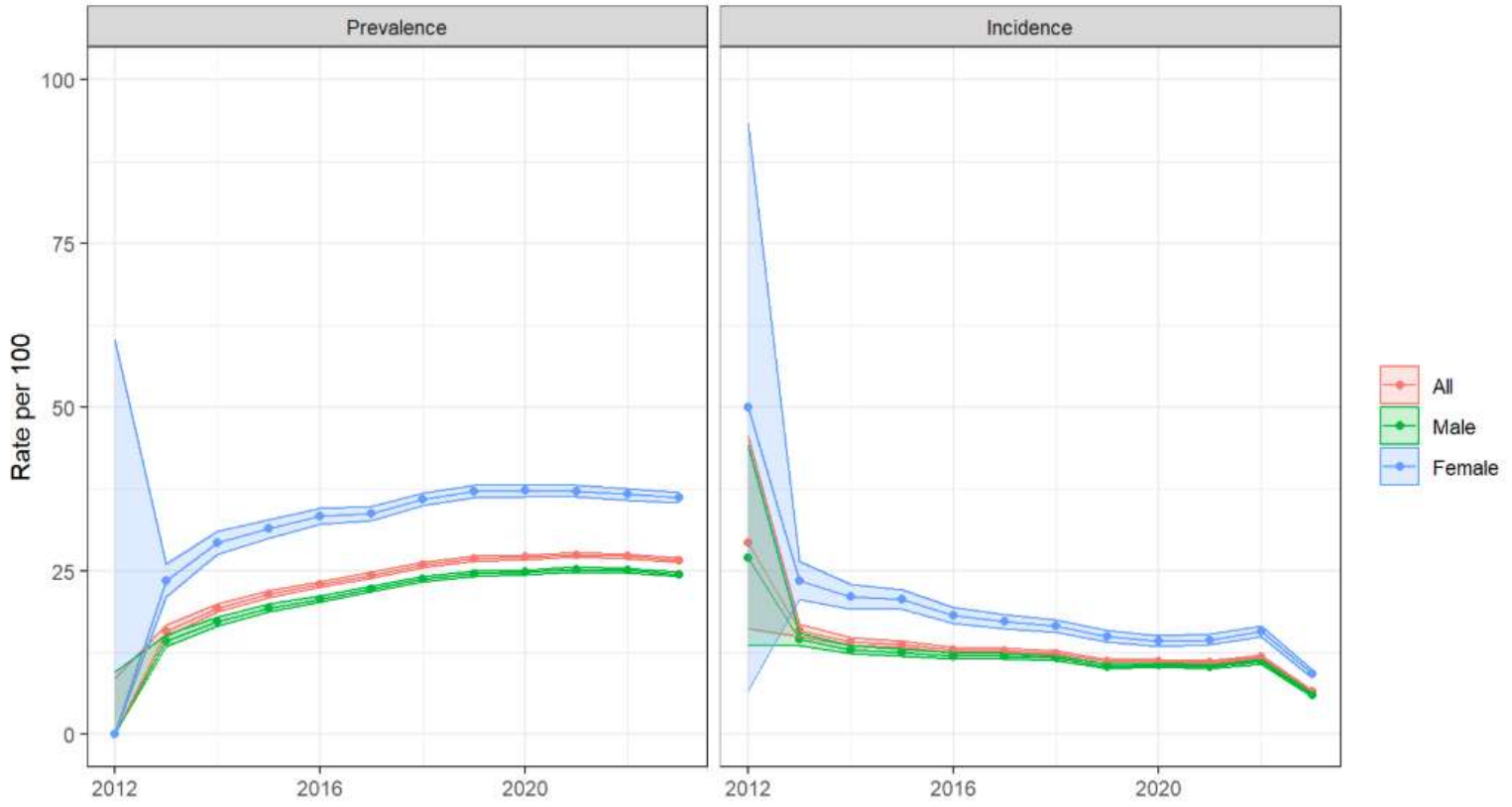
Analysis model	Circulatory deaths		Cardiovascular deaths		Coronary heart disease deaths		Nonfatal myocardial infarction	
	With gout	Without gout	With gout	Without gout	With gout	Without gout	With gout	Without gout
No. of events	297	570	192	361	172	306	299	892
Person-years	46,853	230,842	46,853	230,842	46,853	230,842	49,113	236,232
Model 1	2.43 (2.11–2.80)	1.0 (ref)	2.45 (2.06–2.92)	1.0 (ref)	2.59 (2.15–3.12)	1.0 (ref)	1.53 (1.34–1.75)	1.0 (ref)
Model 2	1.81 (1.56–2.10)	1.0 (ref)	1.81 (1.51–2.18)	1.0 (ref)	1.92 (1.58–2.33)	1.0 (ref)	1.35 (1.17–1.55)	1.0 (ref)
Model 3	1.60 (1.37–1.86)	1.0 (ref)	1.59 (1.32–1.91)	1.0 (ref)	1.67 (1.36–2.04)	1.0 (ref)	1.31 (1.14–1.52)	1.0 (ref)
Model 3 with SU	1.48 (1.24–1.76)	1.0 (ref)	1.49 (1.20–1.85)	1.0 (ref)	1.59 (1.26–1.99)	1.0 (ref)	1.33 (1.14–1.56)	1.0 (ref)

* Circulatory deaths (ICD-10 I00–I99) included ischemic, hypertensive, pulmonary, and other forms of heart disease, plus cerebrovascular disease and diseases of the arteries and veins. Cardiovascular deaths included coronary heart disease (ICD-10 I20–I25) and cerebral infarction (ICD-10 I63 and I64). Model 1 was adjusted for age (time scale), sex (male or female), race (White, Black, Asian, mixed, or other), and index year (2006–2021). Model 2 was further adjusted for body mass index, education, smoking history (former, current, never, or missing), alcohol consumption (times per month), and total cholesterol, high-density lipoprotein, systolic and diastolic blood pressure (continuous), receipt of diuretics, receipt of cholesterol-lowering medication, receipt of aspirin, receipt of a prescription for hypertension, and, for women, postmenopausal status (yes, no, or missing). Model 3 was further adjusted for coronary heart disease (yes or no), diabetes (yes or no), and estimated glomerular filtration rate (continuous). ICD-10, *International Classification of Diseases, 10th Revision*; HR, hazard ratio; No., number; ref, reference.

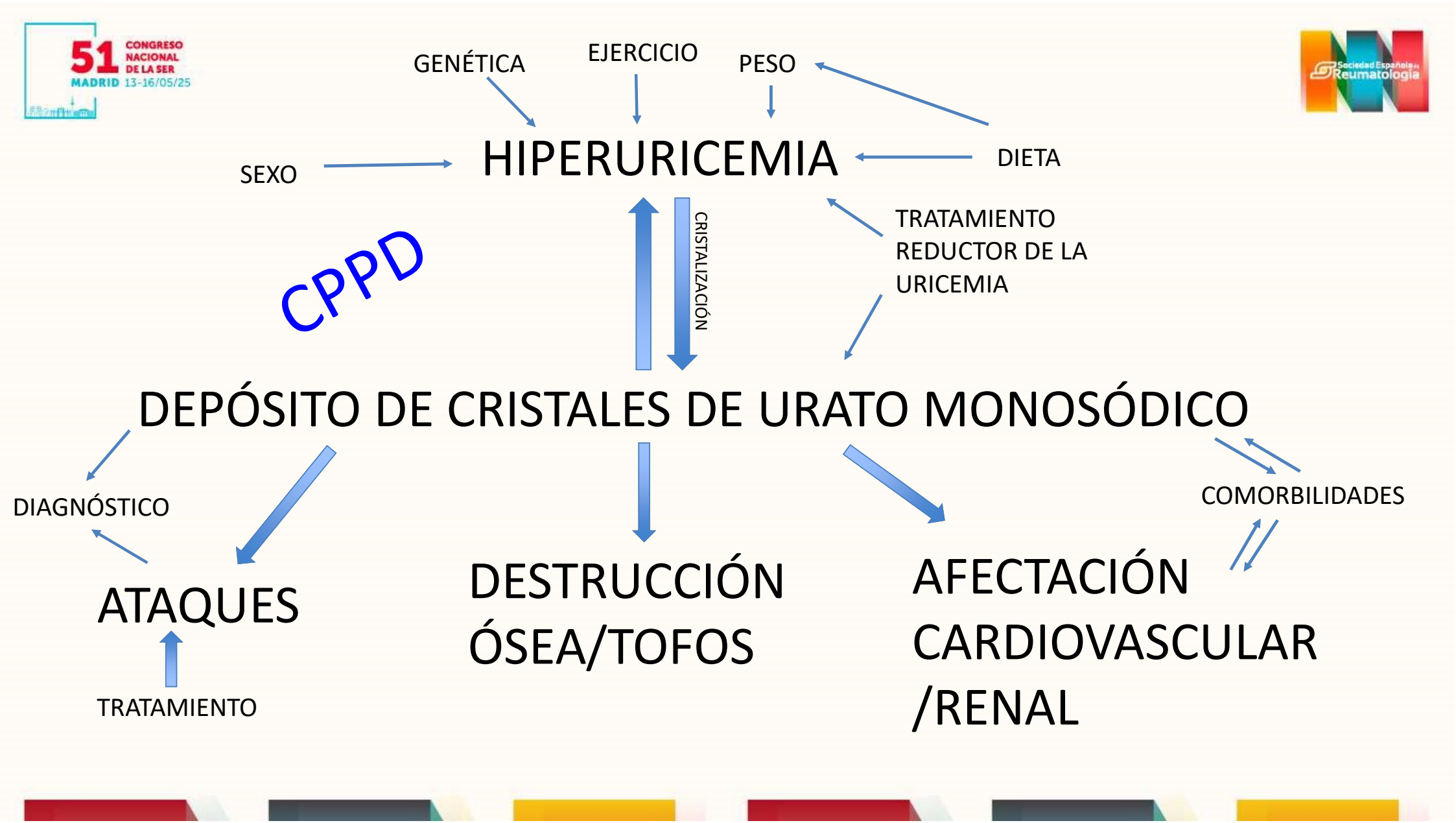
McCormick N, Lin K, Yokose C, Lu N, Zhang Y, Choi HK. Unclosing Premature Mortality Gap Among Patients With Gout in the US General Population, Independent of Serum Urate and Atherosclerotic Cardiovascular Risk Factors. Arthritis Care Res (Hoboken). 2024 May;76(5):691-702.

Algunas consecuencias del mal manejo

Figura 14: Prevalence and incidence rate per 100 (CI95%) of good controls



Datos propios de SIDIAP

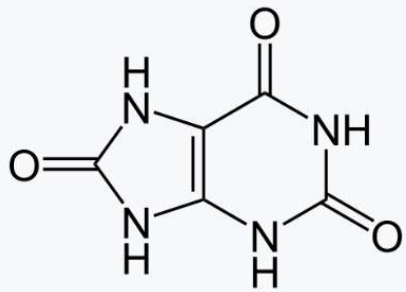

GENÉTICA
EJERCICIO
PESO
SEXO
HIPERURICEMIA
DIETA
CPPD
CRISTALIZACIÓN
TRATAMIENTO REDUCTOR DE LA URICEMIA
DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO
DIAGNÓSTICO
COMORBILIDADES
ATAQUES
TRATAMIENTO
DESTRUCCIÓN ÓSEA/TOFOS
AFECTACIÓN CARDIOVASCULAR /RENAL

HIPERURICEMIA

1. ¿Que es?

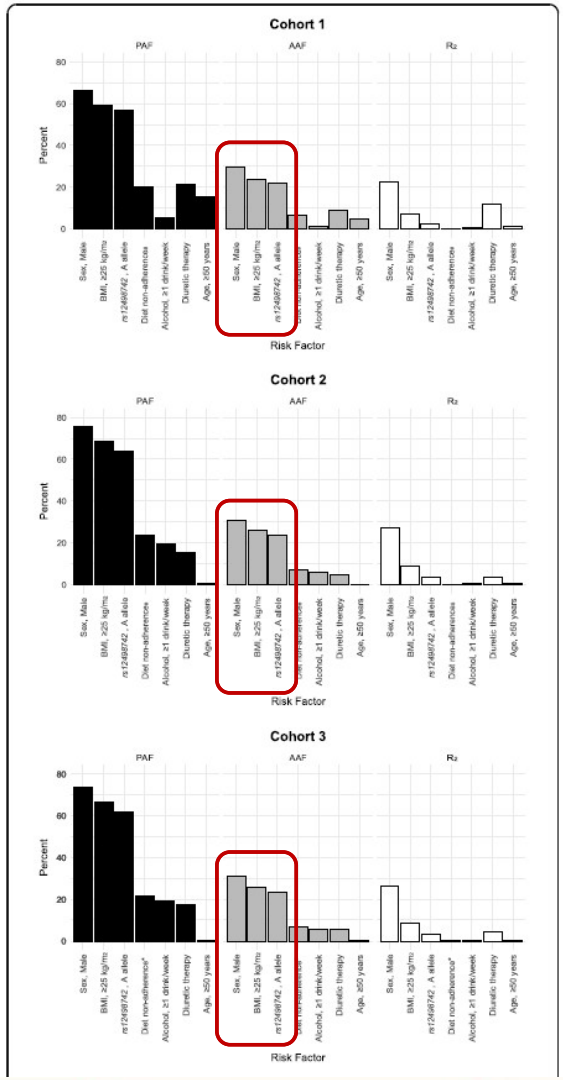
   -Niveles por encima del nivel de solubilidad (≥ 6.8 mg/dl)

2. ¿Cuál es la principal causa de hiperuricemia?



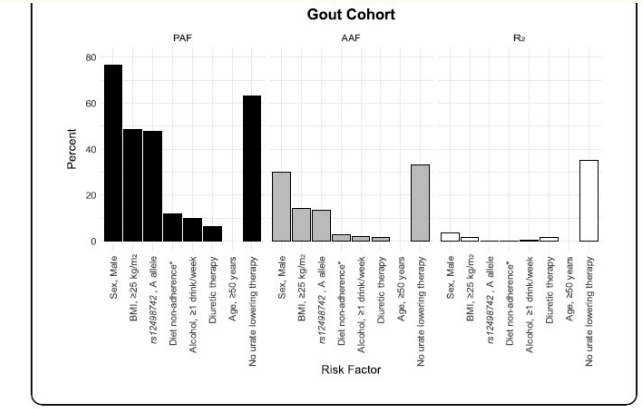
Estructura de ácido úrico (forma ceto)

FACTORES DE RIESGO DE PADECER HIPERURICEMIA



PAF: Population Adjusted Fraction
AAF: Average Attributable Fraction (sobre 100)

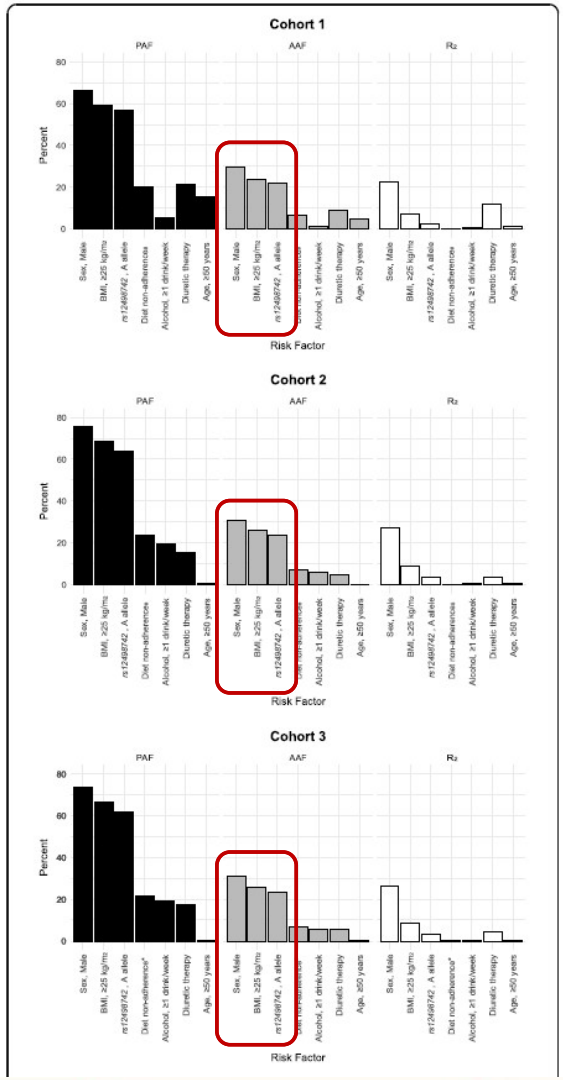
- 3 cohortes de población sin gota (descendentes de europeos/británicos)
- 419,060 participantes
- Se buscan dietas*, genética**, IMC (>25), alcohol (1 toma semanal), diurético, sexo y edad.



**DASH o Harvard Healthy Eating Pyramid Guidelines.*
***SLC2A9, rs12498742 A-allele present (prohiperuricemia)(GLUT9)*

Topless RKG, Major TJ, Florez JC, et al. The comparative effect of exposure to various risk factors on the risk of hyperuricaemia: diet has a weak causal effect. Arthritis Res Ther. 2021 Mar 4;23(1):75.

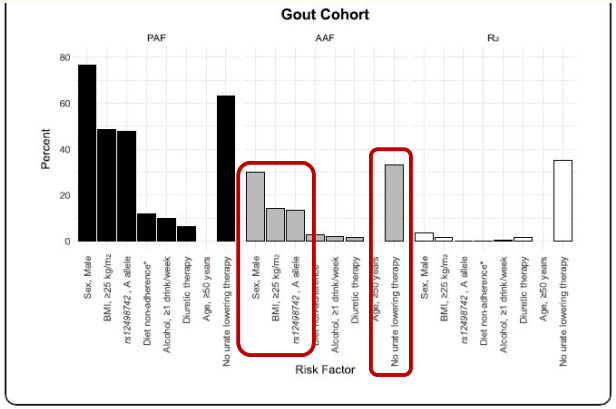
FACTORES DE RIESGO DE PADECER HIPERURICEMIA



PAF: Population Adjusted Fraction
AAF: Average Attributable Fraction (sobre 100)

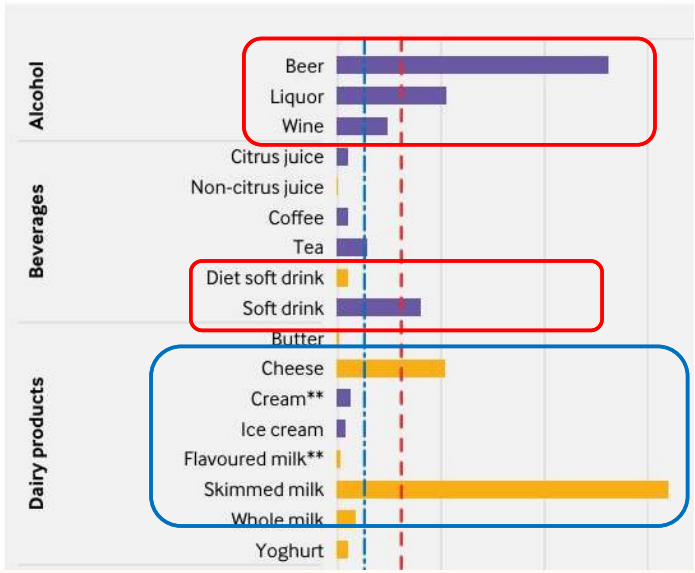
AAF según factor de riesgo en controles	
Ser hombre	29-30%
IMC ≥ 25 kg/m^2	23-26%
SLC2A9	22-23%
Adherente a dieta	6-7%
Alcohol	1-5%
Toma de diuréticos	4-8%

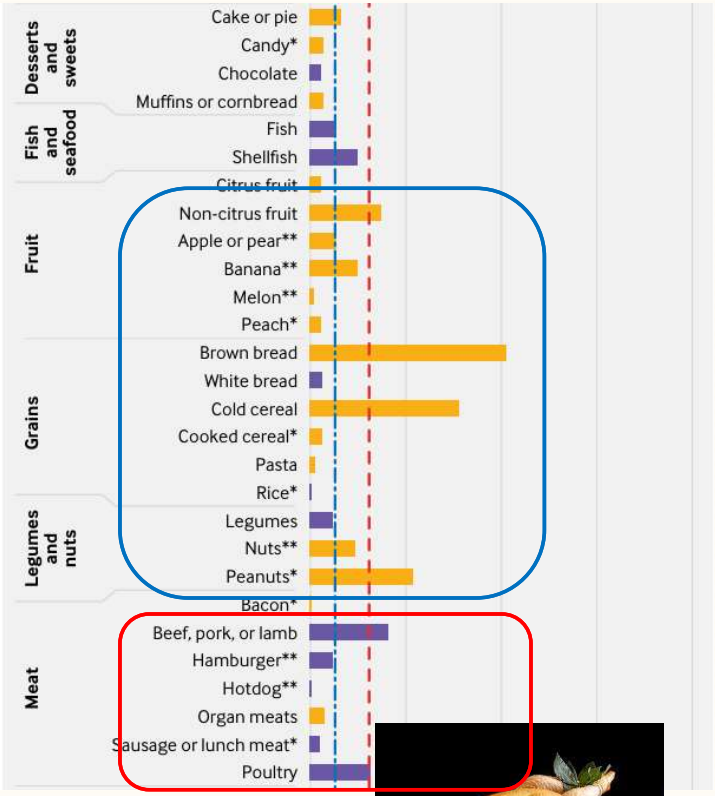
AAF según factor de riesgo en gota	
Ser hombre	30%
IMC ≥ 25 kg/m^2	14%
SLC2A9	13.5%
Adherente a dieta	3%
Alcohol	2%
Toma de diuréticos	2%
No toma de TRU	33%

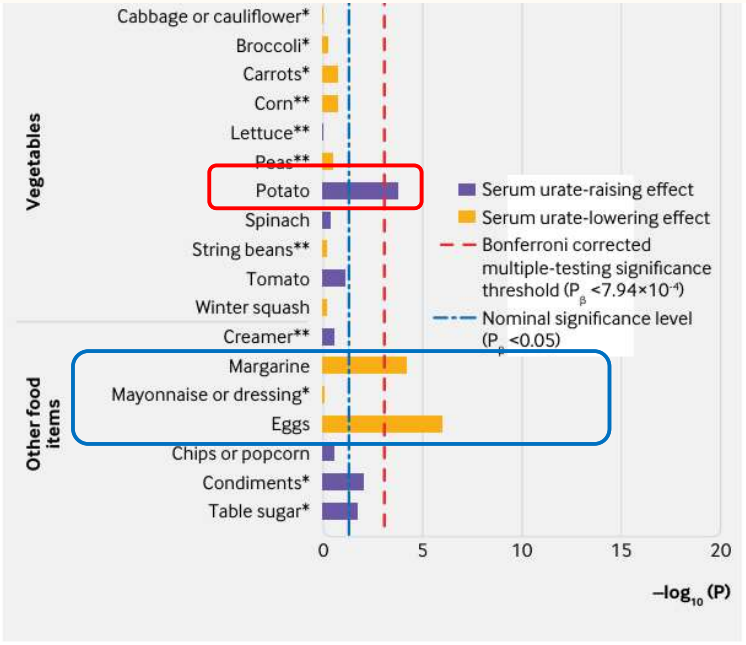


Topless RKG, Major TJ, Florez JC, et al. The comparative effect of exposure to various risk factors on the risk of hyperuricaemia: diet has a weak causal effect. Arthritis Res Ther. 2021 Mar 4;23(1):75.

¿QUÉ ALIMENTOS SE ASOCIAN A CAMBIOS EN LA URICEMIA?







Datos interesantes:

-1 cerveza/día más incrementa la uricemia0,16 mg/ml

-2 Dieta influye un 3% y la genética un 30% sobre el total de la genética

Major TJ, Topless RK, Dalbeth N, Merriman TR. Evaluation of the diet wide contribution to serum urate levels: meta-analysis of population based cohorts. BMJ. 2018 Oct 10;363:k3951

¿SIRVEN LAS DIETAS PARA REDUCIR EL ÁCIDO ÚRICO?

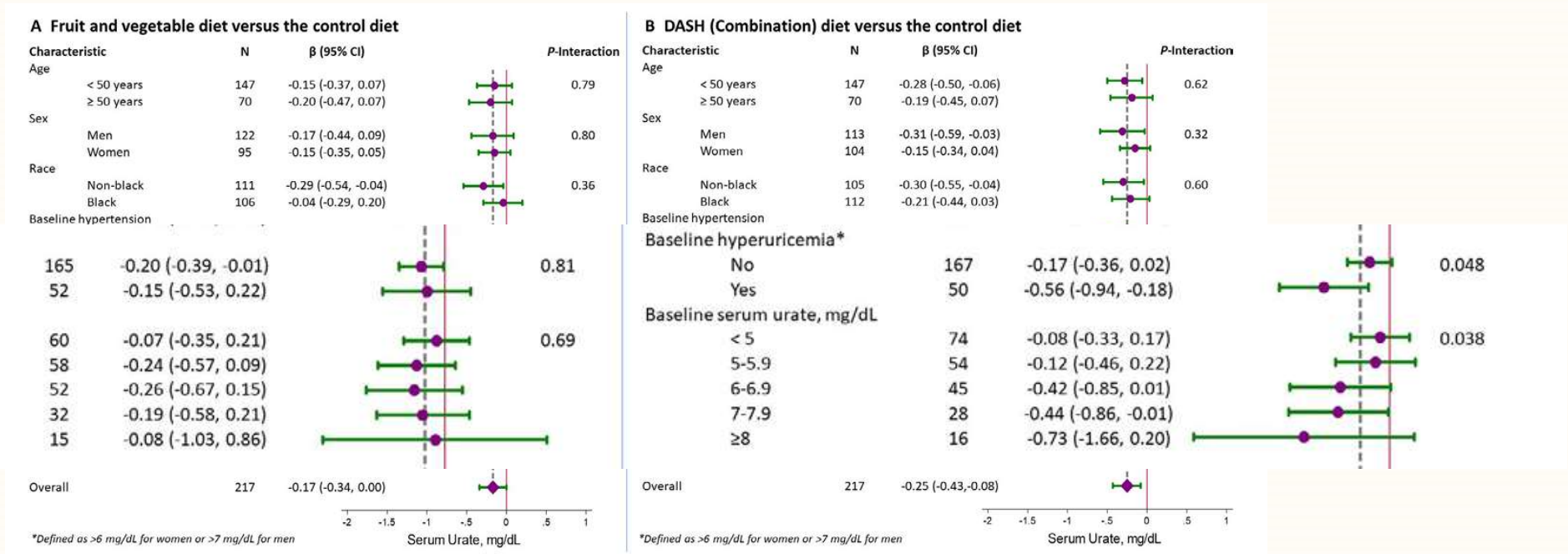


Figure 2. Mean difference in serum urate level (in mg/dl) between diets, comparing **A**, the diet rich in fruits and vegetables versus the control diet and **B**, the Dietary Approaches to Stop Hypertension (DASH; combination) diet versus the control diet, in groups stratified by demographic characteristics and relevant comorbidities. All comparisons represent the difference in week-8 measurements adjusted for baseline measurements. 95% CI = 95% confidence interval. Color figure can be viewed in the online issue, which is available at http://onlinelibrary.wiley.com/doi/10.1002/art.41614/abstract.

Juraschek SP, Yokose C, McCormick N, Miller ER 3rd, Appel LJ, Choi HK. Effects of Dietary Patterns on Serum Urate: Results From a Randomized Trial of the Effects of Diet on Hypertension. Arthritis Rheumatol. 2021 Jun;73(6):1014-1020.

¿SIRVEN LAS DIETAS PARA REDUCIR EL ÁCIDO ÚRICO?

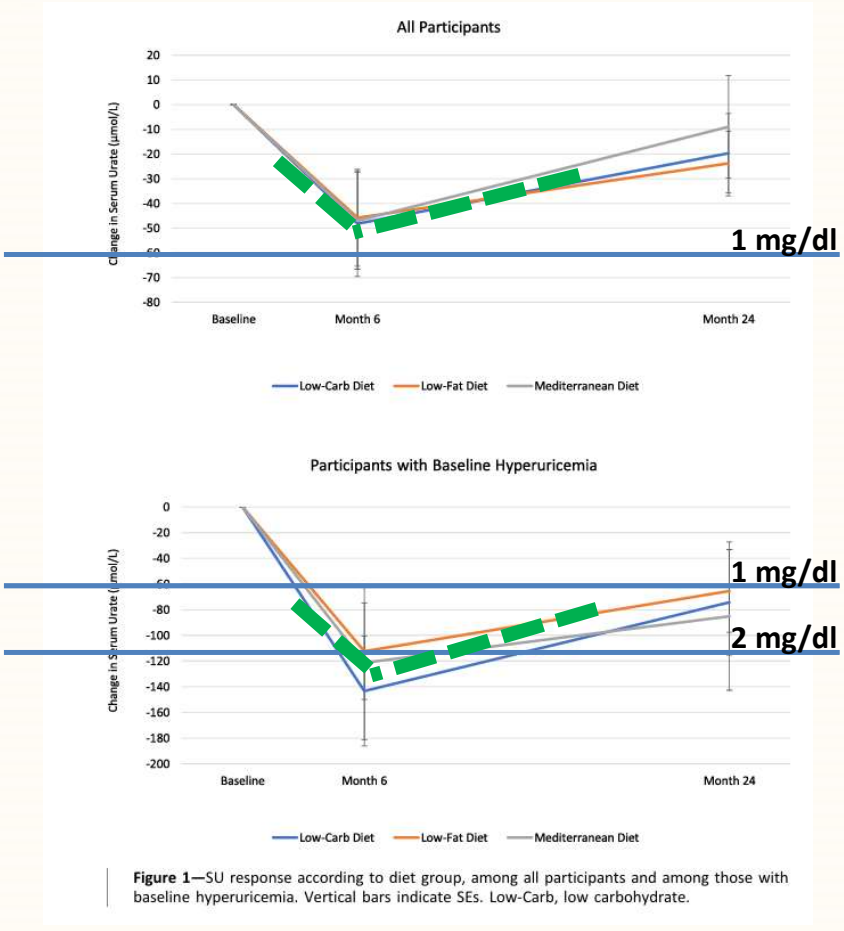
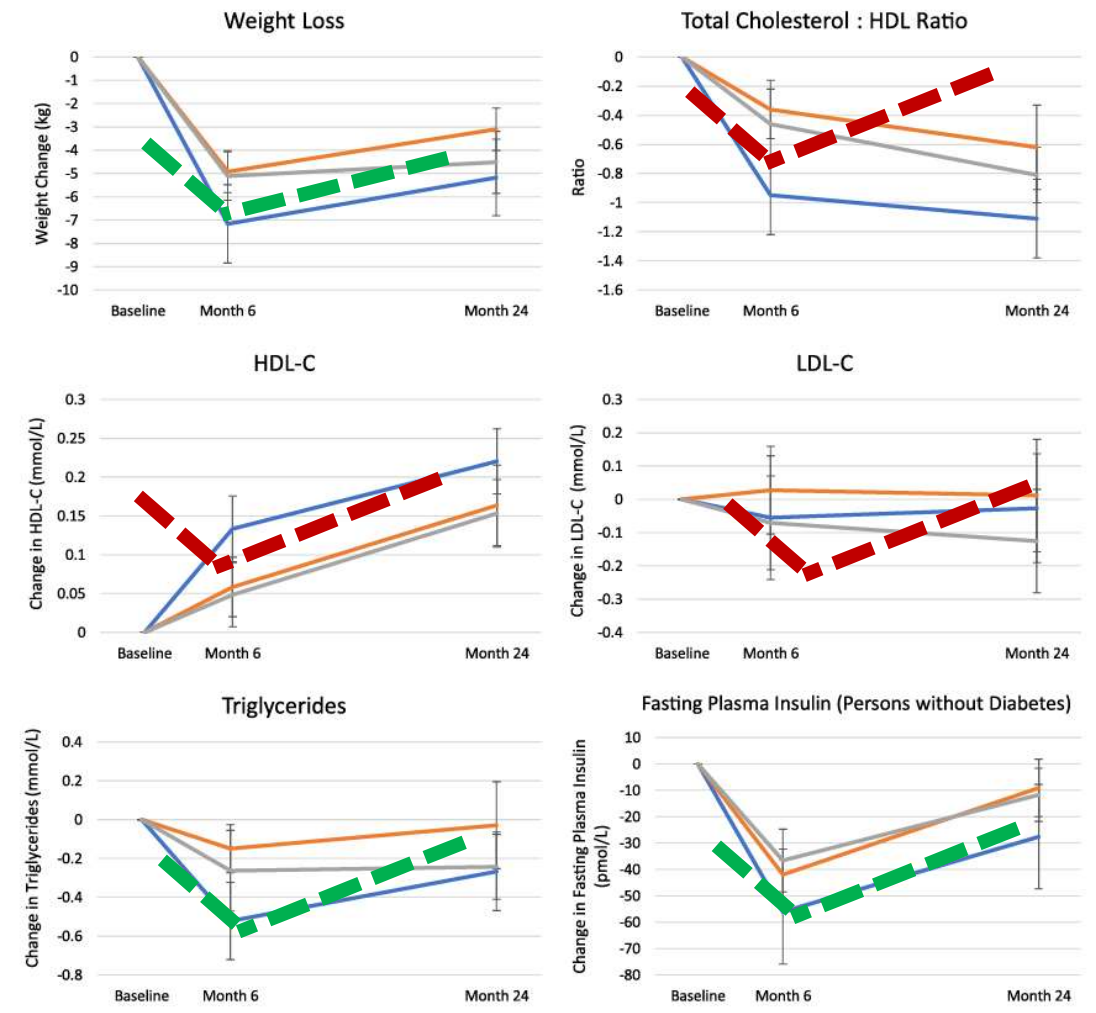


Figure 1—SU response according to diet group, among all participants and among those with baseline hyperuricemia. Vertical bars indicate SEs. Low-Carb, low carbohydrate.



Yokose C, McCormick N, Rai SK, Lu N, Curhan G, Schwarzfuchs D, et al. Effects of Low-Fat, Mediterranean, or Low-Carbohydrate Weight Loss Diets on Serum Urate and Cardiometabolic Risk Factors: A Secondary Analysis of the Dietary Intervention Randomized Controlled Trial (DIRECT). Diabetes Care. 2020 Nov;43(11):2812-2820.

¿POR QUÉ?

Medida indirecta de resistencia a la insulina

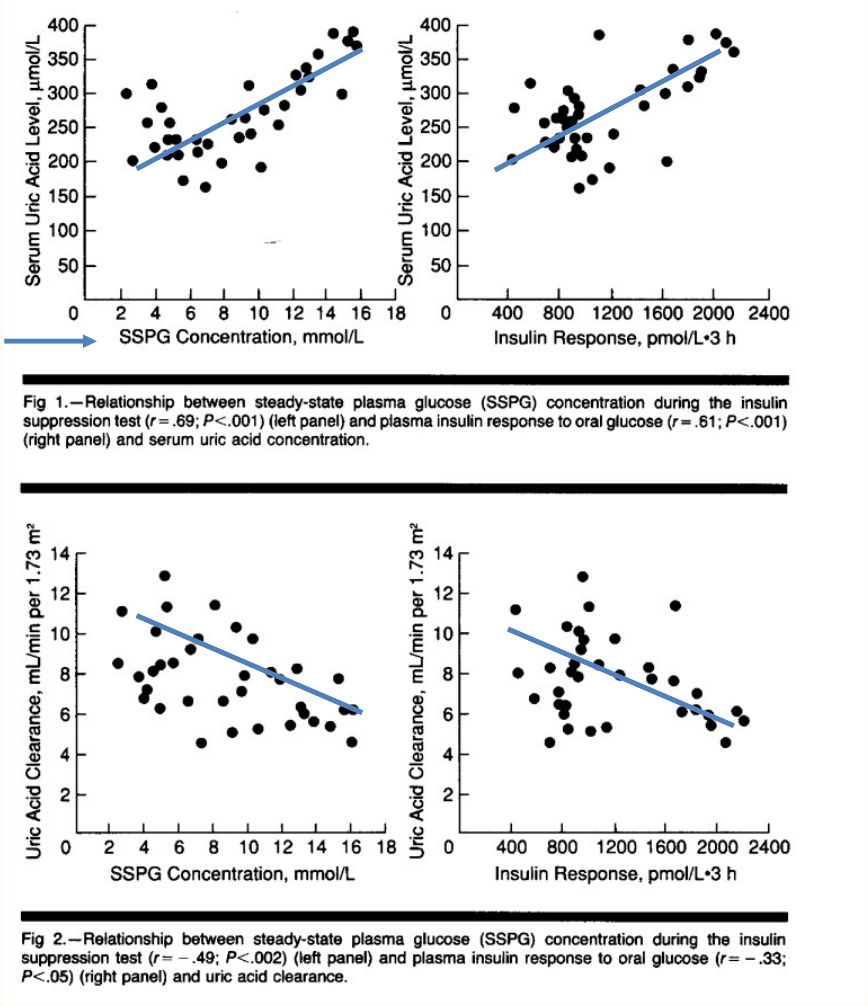


Fig 1.—Relationship between steady-state plasma glucose (SSPG) concentration during the insulin suppression test ($r = .69$; $P < .001$) (left panel) and plasma insulin response to oral glucose ($r = .61$; $P < .001$) (right panel) and serum uric acid concentration.

Fig 2.—Relationship between steady-state plasma glucose (SSPG) concentration during the insulin suppression test ($r = -.49$; $P < .002$) (left panel) and plasma insulin response to oral glucose ($r = -.33$; $P < .05$) (right panel) and uric acid clearance.

Relación entre resistencia a la insulina, excreción renal de ácido úrico y uricemia.

+RESISTENCIA INS

↓

-EXCRECIÓN URATO

↓

+URICEMIA

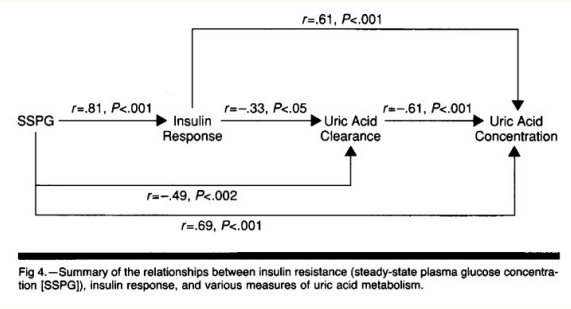
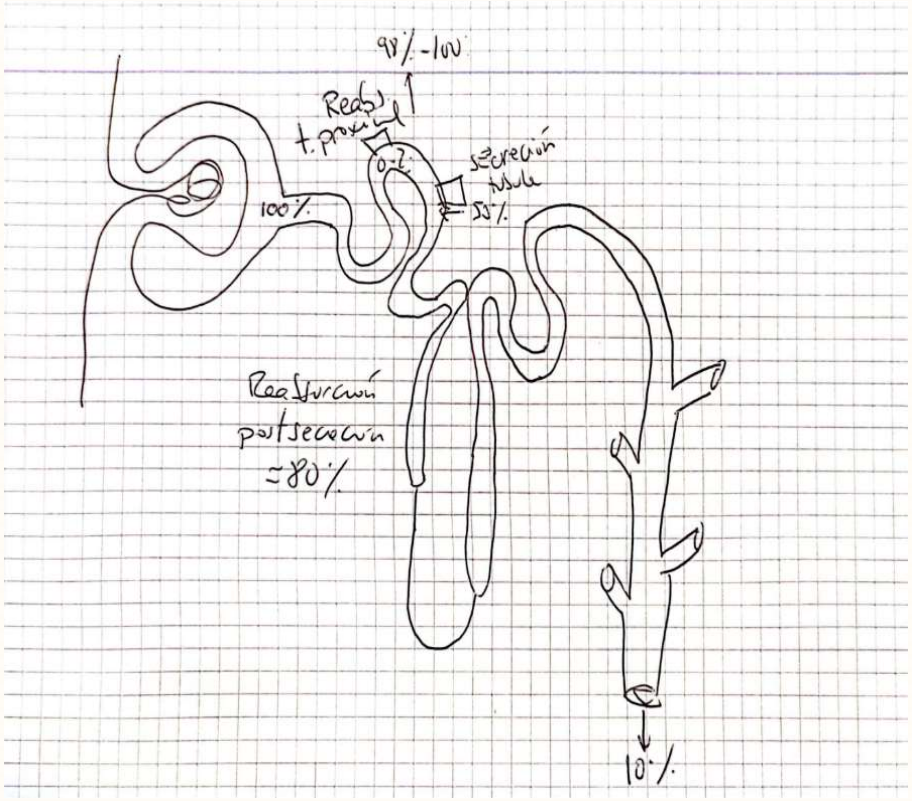


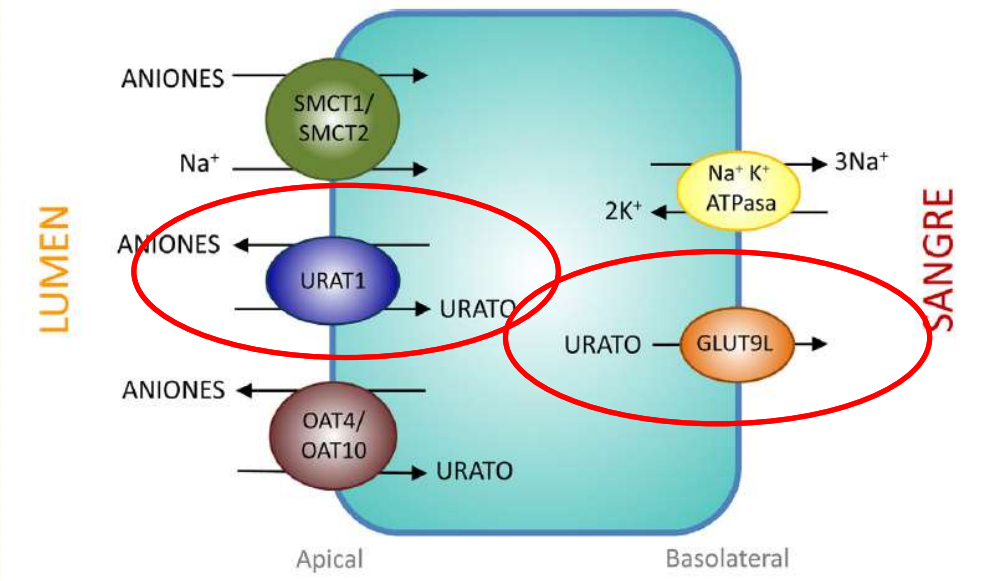
Fig 4.—Summary of the relationships between insulin resistance (steady-state plasma glucose concentration [SSPG]), insulin response, and various measures of uric acid metabolism.

Facchini F, Chen YD, Hollenbeck CB, Reaven GM. Relationship between resistance to insulin-mediated glucose uptake, urinary uric acid clearance, and plasma uric acid concentration. JAMA. 1991 Dec 4;266(21):3008-11

¿COMO?



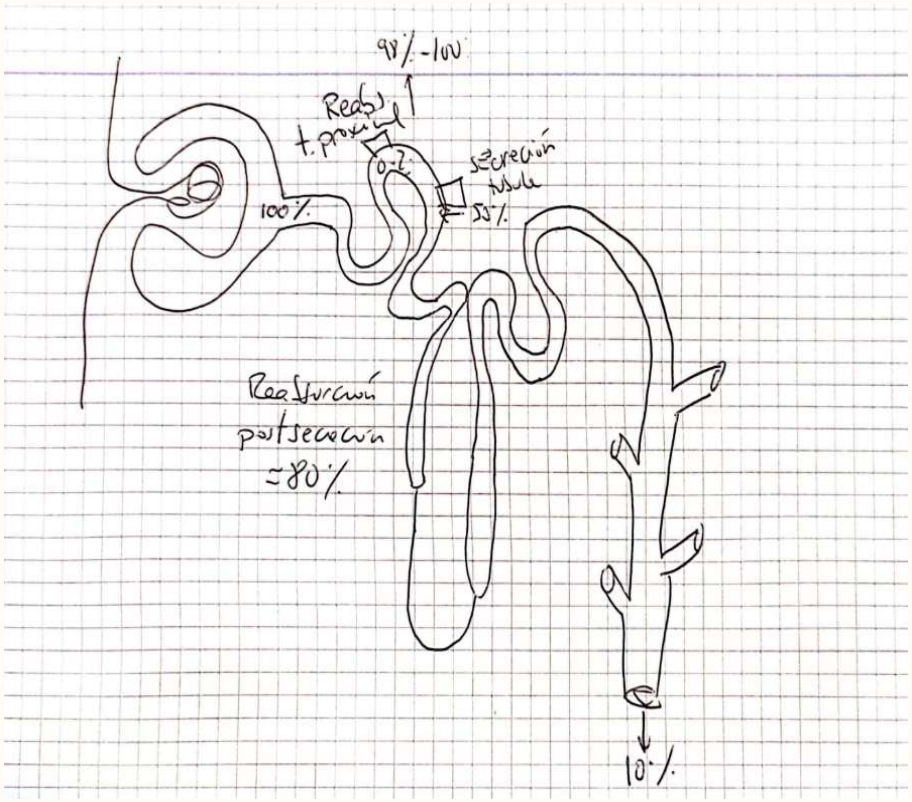
REABSORCIÓN PROXIMAL



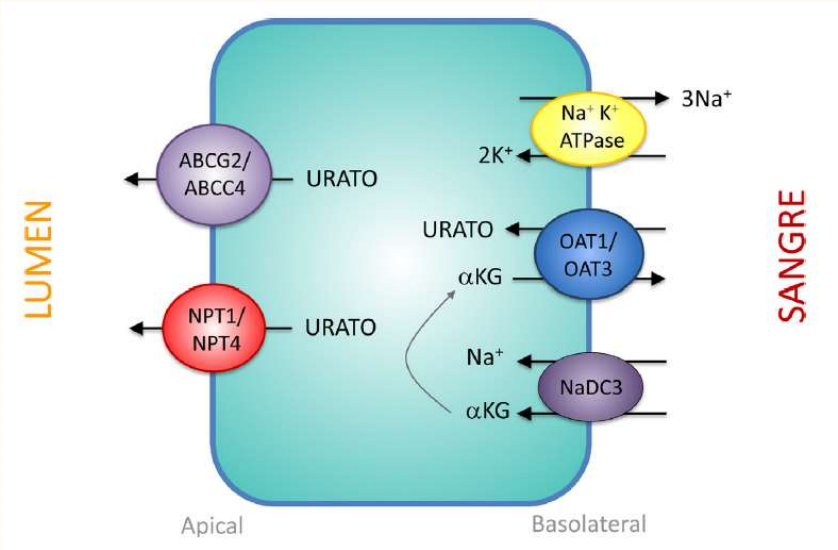
García-Nieto VM, Claverie-Martín F, Moraleda-Mesa T, Perdomo-Ramírez A, Tejera-Carreño P, Cordoba-Lanus E, et al. Gout associated with reduced renal excretion of uric acid. Renal tubular disorder that nephrologists do not treat. Nefrologia (Engl Ed). 2022 May-Jun;42(3):273-279.

Cesar Diaz Torne. 8 años

¿COMO?



SECRECIÓN TUBULAR



<u>Causas de hiperuricemia</u>

Hipoexcreción renal (90%)

Sobrecarga renal

García-Nieto VM, Claverie-Martín F, Moraleda-Mesa T, Perdomo-Ramírez A, Tejera-Carreño P, Cordoba-Lanus E, et al. Gout associated with reduced renal excretion of uric acid. Renal tubular disorder that nephrologists do not treat. Nefrologia (Engl Ed). 2022 May-Jun;42(3):273-279.

Cesar Diaz Torne. 8 años.

¿COMO?

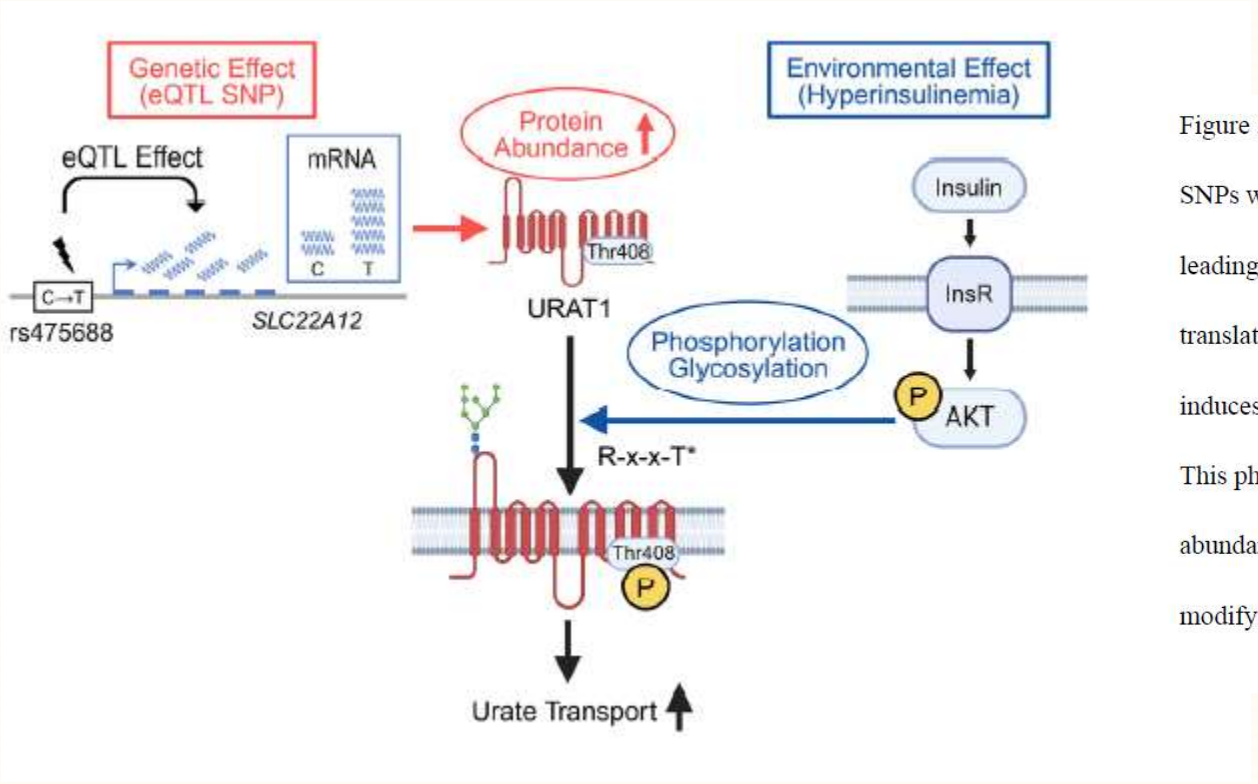
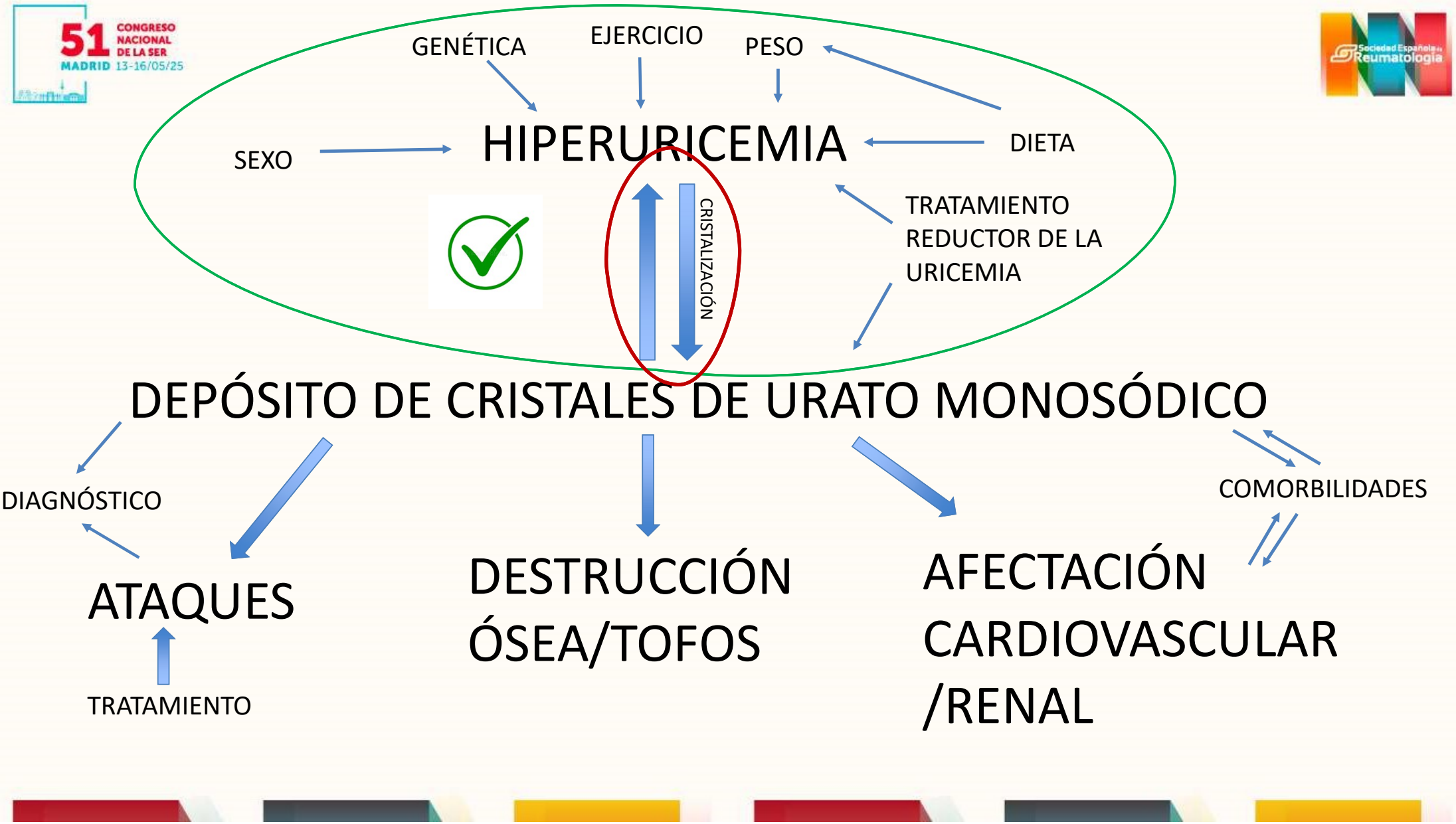


Figure 5. Molecular basis of the gene-environment interaction regulating hURAT1. SNPs with eQTL effects (e.g., rs475688) upregulate *SLC22A12* mRNA expression, leading to increased hURAT1 abundance. Environmental factors include post-translational modifications, in which AKT kinase, activated by insulin signaling, induces the phosphorylation of URAT1 at Thr408 contained in the R-x-x-T motif. This phosphorylation event promotes glycosylation and enhances the cell surface abundance of hURAT1. These factors synergistically augment hURAT1 activity, modifying the association between hyperinsulinemia and serum urate levels.

Fujii W, Yamazaki O, Hirohama D, Kaseda K, Kuribayashi-Okuma E, Tsuji M, et al. Gene-environment interaction modifies the association between hyperinsulinemia and serum urate levels through SLC22A12. J Clin Invest. 2025 Mar 18:e186633.

- En conclusión y obviando las comorbilidades que pudiera tener tu enfermo con gota:
  - Dieta pobre en purinas: No
  - Dieta para perder peso: Sí


GENÉTICA
EJERCICIO
PESO
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HIPERURICEMIA
DIETA
CRISTALIZACIÓN
TRATAMIENTO REDUCTOR DE LA URICEMIA
DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO
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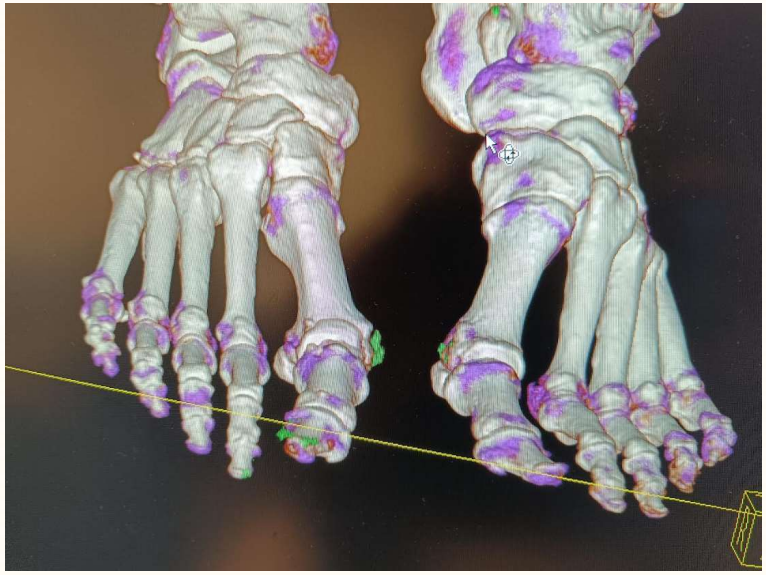
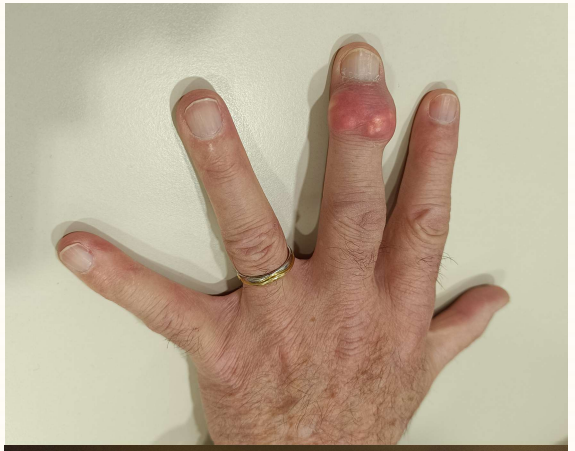
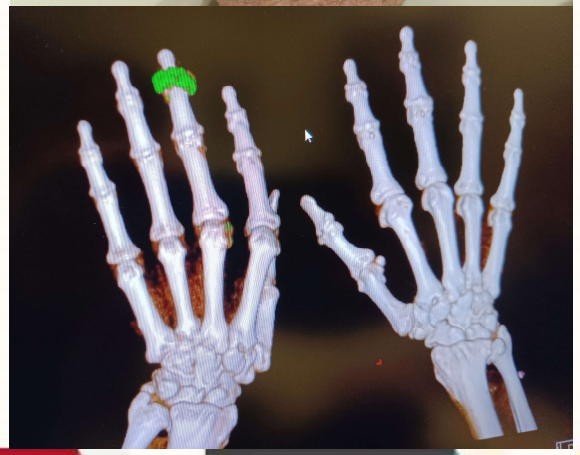
AFECTACIÓN CARDIOVASCULAR /RENAL
COMORBILIDADES

DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

- Parte II o como se forman los cristales o por que en un lado sí y en el otro no.







DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

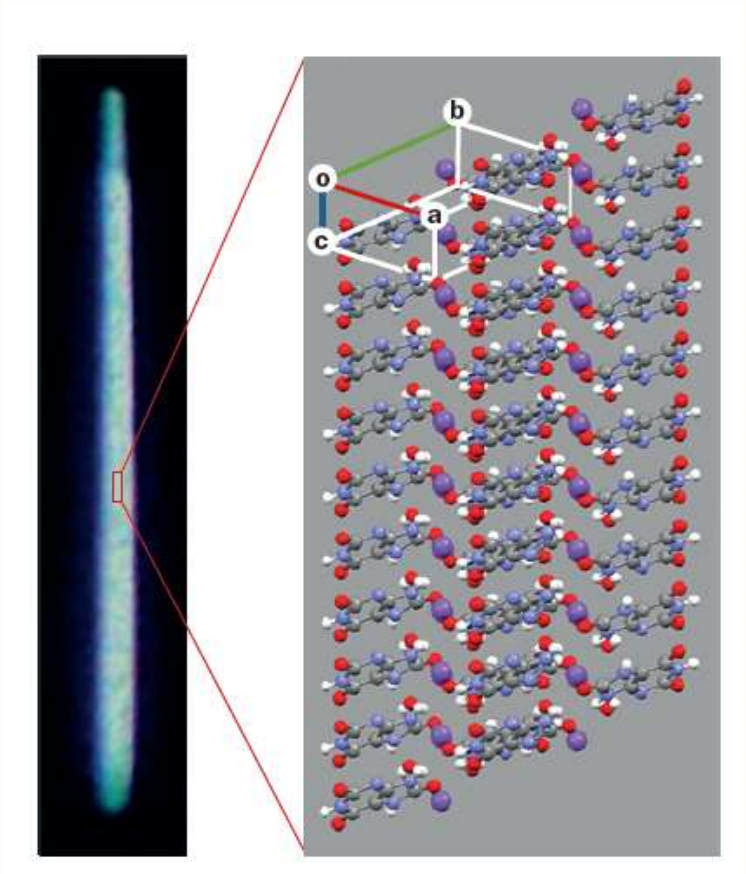
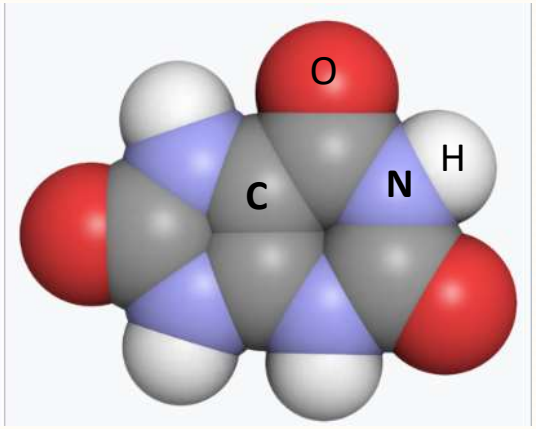


Figure 1 | The structure of an MSU crystal. The optical micrograph image shows the needle-like shape of an MSU crystal. The MSU crystal structure (inset) is represented in the same orientation as the crystal. Sodium ions and water molecules are arranged in channels between stacks of urate molecules. The crystal unit cell is represented at top left: O marks the origin and a, b and c the crystal axes. Abbreviation: MSU, monosodium urate monohydrate.



Ácido úrico

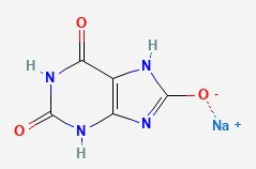
Pascual E, Addadi L, Andrés M, Sivera F. Mechanisms of crystal formation in gout-a structural approach. Nat Rev Rheumatol. 2015 Dec;11(12):725-30.

DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

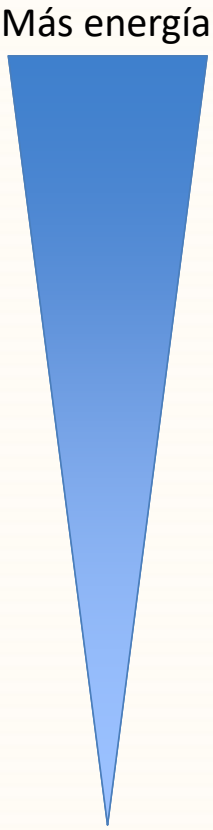
SOBRESATURACIÓN

NUCLEACIÓN

CRECIMIENTO CRISTALINO



- Nucleación homogénea
  - Pasa de soluble a cristal en el mismo líquido
- Nucleación heterogénea
  - Pasa de soluble a cristal sobre una superficie
  - Cuanto más irregular mejor
- Nucleación secundaria
  - Se forma encima de un cristal de la misma composición



Pascual E, Addadi L, Andrés M, Sivera F. Mechanisms of crystal formation in gout-a structural approach. Nat Rev Rheumatol. 2015 Dec;11(12):725-30.

DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

Nucleación heterogénea

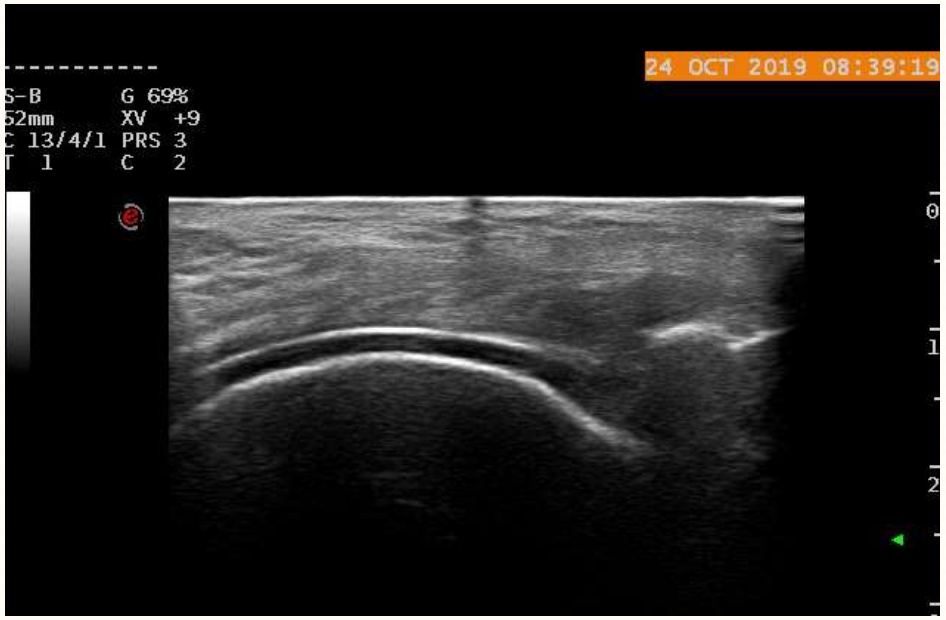


Imagen de ecografía de rodilla.
Fondo de Imagen de la SER. Dr. Juan Molina.

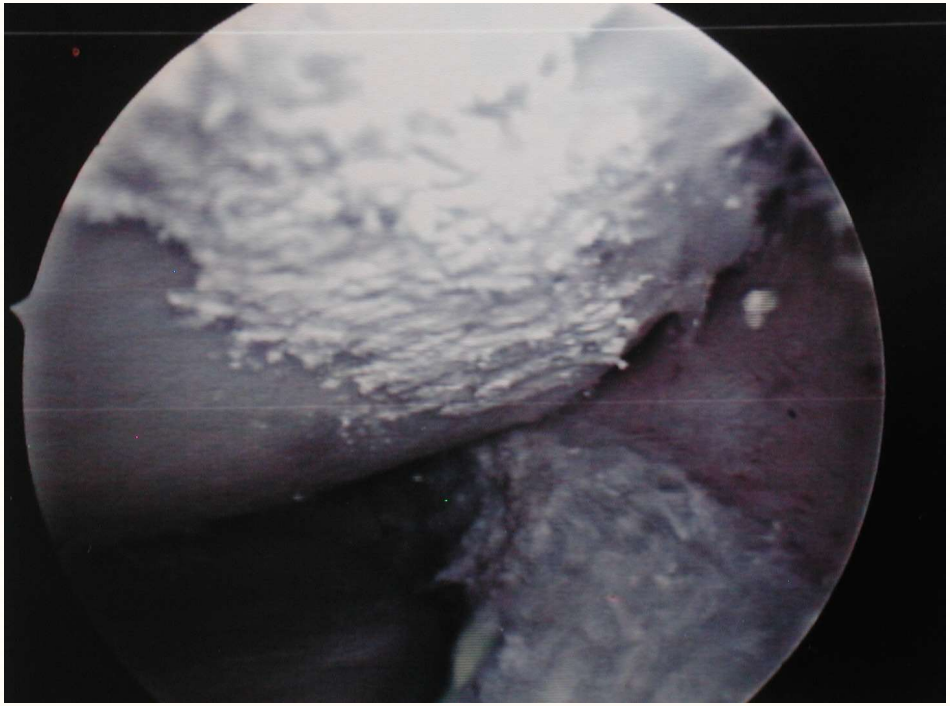


Imagen de artroscopia de rodilla cedida por el Dr. Fernando Pérez Ruiz

DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

OA: Exposición de fibras de colágeno que no deberían

↓

NUCLEACIÓN HETEROGENEA GUIADA

↓

NUCEACIÓN SECUNDARIA

Pascual E, Addadi L, Andrés M, Sivera F. Mechanisms of crystal formation in gout-a structural approach. Nat Rev Rheumatol. 2015 Dec;11(12):725-30.

DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

Table 3 Odds ratio (OR) and 95% confidence interval (CI) between the site of acute attacks of gout and presence of OA

Variable	Crude OR (95% CI)	Adjusted OR (95% CI)*	p
Presence of OA in the index joint	6.76 (5.39, 8.46)	7.94 (6.27, 10.05)	<0.001

*Adjusted for age (decades), gender, BMI (>30 kg/m^2) and prior diuretic use using a forward step-wise binary logistic regression model with gout in the index joint as the dependent variable.

Table 4 Odds ratios (OR) and 95% confidence interval (CI) between attacks of gout and presence of OA stratified by disease duration (tertiles)

	Disease duration (years), mean (SD)	Crude OR (95% CI)	Adjusted OR (95% CI)*
Tertile 1	2.9 (2.2)	7.39 (4.80, 11.37)	10.12 (6.29, 16.29)
Tertile 2	10.2 (2.1)	7.19 (4.97, 10.41)	8.22 (5.61, 12.06)
Tertile 3	25.9 (8.4)	6.02 (4.11, 8.80)	6.45 (4.38, 9.48)

*Adjusted for age (decades), gender, BMI (>30 kg/m^2) and prior diuretic use using a forward step-wise binary logistic regression model with gout in the index joint as the dependent variable.

Roddy E, Zhang W, Doherty M. Are joints affected by gout also affected by osteoarthritis? Ann Rheum Dis. 2007 Oct;66(10):1374-7.

DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

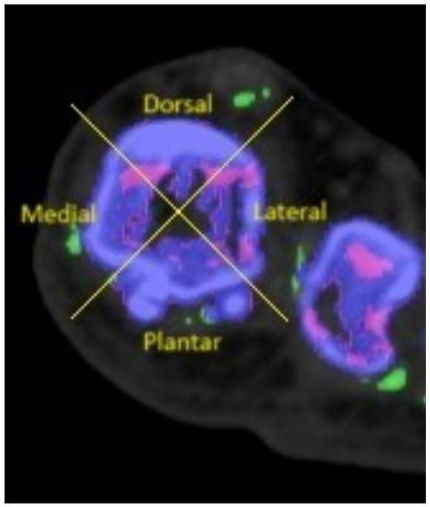


Figure 2. Example of a coronal view of the right foot with the 1st metatarsal head divided into four quadrants (dorsal, medial, lateral and plantar) for scoring of MSU crystals.

Figure 1. Example of MSU crystal deposition in and around the MTP joints on DECT images of the left foot. Note the MSU crystal deposition (colour coded as green), for example at the medial and plantar 1st metatarsal head. These images also show prominent plantar deposition. Far left: 3-dimensional. Top centre: Sagittal. Bottom centre: Coronal. Far right: Axial.

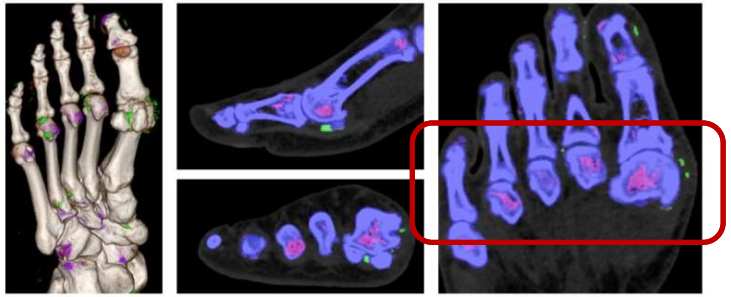
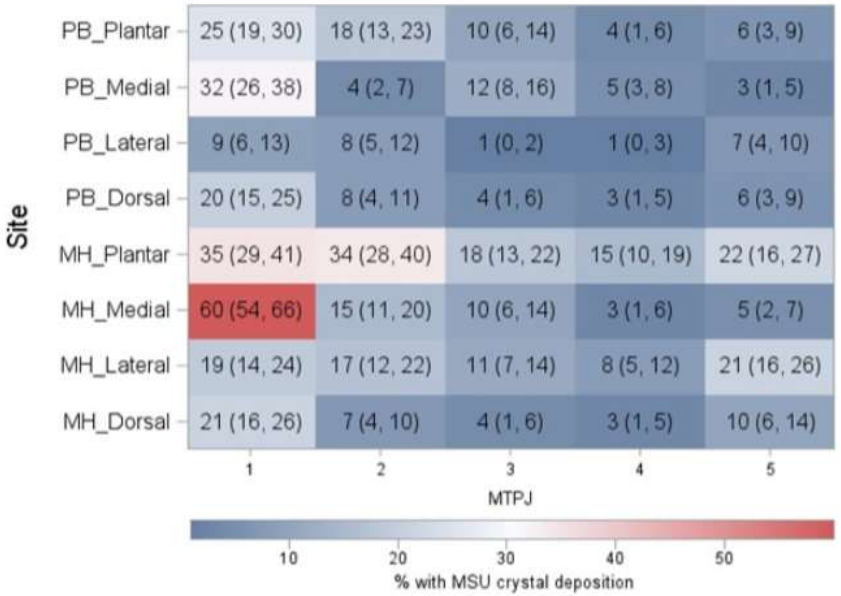


Figure 3. Heatmap of the GEE analysis showing the percentage (95% CI) of sites with MSU crystal deposition. PB: phalangeal base, MH: metatarsal head, MTP: metatarsophalangeal joint

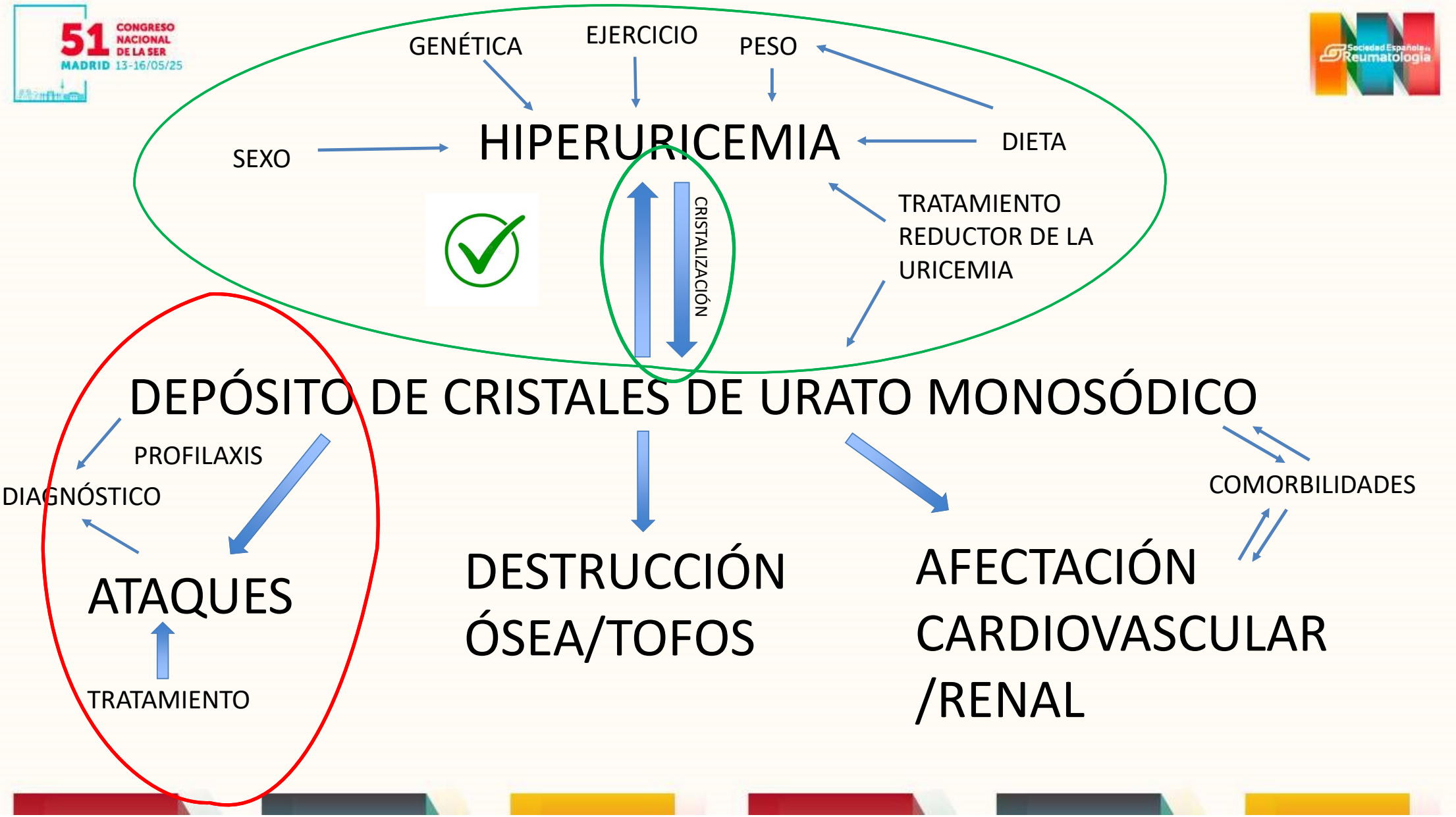


Chamaya De Silva, Cèsar Díaz-Torné, Greg Gamble, Anne Horne, Anthony Doyle , Lisa K Stamp , Nicola Dalbeth. Mapping monosodium urate crystal deposition within metatarsophalangeal joints in tophaceous gout: a dual-energy CT study. Rheumatology (Accepted)

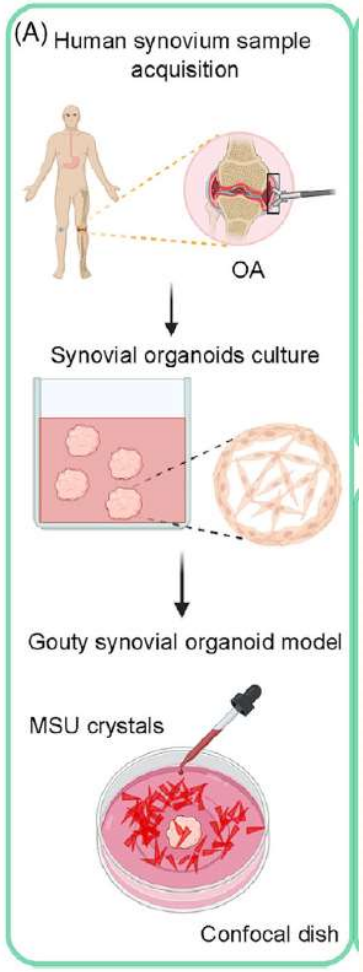
DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO

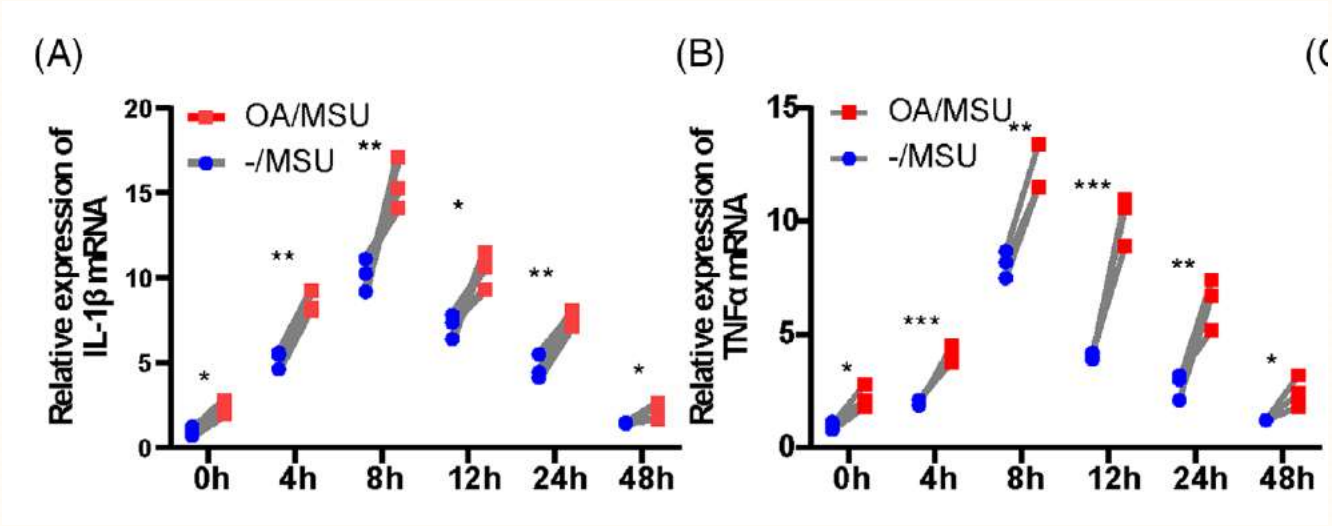
- Que afecta a la solubilidad del acido úrico?
  - Menor temperatura
  - pH más alcalino
- Que podría afectar al depósito (a parte de la artrosis)?
  - Más espacio
  - Más microtraumas
  - Más fricción

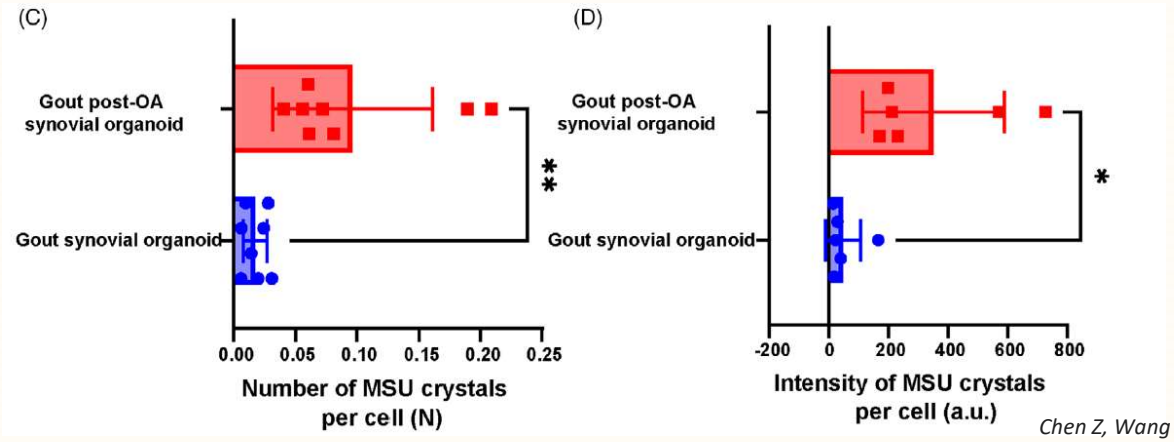
Minutos de descanso


GENÉTICA
EJERCICIO
PESO
SEXO
HIPERURICEMIA
DIETA
CRISTALIZACIÓN
TRATAMIENTO REDUCTOR DE LA URICEMIA
DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO
PROFILAXIS
DIAGNÓSTICO
ATAQUES
TRATAMIENTO
DESTRUCCIÓN ÓSEA/TOFOS
COMORBILIDADES
AFECTACIÓN CARDIOVASCULAR /RENAL

EL PAPEL DE LA OA: MÁS ALLÁ DEL DEPÓSITO







Chen Z, Wang W, Chen Y, Ji M, Hu Y. Osteoarthritis synovium as a nidus for monosodium urate crystal deposition inducing severe gout studied by label-free stimulated Raman scattering combined with synovial organoids. MedComm (2020). 2025 Jan 5;6(1):e70040.

¿QUÉ HACEMOS CON LA PROFILAXIS?

Table 3. Pooled estimates and 95% CIs for the three periods for both the primary and sensitivity analyses*

	Taking prophylaxis, percent (95% CI)	Within 3-mo period after stopping prophylaxis, percent (95% CI)	Last period of the study, percent (95%CI)	Number of studies excluded (reference)
Primary analysis	14.7 (11.3–18.5)	29.7 (22.9–37.0)	12.2 (6.8–19.0)	0
Sensitivity analyses				
Prophylaxis ≤12 wk only	14.0 (9.7–19.1)	34.3 (28.3–40.7)	8.4 (5.9–11.4)	4 ([8,12,22,28])
Prophylaxis >12 wk only	15.5 (10.3–21.6)	25.1 (14.5–37.5)	14.1 (6.6–23.9)	2 ([23,24])
Short trial ≤4 wk	10.9 (6.5–16.2)	36.8 (29.3–44.7)		6 ([8,12,22,23,27,28])
Long trial >4 wk	15.7 (11.7–20.2)	27.7 (20.0–36.2)	12.2 (6.8–19.0)	1 ([24])
Lesinurad excluded	15.1 (11.1–19.6)	32.8 (26.0–39.9)	13.9 (7.4–22.0)	1 ([22])
Placebo arms excluded	14.7 (11.2–19.2)	29.6 (22.0–37.7)	11.8 (6.0–19.1)	2 ([24,25])
All three time points available	15.4 (11.2–20.2)	28.7 (20.43–37.7)	12.2 (6.8–19.0)	

* CI, confidence interval.

Stamp LK, Frampton C, Newcomb JA, O'Dell JR, Mikuls TR, Dalbeth N. Gout Flares After Stopping Anti-Inflammatory Prophylaxis: A Rapid Literature Review and Meta-Analysis. Arthritis Care Res (Hoboken). 2024 Dec 22. doi: 10.1002/acr.25486. Epub ahead of print.

¿QUÉ HACEMOS CON LA PROFILAXIS?

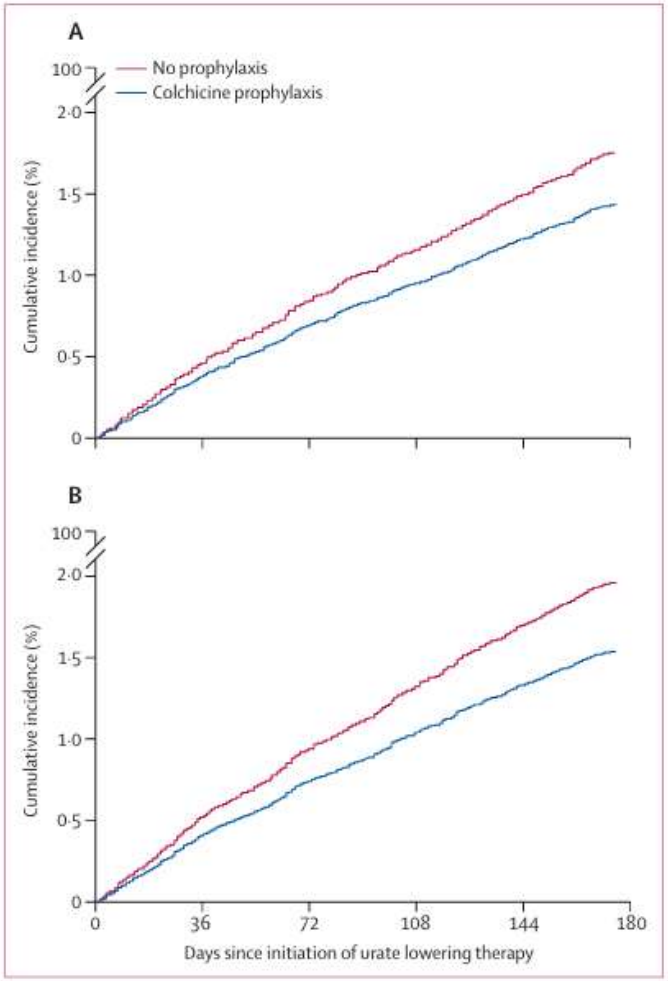


***Figure 2*: Cumulative incidence of the primary outcome**
The cumulative incidence of the primary outcome in the (A) intention-to-treat and (B) per-protocol analysis.

<u>Datos del estudio</u>

-99800 personas con un diagnóstico de gota
-25% mujeres. Edad 62,2 años.
-Colchicina > 21 días (16%)
-Seguimiento 180 días
-IAM fatal y no fatal o AVC

-HR ajustado 0,82
-6,5 eventos por cada 1000 personas/año

Cipolletta E, Nakafero G, McCormick N, Yokose C, Avery AJ, Mamas MA, et al. Cardiovascular events in patients with gout initiating urate-lowering therapy with or without colchicine for flare prophylaxis: a retrospective new-user cohort study using linked primary care, hospitalisation, and mortality data. Lancet Rheumatol. 2025 Mar;7(3):e197-e207

¿QUÉ HACEMOS CON LA PROFILAXIS?

51 CONGRESO NACIONAL DE LA SER
MADRID 13-16/05/25

Original Investigation FREE

August 2, 2022

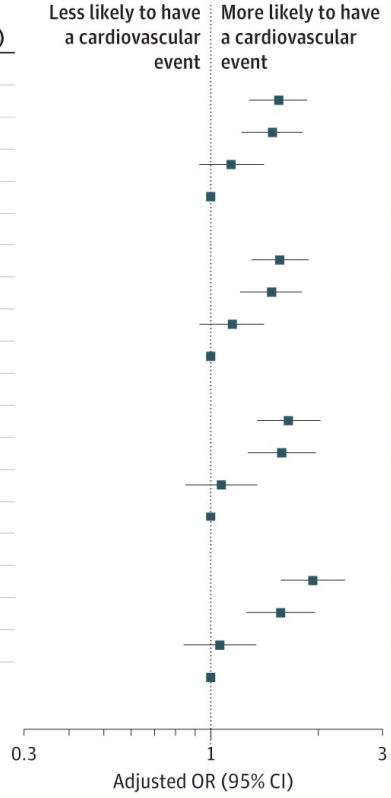
Association Between Gout Flare and Subsequent Cardiovascular Events Among Patients With Gout

Edoardo Cipolletta, MD[1,2]; Laila J. Tata, PhD[3]; Georgina Nakafero, PhD[1]; et al

Author Affiliations | Article Information

JAMA. 2022;328(5):440-450. doi:10.1001/jama.2022.11390

Gout flare exposure window, d[a]	No. (%) of participants: Cases[b] (N = 10 475)	Controls[c] (N = 52 099)	Unadjusted difference, % (95% CI)	Adjusted OR (95% CI)
Model 1[d]				
0-60	204 (2.0)	743 (1.4)	0.5 (0.2 to 0.9)	1.55 (1.28 to 1.86)
61-120	170 (1.6)	628 (1.2)	0.4 (0.1 to 0.8)	1.49 (1.22 to 1.81)
121-180	148 (1.4)	662 (1.3)	0.1 (-0.2 to 0.5)	1.14 (0.93 to 1.41)
>180 d or no flare[e]	9953 (95.0)	50 066 (96.1)	-1.1 (-1.7 to -0.5)	1 [Reference]
Model 2[f]				
0-60	204 (2.0)	743 (1.4)	0.5 (0.2 to 0.9)	1.56 (1.30 to 1.88)
61-120	170 (1.6)	628 (1.2)	0.4 (0.1 to 0.8)	1.48 (1.21 to 1.80)
121-180	148 (1.4)	662 (1.3)	0.1 (-0.2 to 0.5)	1.15 (0.93 to 1.41)
>180 d or no flare[e]	9953 (95.0)	50 066 (96.1)	-1.1 (-1.7 to -0.5)	1 [Reference]
Model 3[g]				
0-60	204 (2.0)	743 (1.4)	0.5 (0.2 to 0.9)	1.65 (1.35 to 2.03)
61-120	170 (1.6)	628 (1.2)	0.4 (0.1 to 0.8)	1.58 (1.27 to 1.97)
121-180	148 (1.4)	662 (1.3)	0.1 (-0.2 to 0.5)	1.07 (0.85 to 1.35)
>180 d or no flare[e]	9953 (95.0)	50 066 (96.1)	-1.1 (-1.7 to -0.5)	1 [Reference]
Model 4[h]				
0-60	204 (2.0)	743 (1.4)	0.5 (0.2 to 0.9)	1.93 (1.57 to 2.38)
61-120	170 (1.6)	628 (1.2)	0.4 (0.1 to 0.8)	1.57 (1.26 to 1.96)
121-180	148 (1.4)	662 (1.3)	0.1 (-0.2 to 0.5)	1.06 (0.84 to 1.34)
>180 d or no flare[e]	9953 (95.0)	50 066 (96.1)	-1.1 (-1.7 to -0.5)	1 [Reference]



age, sex and disease duration

Includes model 1 variables plus demographics, body mass index, smoking status, alcohol intake status, and English Index of Multiple Deprivation.

Includes variables from models 1 and 2 plus comorbidities (Charlson Comorbidity Index, hypertension, atrial fibrillation, hypercholesterolemia), number of hospitalizations in the previous year, number of primary care consultations in the previous year, and European Society of Cardiology individual cardiovascular risk, prescription of antiplatelets, statins, urate-lowering therapy, diuretics, and antihypertensives.

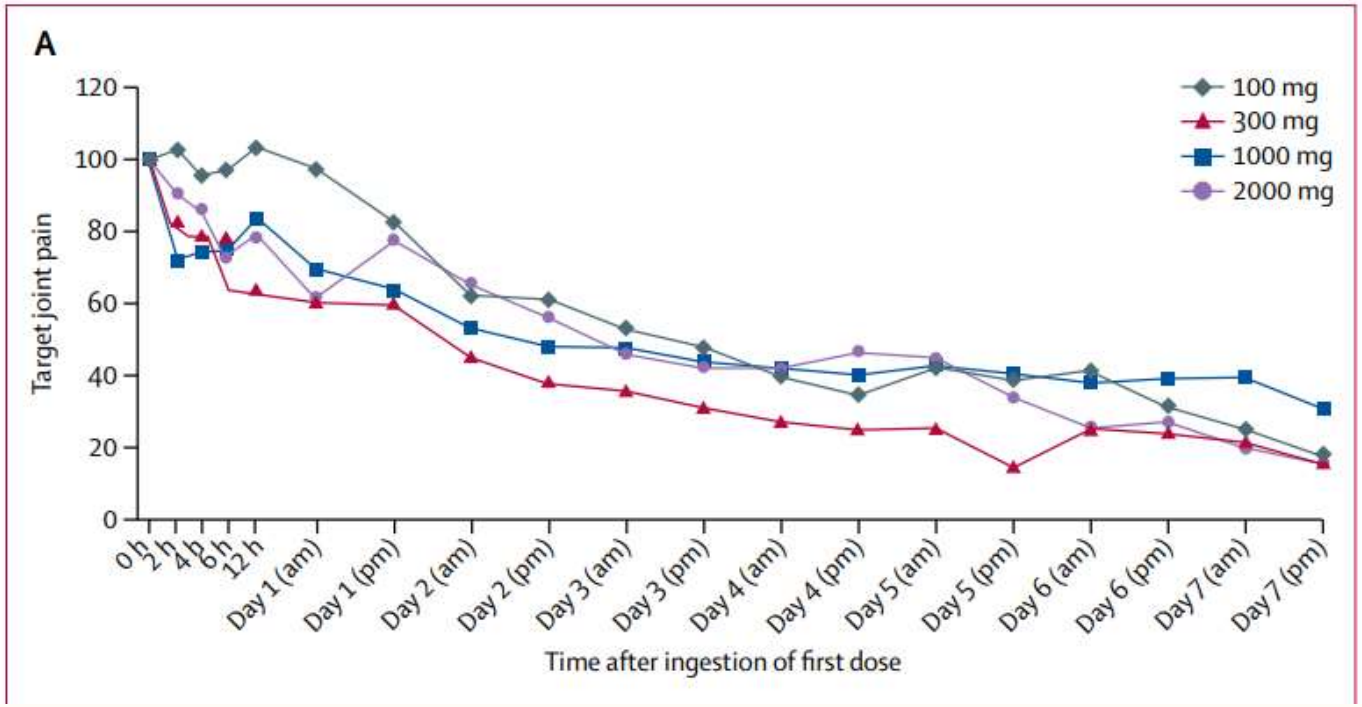
Includes variables from models 1, 2, and 3 plus prescription of medications used for treating gout flares (colchicine, nonsteroidal anti-inflammatory drugs, and corticosteroids).

Cipolletta E, Tata LJ, Nakafero G, Avery AJ, Mamas MA, Abhishek A. Association Between Gout Flare and Subsequent Cardiovascular Events Among Patients With Gout. JAMA. 2022 Aug 2;328(5):440-450.

51 CONGRESO NACIONAL DE LA SER
MADRID 13-16/05/25

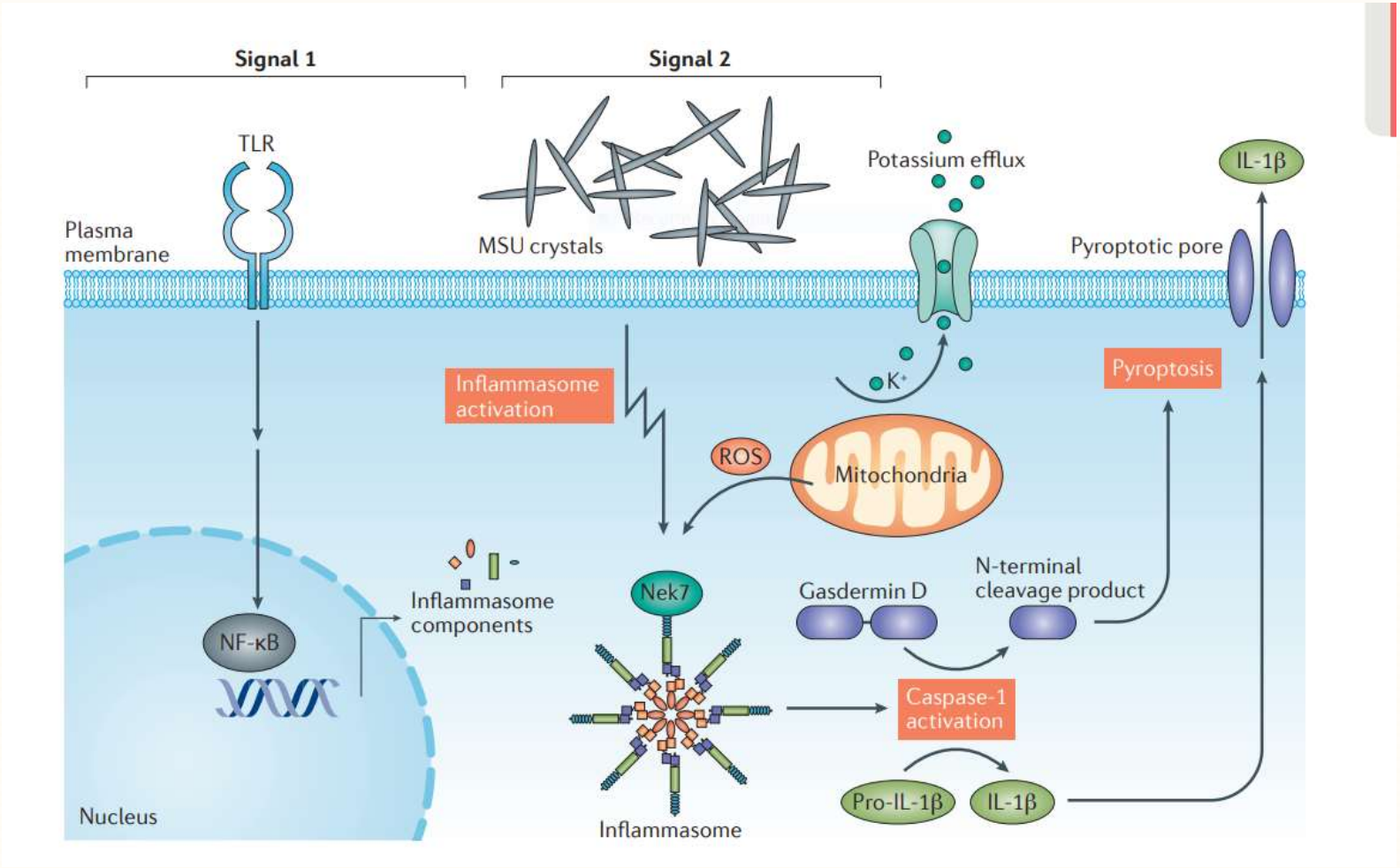
Dapansutrile, an oral selective NLRP3 inflammasome inhibitor, for treatment of gout flares: an open-label, dose-adaptive, proof-of-concept, phase 2a trial

Viola Klück, Tim L Th A Jansen*, Matthijs Janssen, Antoaneta Comarniceanu, Monique Efdé, Isak W Tengesdal, Kiki Schraa, Maartje C P Cleophas, Curtis L Scribner, Damaris B Skouras, Carlo Marchetti, Charles A Dinarello, Leo A B Joosten*



Klück V, Jansen TLTA, Janssen M, Comarniceanu A, Efdé M, Tengesdal IW, et al. Dapansutrile, an oral selective NLRP3 inflammasome inhibitor, for treatment of gout flares: an open-label, dose-adaptive, proof-of-concept, phase 2a trial. Lancet Rheumatol. 2020 May;2(5):e270-e280.

¿Y si la dieta fuera el trigger?



So AK, Martinon F. Inflammation in gout: mechanisms and therapeutic targets. Nat Rev Rheumatol. 2017 Nov;13(11):639-647.

ANAKINRA EN GOTA: EFICACIA Y SEGURIDAD

TABLE 2 Comorbidities, demographic and clinical characteristics of gouty arthritis patients reviewed.

Number of patients/flares; *n*	551/648
Male; *n* (%)	375 (83)
Age; years (± SD)	60.9 (± 10.1)
Gout treatment acute/chronic, *n* (%)	512/39 (92.9/7.1)
Polyarticular; *n* (%)	125 (47.5)
Tophaceous; *n* (%)	182 (66.9)
Comorbidities	
Hypertension, *n* (%)	164/232 (70.7)
CKD stage ≥ 3, *n* (%)	225/426 (52.8)
CHF, *n* (%)	150/385 (38.9)
Diabetes mellitus, *n* (%)	171/438 (35.4)
Transplant, *n* (%)	41/428 (9.7)
Dialysis, *n* (%)	14/260 (5.0)
Previous gout flare therapy	
Colchicine, *n* (%)	238 (43.9)
NSAIDs, *n* (%)	127 (23.4)
Corticosteroids, *n* (%)	200 (46.0)
Inpatient, *n* (%)	314 (56.9)
Flare, *n* (%)	309 (98.4)
Chronic, *n* (%)	5 (1.6)

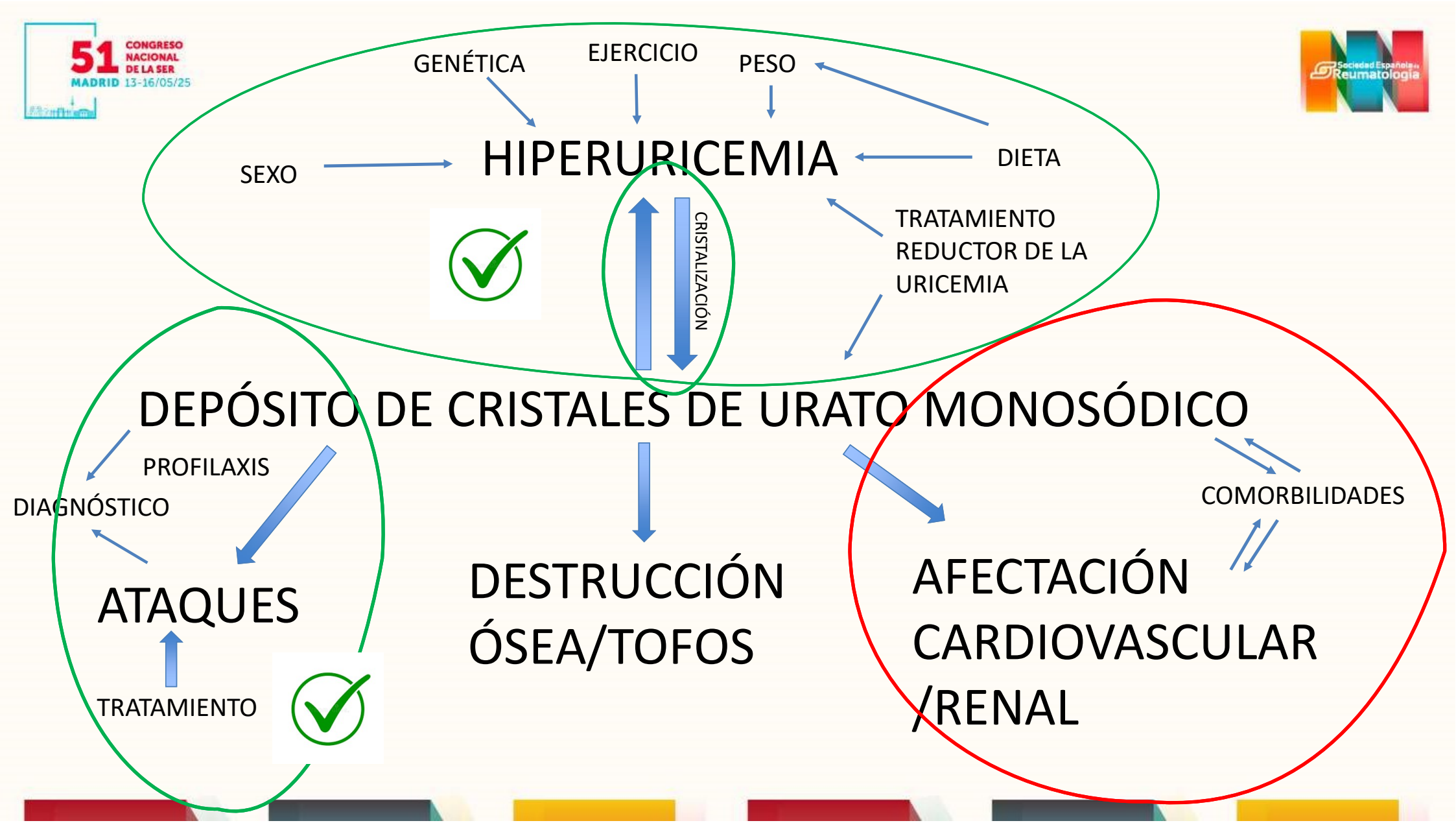
% calculated from the total number of patients where the characteristic was reported or could be inferred. CKD, chronic kidney disease; CHF, chronic heart failure; NSAID, nonsteroidal anti-inflammatory drug.

TABLE 3 Active infections at initiation of anakinra, including our case series.

References	Description
Rossi-Semerano et al. (18)	Lower airway infection
Thueringer et al. (21)	Herpes zoster *Klebsiella sp.* pneumonia, *Enterococcus sp.* bacteraemia, *Pseudomonas* UTI Candida line infection and pancreatic abscess Cellulitis Groin abscess and cellulitis Cellulitis and disseminated tuberculosis Blastomycosis pneumonia MSSA bacteraemia, septic arthritis, epidural abscess, and psoas abscess Central line infection GAS necrotizing fasciitis Disseminated multidrug-resistant tuberculosis
Liew et al. (15)	Cellulitis or abscess ($n = 7$) *Staphylococcus sp* bacteraemia ($n = 3$) *Pseudomona sp* bacteraemia *Klebsiella sp* bacteraemia ($n = 2$) Septic arthritis ($n = 6$) UTI ($n = 5$) *Clostridium difficile* colitis ($n = 5$) Pneumonia ($n = 3$) Cytomegalovirus viraemia Infectious endocarditis
Nocturne et al. (41)	H1N1 infection
Ghosh et al. (36)	Post-operative wound infection Pneumonia Sepsis
Ahmed et al. (26)	Localized infections Septic shock

UTI, urinary tract infection; MSSA, methicillin susceptible Staphylococcus aureus.

Jeria-Navarro S, Gomez-Gomez A, Park HS, Calvo-Aranda E, Corominas H, Pou MA, Diaz-Torne C. Effectiveness and safety of anakinra in gouty arthritis: A case series and review of the literature. Front Med (Lausanne). 2023 Jan 12;9:1089993.


GENÉTICA
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DESTRUCCIÓN ÓSEA/TOFOS
COMORBILIDADES
AFECTACIÓN CARDIOVASCULAR /RENAL

Algunas consecuencias del mal manejo

Table 5. Association between incident gout and adverse circulatory endpoints in the nationwide UK cohort (2006–2010), HRs, and 95% confidence intervals*

Analysis model	Circulatory deaths		Cardiovascular deaths		Coronary heart disease deaths		Nonfatal myocardial infarction	
	With gout	Without gout	With gout	Without gout	With gout	Without gout	With gout	Without gout
No. of events	297	570	192	361	172	306	299	892
Person-years	46,853	230,842	46,853	230,842	46,853	230,842	49,113	236,232
Model 1	2.43 (2.11–2.80)	1.0 (ref)	2.45 (2.06–2.92)	1.0 (ref)	2.59 (2.15–3.12)	1.0 (ref)	1.53 (1.34–1.75)	1.0 (ref)
Model 2	1.81 (1.56–2.10)	1.0 (ref)	1.81 (1.51–2.18)	1.0 (ref)	1.92 (1.58–2.33)	1.0 (ref)	1.35 (1.17–1.55)	1.0 (ref)
Model 3	1.60 (1.37–1.86)	1.0 (ref)	1.59 (1.32–1.91)	1.0 (ref)	1.67 (1.36–2.04)	1.0 (ref)	1.31 (1.14–1.52)	1.0 (ref)
Model 3 with SU	1.48 (1.24–1.76)	1.0 (ref)	1.49 (1.20–1.85)	1.0 (ref)	1.59 (1.26–1.99)	1.0 (ref)	1.33 (1.14–1.56)	1.0 (ref)

* Circulatory deaths (ICD-10 I00–I99) included ischemic, hypertensive, pulmonary, and other forms of heart disease, plus cerebrovascular disease and diseases of the arteries and veins. Cardiovascular deaths included coronary heart disease (ICD-10 I20–I25) and cerebral infarction (ICD-10 I63 and I64). Model 1 was adjusted for age (time scale), sex (male or female), race (White, Black, Asian, mixed, or other), and index year (2006–2021). Model 2 was further adjusted for body mass index, education, smoking history (former, current, never, or missing), alcohol consumption (times per month), and total cholesterol, high-density lipoprotein, systolic and diastolic blood pressure (continuous), receipt of diuretics, receipt of cholesterol-lowering medication, receipt of aspirin, receipt of a prescription for hypertension, and, for women, postmenopausal status (yes, no, or missing). Model 3 was further adjusted for coronary heart disease (yes or no), diabetes (yes or no), and estimated glomerular filtration rate (continuous). ICD-10, *International Classification of Diseases, 10th Revision*; HR, hazard ratio; No., number; ref, reference.

McCormick N, Lin K, Yokose C, Lu N, Zhang Y, Choi HK. Unclosing Premature Mortality Gap Among Patients With Gout in the US General Population, Independent of Serum Urate and Atherosclerotic Cardiovascular Risk Factors. Arthritis Care Res (Hoboken). 2024 May;76(5):691-702.

COMORBILIDADES Y RCV EN GOTA

	N = 94,759[1]	N
Incidents		
Dyslipidemia	1,307 (1.38%)	94,759
Cerebrovascular disease	1,233 (1.30%)	94,759
Hypertension	1,204 (1.27%)	94,759
Diabetes mellitus 2	1,443 (1.52%)	94,759
Ischemic heart disease	917 (0.97%)	94,759
Prevalents		
Dyslipidemia	49,239 (51.96%)	94,759
Cerebrovascular disease	7,597 (8.02%)	94,759
Hypertension	62,936 (66.42%)	94,759
Diabetes mellitus 2	24,362 (25.71%)	94,759
Ischemic heart disease	11,343 (11.97%)	94,759

[1] n (%)

BMI	30.10 (5.02)	64,310
Obesity		64,310
Pes insuficient	187 (0.29%)	
Normal	8,217 (12.78%)	
Sobrepes	26,393 (41.04%)	
Obesitat moderada	19,865 (30.89%)	
Obesitat severa	7,062 (10.98%)	
Obesitat mòrbida	2,586 (4.02%)	

Glomerular filtration	69.90 [53.80; 87.70]	82,270
MRC (FG)		82,270
I-II	55,257 (67.17%)	
IIIa	14,224 (17.29%)	
IIIb	9,189 (11.17%)	
IV	3,261 (3.96%)	
V	339 (0.41%)	

Datos propios de SIDIAP

COMORBILIDADES Y RCV EN GOTA

Table 2. Coronary angiography findings in patients, stratified according to uricemia status*

Finding	Total population (n = 140)	Normouricemia (n = 66)	Asymptomatic hyperuricemia alone (n = 61)	Asymptomatic hyperuricemia with MSU crystals (n = 13)
Moderate-to-severe coronary calcification	53 (37.9)	20 (30.3)	22 (36.1)	11 (84.6)
Significant coronary stenoses, median (IQR)	3 (2–4)	3 (1–4)	3 (2–5)	4 (3–5)
Normal coronary arteries	12 (8.6)	9 (13.6)	3 (4.9)	0 (0)
Multivessel or left main CAD	59 (42.1)	19 (28.8)	33 (54.1)	7 (53.8)

* Between-group comparisons and comparisons between the asymptomatic hyperuricemia groups were significant only for moderate-to-severe coronary calcification ($P = 0.003$ and $P = 0.002$, respectively). Except where indicated otherwise, values are the number (%). MSU = monosodium urate; IQR = interquartile range; CAD = coronary artery disease.

Silent Monosodium Urate Crystal Deposits Are Associated With Severe Coronary Calcification in Asymptomatic Hyperuricemia: An Exploratory Study.
Andrés M. Et al. Arthritis Rheumatol. 2016 Jun;68(6):1531-9.

COMORBILIDADES Y RCV EN GOTA

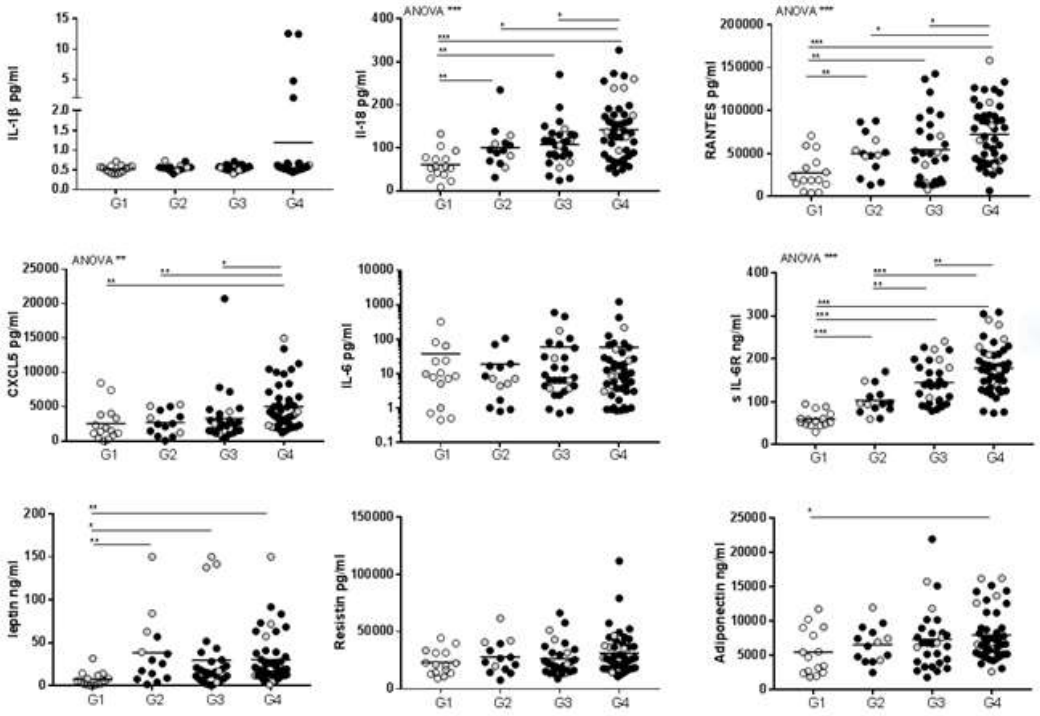


FIGURE 3 IL-1β, IL-18, RANTES, CXCL5, IL-6, sIL-6R, Leptin, Resistin and Adiponectin plasma levels in gout patients segregated in 3 groups depending on the inclusion criteria (G2, G3 and, G4) and healthy donors group (G1). Grey circles correspond to women and black circles to men p by unpaired one-way ANOVA test. * p<0.05, ** p<0.01 and *** p<0.001. In the case of adiponectin only were different C vs G4 p by two-tailed unpaired Student's t Test.

Diaz-Torne C, Ortiz MA, Garcia-Guillen A, Jeria-Navarro S, Sainz L, Fernandez-Sanchez S, et al. The inflammatory role of silent urate crystal deposition in intercritical gout. Rheumatology (Oxford). 2021 Nov 3;60(11):5463-5472.

COMORBILIDADES Y RCV EN GOTA

TABLE 2 Univariable and reduced multivariable Cox proportional hazards for baseline predictors of any new cardio-metabolic events

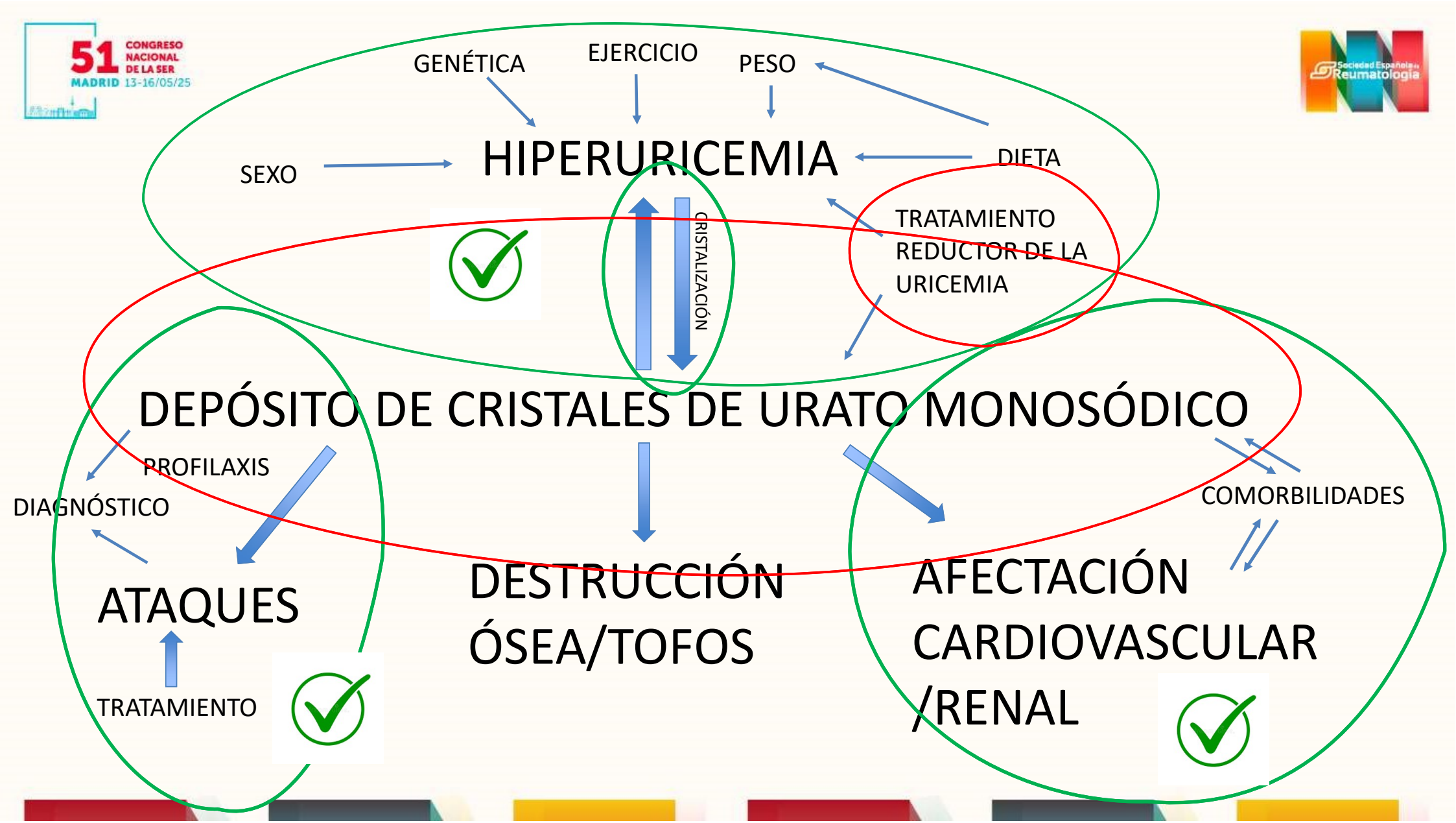
Variable	Univariable HR (95% CI)	*P*-value	Multivariable HR (95% CI)	*P*-value
Age, years	1.06 (1.02, 1.11)	**0.009**	1.02 (1.006, 1.03)	0.06
Serum urate level, mg/dl	1.01 (0.988, 1.03)	0.36	—	—
DECT volume of MSU crystals, cm^3	1.02 (1.01, 1.03)	**0.003**	1.02 (1.006, 1.03)	**0.003**
Body mass index, kg/m^2	0.971 (0.864, 1.09)	0.63	—	—
High blood pressure, Y/N	1.23 (0.425, 3.55)	0.7	—	—
Dyslipidaemia, Y/N	1.57 (0.545, 4.52)	0.4	—	—
History of myocardial infarction, Y/N	1.31 (0.423, 4.07)	0.64	—	—
History of stroke, Y/N	2.5 (0.806, 7.78)	0.11	2.52 (0.54, 11.81)	0.24
Diabetes mellitus, Y/N	0.696 (0.198, 2.45)	0.57	—	—
eGFR <60 ml/min/1.73m^2, Y/N	2.12 (0.767, 5.85)	0.15	—	—
Gout duration, years	1.01 (0.968, 1.06)	0.58	—	—
Number of flares in the previous year	0.888 (0.745, 1.06)	0.18	0.914 (0.776, 1.08)	0.28
Colchicine prophylaxis, Y/N	0.643 (0.223, 1.86)	0.41	—	—
Baseline ULT usage, Y/N	1.96 (0.729, 5.28)	0.18	—	—
Lipid lowering drug, Y/N	0.629 (0.218, 1.81)	0.39	—	—
Anti-hypertensive drug, Y/N	1.45 (0.501, 4.17)	0.5	—	—
Anti-platelet therapy, Y/N	1.34 (0.485, 3.7)	0.57	—	—
Excessive alcohol intake (≥3 units/day), Y/N	0.953 (0.331, 2.74)	0.93	—	—
Smoking, Y/N	0.441 (0.0581, 3.34)	0.43	—	—
Subcutaneous tophi, Y/N	0.884 (0.301, 2.59)	0.82	—	—

Statistically significant *P*-values shown in bold. DECT: dual-energy CT; eGFR: estimated glomerular filtration rate; HR: hazard ratio; MSU: monosodium urate; ULT: urate lowering therapy; Y/N: yes/no.

Marty-Ané A, Norberciak L, Andrès M, Houvenagel E, Ducoulombier V, Legrand J, et al. Crystal deposition measured with dual-energy computed tomography: association with mortality and cardiovascular risks in gout. Rheumatology (Oxford). 2021 Oct 2;60(10):4855-4860.

- Si os planteáis si iniciar o no la terapia reductora de la uricemia tras el primer ataque de gota recordad:

1. El depósito de cristales es un factor de riesgo independiente cardiovascular
2. El riesgo se relaciona con el tamaño del depósito


GENÉTICA
EJERCICIO
PESO
SEXO
HIPERURICEMIA
DIETA
CRISTALIZACIÓN
TRATAMIENTO REDUCTOR DE LA URICEMIA
DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO
PROFILAXIS
DIAGNÓSTICO
ATAQUES
TRATAMIENTO
DESTRUCCIÓN ÓSEA/TOFOS
COMORBILIDADES
AFECTACIÓN CARDIOVASCULAR /RENAL

DIAGNÓSTICO: TAC ESPECTRAL O DUAL

FISICA DEL DECT – TC de Doble Fuente

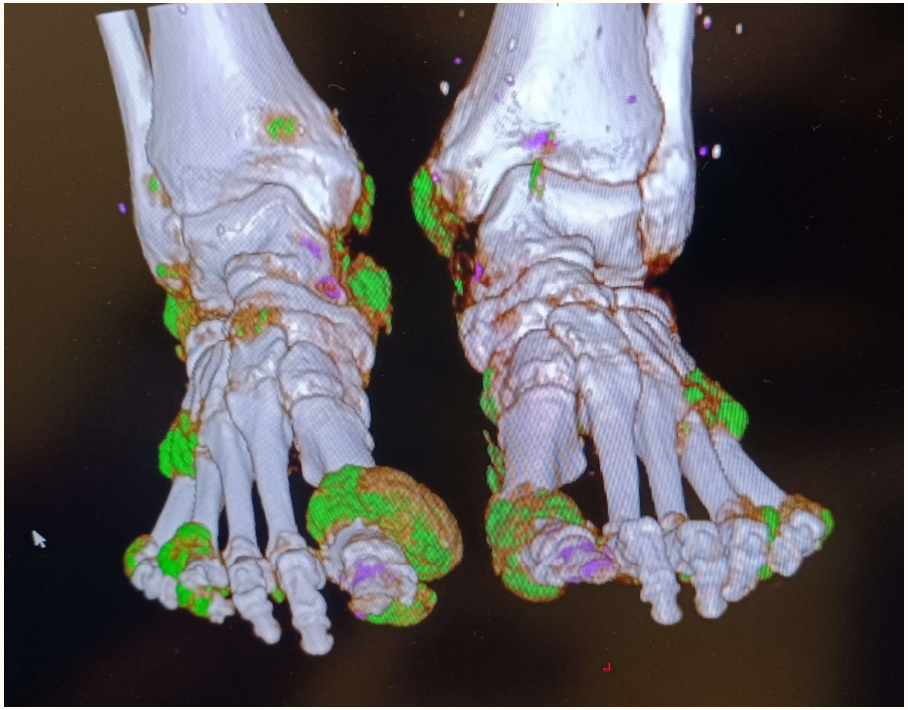
La DECT es una técnica de adquisición de imágenes que utiliza dos niveles de energía generados por un tubo de Rayos X de forma alternada o por el uso simultáneo de dos tubos de rayos.

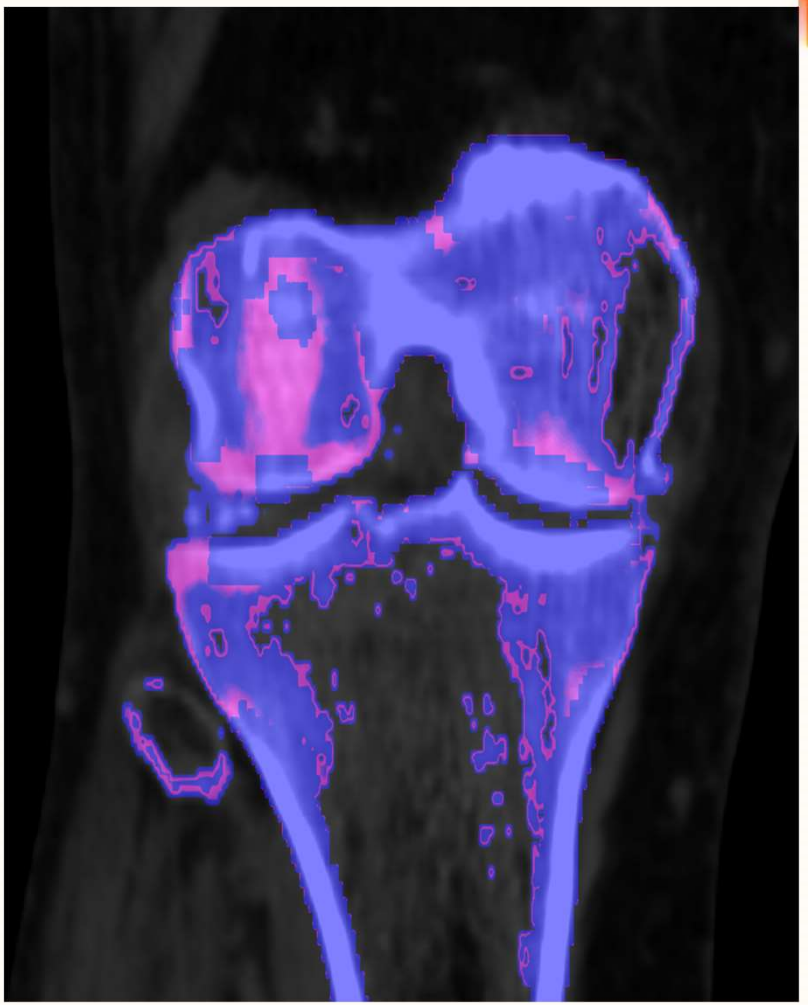
La TC de energía dual puede diferenciar materiales según su comportamiento al exponerlos a un kilovoltaje bajo y otro alto, permitiendo así no solo un análisis morfológico de las imágenes (como en la TC convencional), sino la detección y caracterización de distintos elementos químicos (yodo, **calcio**, **ácido úrico**, etc.)

Esquema de DECT de doble fuente.

SANT PAU
Campus Salut
Barcelona

DIAGNÓSTICO: TAC ESPECTRAL O DUAL





DIAGNÓSTICO: TAC ESPECTRAL O DUAL

CONTEXTO - Precisión Diagnóstica

- La DECT tiene una sensibilidad del 100% en presencia de **tofos** y del 64% en su ausencia.
- Se estima una **sensibilidad y especificidad** global del 87-90% y 83-84% respectivamente.
- **Falsos Positivos**: por similitud del índice de doble energía de la queratina con el del **MSU**, por ejemplo el lechos ungueales y zonas de hiperqueratosis cutánea. También por artefacto de endurecimiento del haz en contexto de metal y áreas de hueso cortical muy denso.
- **Falsos Negativos**: cuando los microcristales de **MSU** tienen un diámetro <2 mm, cuando se visualizan tofos con una concentración de urato monosódico demasiado baja o están parcialmente calcificados y cuando los parámetros técnicos de postprocesado están incorrectamente configurados.
- La sensibilidad y la especificidad de la DECT para la detección de **CPPD** se estima del 55% y del 92%, respectivamente (utilizando técnicas de imagen establecidas para la gota) y con una sensibilidad del 90-100% adaptando la técnica de postprocesado).
- La DECT sería además capaz de diferenciar entre **CPPD** y de hidroxiapatita de calcio pero actualmente no es una práctica establecida.

DIAGNÓSTICO: ESPECTROMETRIA DE RAMAN

DIAGNÓSTICO: ESPECTROMETRIA DE RAMAN

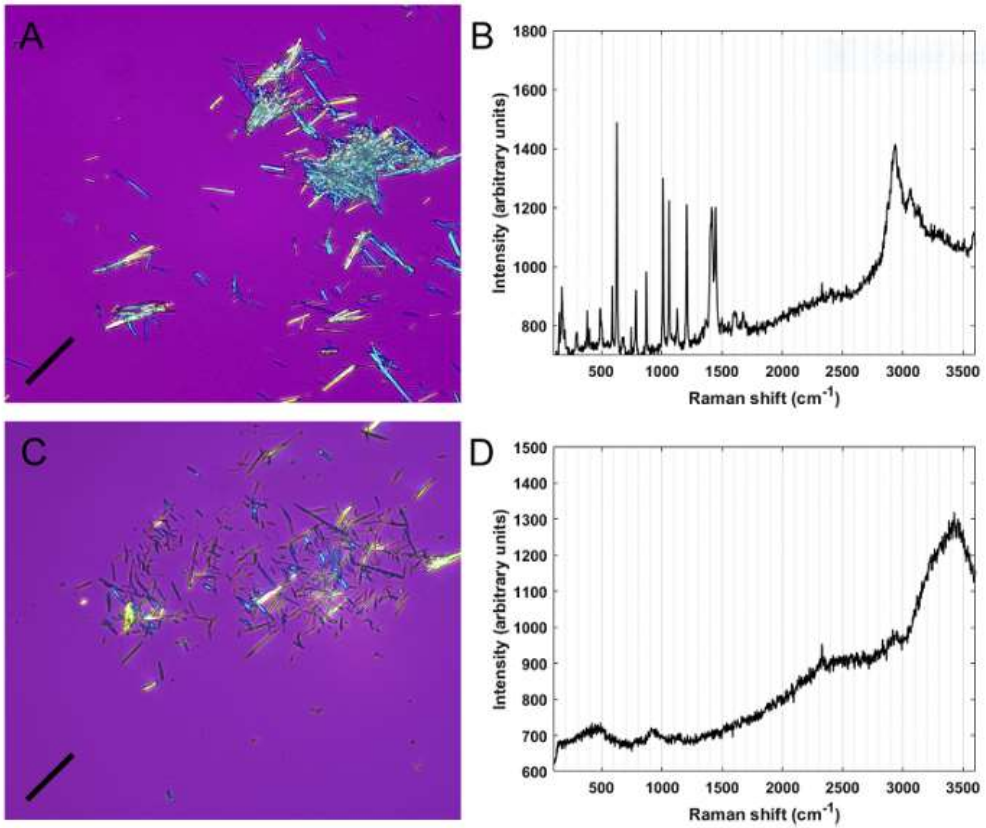
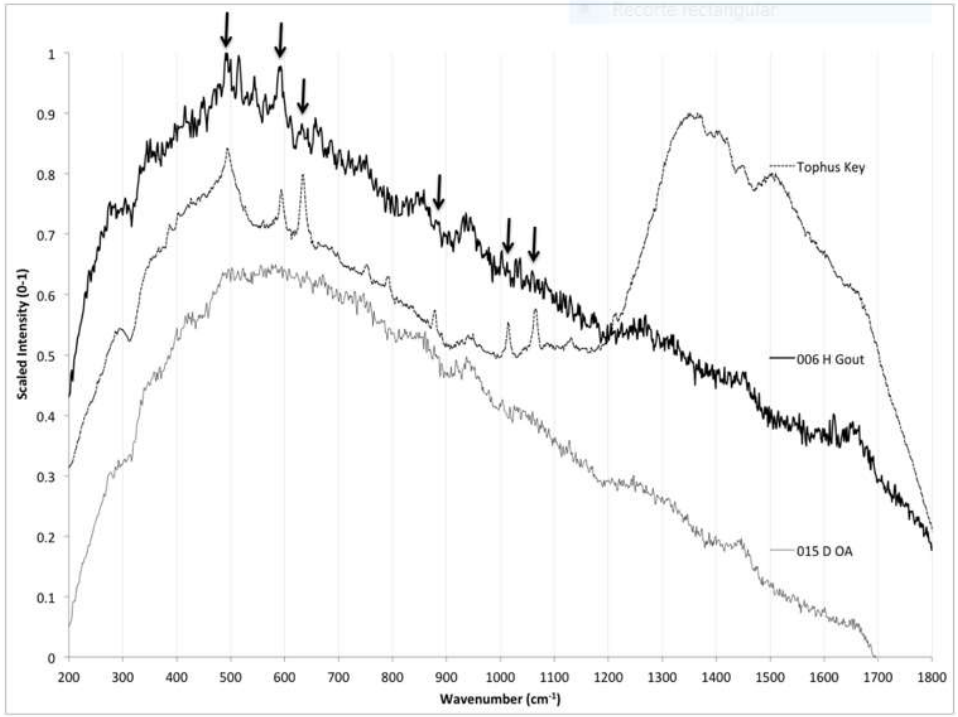


Fig. 2. A. Compensated polarized light microscopy image from monosodium urate (MSU) crystals of a patient with tophaceous gout (Zeis Axiolab 5, 63×/0.85N.A. objective). Black line shows slow axis direction. B. Raman spectrum of MSU measured with an integrated with an ordinary polarized light microscope (iRPolM) Raman Spectroscope. C. Compensated polarized light microscopy image of glass splinters (Zeis Axiolab 5, 63×/0.85N.A. objective). Black line shows slow axis direction. D. Raman spectrum of glass splinters measured with an iRPolM Raman Spectroscope.

Niessink T, Giesen T, Efdé M, Comarniceanu A, Janssen M, Otto C, Jansen TL. Test characteristics of Raman spectroscopy integrated with polarized light microscopy for the diagnosis of acute gouty arthritis. Joint Bone Spine. 2023 Dec;90(6):105611.

DIAGNÓSTICO: RAMAN IN VIVO

Supplementary Figure S1. Scaled Raman spectra displaying monosodium urate peaks present in aspirated tophus fluid compared against spectra obtained from a gout sufferer and control osteoarthritis sufferer.



Arrows identify detected MSU peaks in gout sufferer. Tophus key: aspirated tophus fluid; 006 H Gout: gout sufferer; 015 D OA: osteoarthritis sufferer.

Abhishek A, Curran DJ, Bilwani F, Jones AC, Towler MR, Doherty M. In vivo detection of monosodium urate crystal deposits by Raman spectroscopy-a pilot study. Rheumatology (Oxford). 2016 Feb;55(2):379-80.

DIAGNÓSTICO

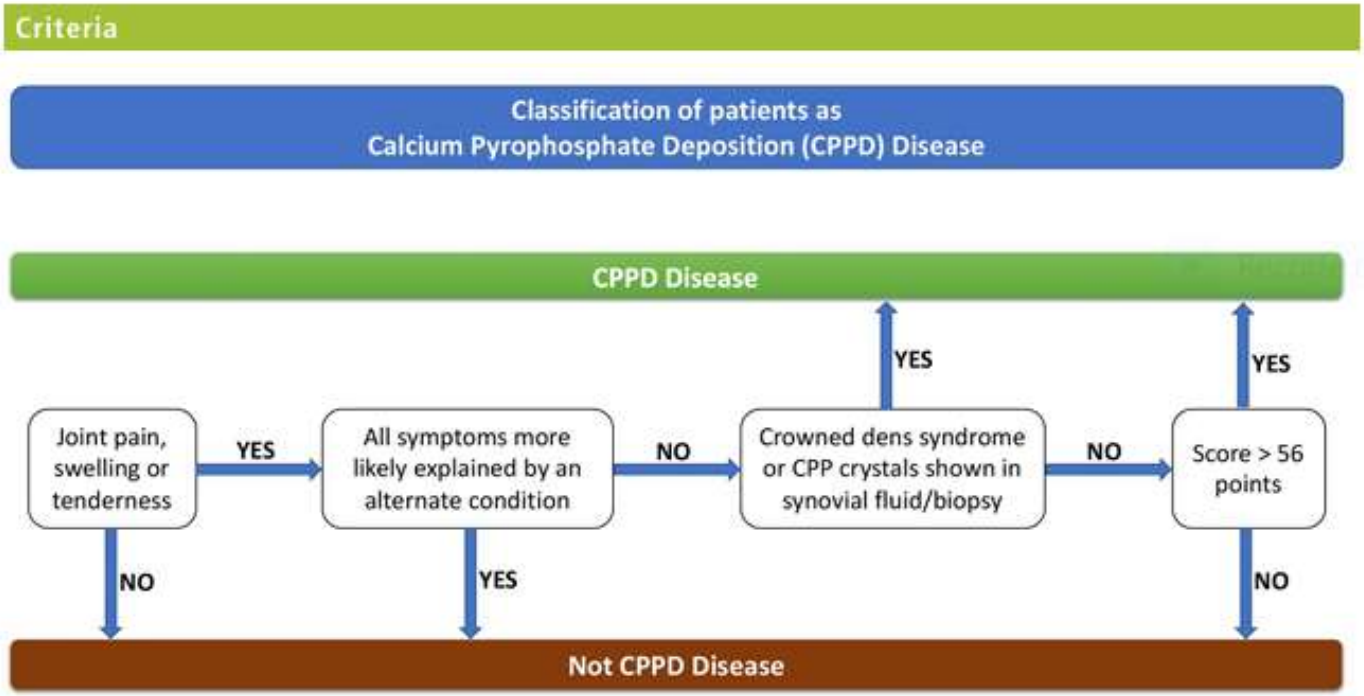


Figure 2 Conceptual schematic for applying the CPPD disease classification criteria.

Abhishek A, Tedeschi SK, Pascart T, Latourte A, Dalbeth N, Neogi T, et al. The 2023 ACR/EULAR classification criteria for calcium pyrophosphate deposition disease. Ann Rheum Dis. 2023 Oct;82(10):1248-1257.

DIAGNÓSTICO

Table 2 ACR/EULAR classification criteria for CPPD disease

Definition of criteria

The CPPD disease classification criteria should be applied in the following order:

1. Entry criterion: Ever had at least one episode of joint pain, swelling, or tenderness.*
2. Absolute exclusion criteria: All symptoms are more likely explained by an alternative condition (such as rheumatoid arthritis, gout, psoriatic arthritis, OA, etc.).
3. Sufficient criteria: Presence of either crowned dens syndrome or synovial fluid analysis demonstrating CPP crystals in a joint with swelling, tenderness, or pain.†

An individual is classified as having CPPD disease if the entry criterion is met, exclusion criteria are not met, and at least one sufficient criterion is fulfilled.

If none of the sufficient criteria are present, an individual is classified as having CPPD disease if the sum of the criteria is≥56 points.

Scoring of criteria

Items can be scored if they were ever present during a patient's lifetime. If a patient fulfils>1 item in a given domain, only the highest weighted item will be scored. Imaging of at least one symptomatic joint by CR, US, CT, or DECT is required.

Domains and levels	Points
A Age at onset of joint symptoms (pain, swelling, and/or tenderness)	
≤60 years	0
>60 years	4
B Time course and symptoms of inflammatory arthritis‡	
No persistent or typical inflammatory arthritis	0
Persistent inflammatory arthritis	9
One typical acute arthritis episode	12
More than one typical acute arthritis episode	16
C Sites of typical episode(s) of inflammatory arthritis in peripheral joints	
First MTP joint	−6
No typical episode(s)	0
Joint(s) other than wrist, knee, or first MTP joint	5
Wrist	8
Knee	9
D Related metabolic diseases§	
None	0
Present	6
E Synovial fluid crystal analysis from a symptomatic joint¶	
CPP crystals absent on 2 occasions	−7
CPP crystals absent on 1 occasion	−1
Not performed	0
F OA of hand/wrist on imaging (defined as present if the K/L score is≥2)	
None of the below findings or no wrist/hand imaging performed	0
OA of radiocarpal joints bilaterally	2
≥2 of the following findings: STT joint OA without first CMC joint OA; second MCP joint OA; third MCP joint OA	7
G Imaging evidence of CPPD in symptomatic peripheral joint(s)**	
None on US, CT, or DECT (and absent on CR or CR not performed)	−4
None on CR (and US, CT, DECT not performed)	0
Present on either CR, US, CT, or DECT	16
H Number of peripheral joints with evidence of CPPD on any imaging modality regardless of symptoms**	
None	0
1	16
2–3	23
≥4	25

*Episode occurring in a peripheral joint or, in the case of crowned dens syndrome, an axial joint such as C1/C2.

†Crowned dens syndrome is defined as presence of a) clinical features and b) imaging features. Clinical features include acute or subacute onset of severe pain localised to the upper neck with elevated inflammation markers, limited rotation, and often fever. Mimicking conditions such as polymyalgia rheumatica and meningitis should be excluded. Imaging features include conventional CT showing calcific deposits, typically linear and less dense than cortical bone, in the transverse retro-odontoid ligament (transverse ligament of the atlas), often with an appearance of 2 parallel lines in axial views. Calcifications at the atlanto-axial joint, alar ligament, and/or in pannus adjacent to the tip of the dens are also characteristic. Dual-energy computed tomography (DECT) features include a dual-energy index between 0.016 and 0.036. Both the clinical features and the imaging features must be present. Sufficient criteria are also met if calcium pyrophosphate (CPP) crystals are demonstrated on histopathologic analysis of the joint tissue, provided that the patient is eligible for classification, that is, does not already meet the exclusion criteria. For instance, articular cartilage CPP crystal deposition in patients with end-stage osteoarthritis (OA) cannot be used to classify the patient as having calcium pyrophosphate deposition (CPPD) disease when all symptoms are better explained by the presence of OA (exclusion criteria).

‡Persistent inflammatory arthritis was defined as ongoing joint swelling with pain and/or warmth in≥1 joint(s). Typical episode was defined as an episode with acute onset or acute worsening of joint pain with swelling and/or warmth that resolves irrespective of treatment.

§Including hereditary hemochromatosis, primary hyperparathyroidism, hypomagnesemia, Gitelman syndrome, hypophosphatasia, or familial history of CPPD disease.

¶Synovial fluid analysis should be performed by an individual trained in the use of compensated polarised light microscopy for crystal identification.

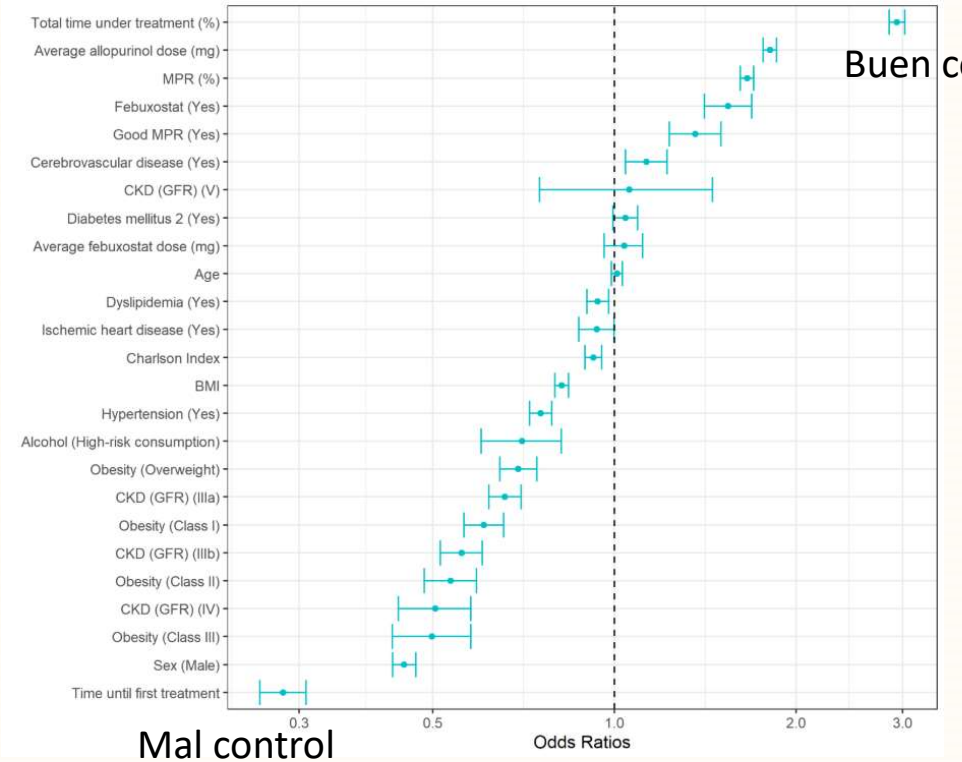
**Imaging of at least one symptomatic peripheral joint by CR, US, CT, or DECT is required to be considered for classification if sufficient criteria are not met. Imaging evidence of CPPD refers to calcification of the fibrocartilage or hyaline cartilage. Do not score calcification of the synovial membrane, joint capsule, or tendon. Imaging definitions are published elsewhere.[21] Only consider involvement of peripheral joints.

CMC, carpometacarpal; CR, conventional radiography; CT, computed tomography; K/L, Kellgren/Lawrence; MCP, metacarpophalangeal; MTP, metatarsophalangeal; STT, scaphotrapeziotrapezoid; US, ultrasound.

Abhishek A, Tedeschi SK, Pascart T, Latourte A, Dalbeth N, Neogi T, et al. The 2023 ACR/EULAR classification criteria for calcium pyrophosphate deposition disease. Ann Rheum Dis. 2023 Oct;82(10):1248-1257.

¿CUANDO DEBEMOS INICIAR EL TRATAMIENTO REDUCTOR DE LA URICEMIA?

ULT should be considered and discussed with every patient with a definite diagnosis of gout from the first presentation. ULT is indicated in all patients with recurrent flares, tophi, urate arthropathy and/or renal stones. Initiation of ULT is recommended close to the time of first diagnosis in patients presenting at a young age (<40 years) or with a very high SUA level (>8.0 mg/dL; 480 μmol/L) and/or comorbidities (renal impairment, hypertension, ischaemic heart disease, heart failure). Patients with gout should receive full information and be fully involved in decision-making concerning the use of ULT.



Buen control

Mal control

*Mi consejo: A la que sepamos que hay depósito debe iniciarse el tratamiento

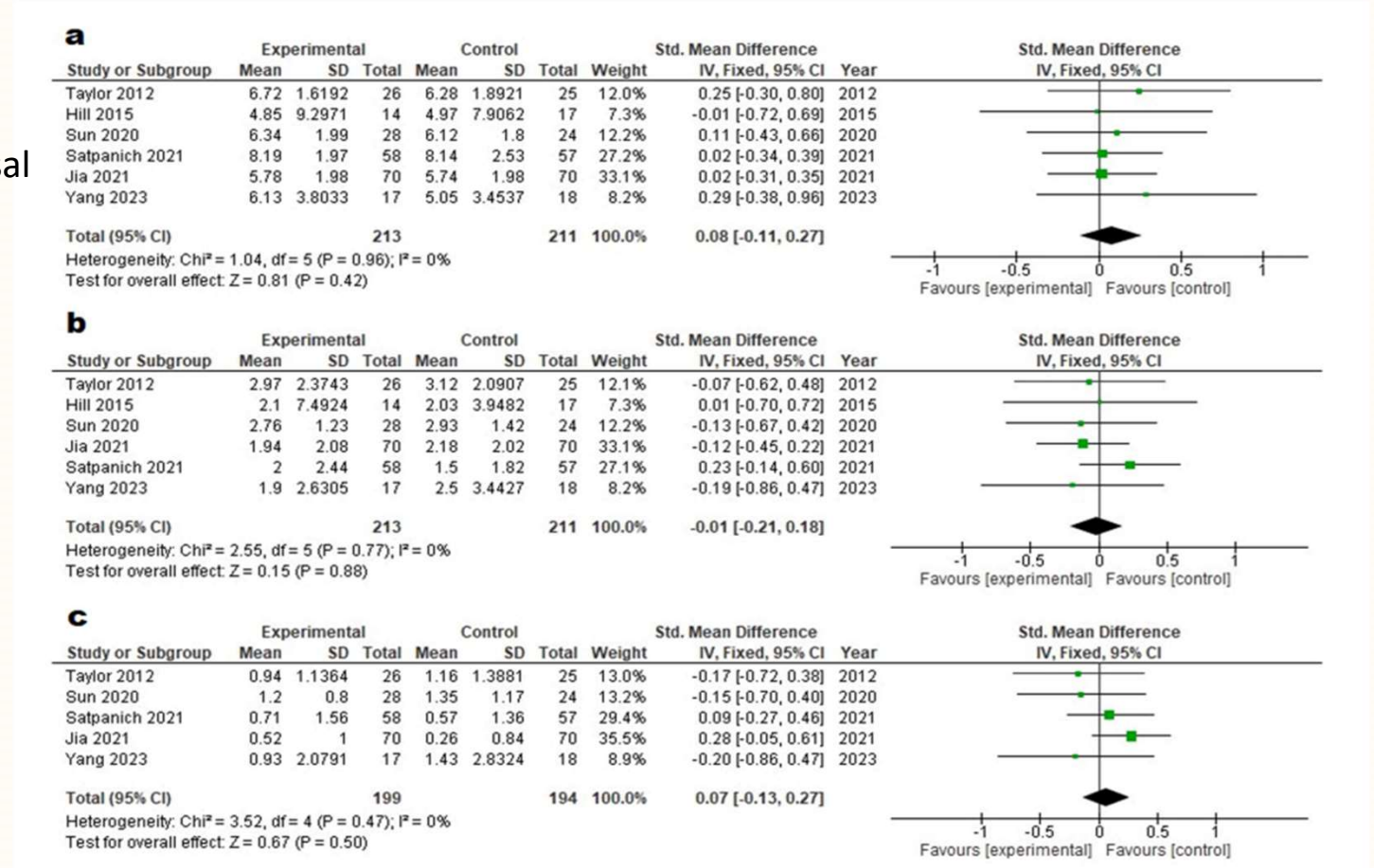
Richette P, Doherty M, Pascual E, Barskova V, Becce F, Castañeda-Sanabria J, et al. 2016 updated EULAR evidence-based recommendations for the management of gout. Ann Rheum Dis. 2017 Jan;76(1):29-42.
SIDIAP. Datos propios

¿CUANDO DEBEMOS INICIAR EL TRATAMIENTO REDUCTOR DE LA URICEMIA?

Dolor basal

Dolor días 3-4

Dolor días 7-8



*Mi consejo: Valorad si está capacitado para entender el tratamiento del ataque, el preventivo y el reductor de la uricemia a la vez. Si puede, empezad todo a la vez.

Tai V, Gow P, Stewart S, Satpanich P, Li C, Abhishek A, Dalbeth N. An updated systematic review and meta-analysis of randomised controlled trials on the effects of urate-lowering therapy initiation during a gout flare. Semin Arthritis Rheum. 2024 Apr;65:152367

¿COMO DEBEMOS INICIAR EL TRATAMIENTO REDUCTOR DE LA URICEMIA?

ESTRATEGIA: START LOW GO SLOW

- Evitaremos efectos secundarios de los fármacos
- Evitaremos ataques

¿COMO DEBEMOS INICIAR EL TRATAMIENTO REDUCTOR DE LA URICEMIA?

Table 4. Proposed starting dosage of allopurinol based on 1.5 mg per estimated GFR*

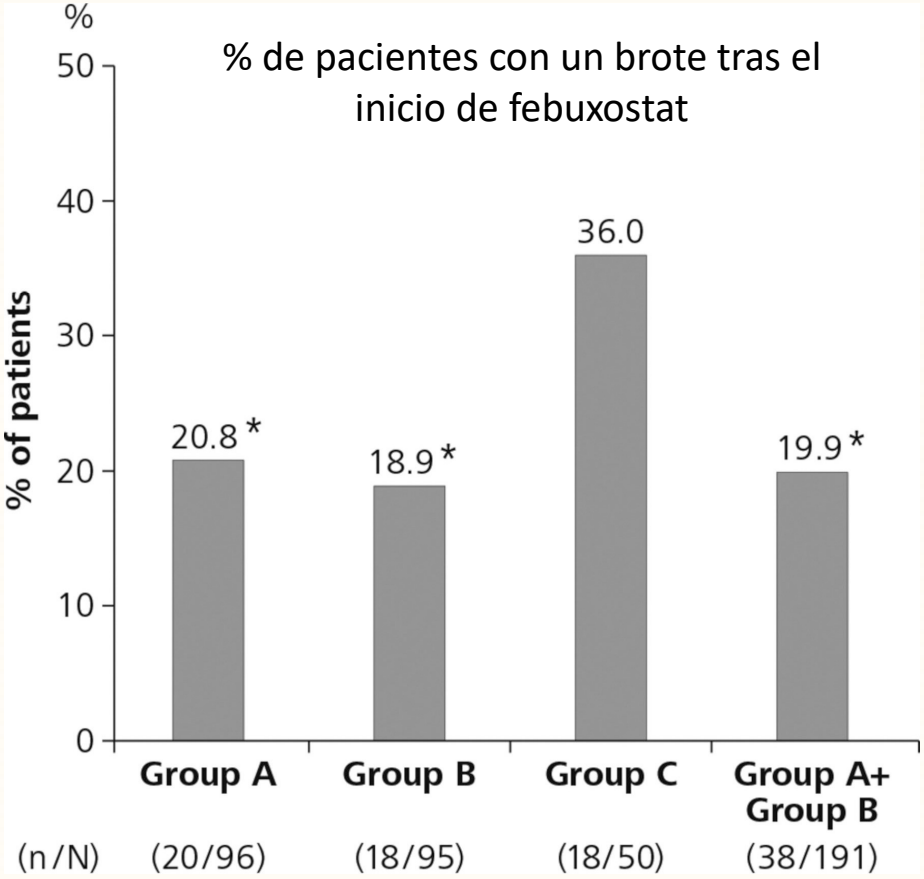
Estimated GFR, ml/minute/1.73 m^2	Allopurinol starting dosage
<5	50 mg/week
5–15	50 mg twice weekly
16–30	50 mg every 2 days
31–45	50 mg/day
46–60	50 mg and 100 mg on alternate days
61–90	100 mg/day
91–130	150 mg/day
>130	200 mg/day

* Consideration should be given to starting allopurinol at even lower doses in patients at high risk of developing allopurinol hypersensitivity syndrome, such as those with HLA–B*5801. Estimated GFR = estimated glomerular filtration rate.

Más o menos seria el filtrado glomerular multiplicado por 1,5.

Stamp LK, Taylor WJ, Jones PB, Dockerty JL, Drake J, Frampton C, Dalbeth N. Star dose is a risk factor for allopurinol hypersensitivity syndrome: a proposed starting dose of allopurinol. Arthritis Rheum. 2012 Aug;64(8):252

¿COMO DEBEMOS INICIAR EL TRATAMIENTO REDUCTOR DE LA URICEMIA?



- Grupo A: Febuxostat en escalada (De 10 a 40 mg/día)
- Grupo B: Febuxostat 40 mg/día + colchicina 0,5 mg/día
- Grupo C: Febuxostat 40 mg/día

Yamanaka H, Tamaki S, Ide Y, Kim H, Inoue K, Sugimoto M, et al. Stepwise dose increase of febuxostat is comparable with colchicine prophylaxis for the prevention of gout flares during the initial phase of urate-lowering therapy: results from FORTUNE-1, a prospective, multicentre randomised study. Ann Rheum Dis. 2018 Feb;77(2):270-276. doi: 10.1136/annrheumdis-2017-211574.

¿CUANDO ACABAR EL TRATAMIENTO REDUCTOR DE LA URICEMIA?

Table 1. Recurrence of gout and time to recurrence, by average serum urate levels during followup

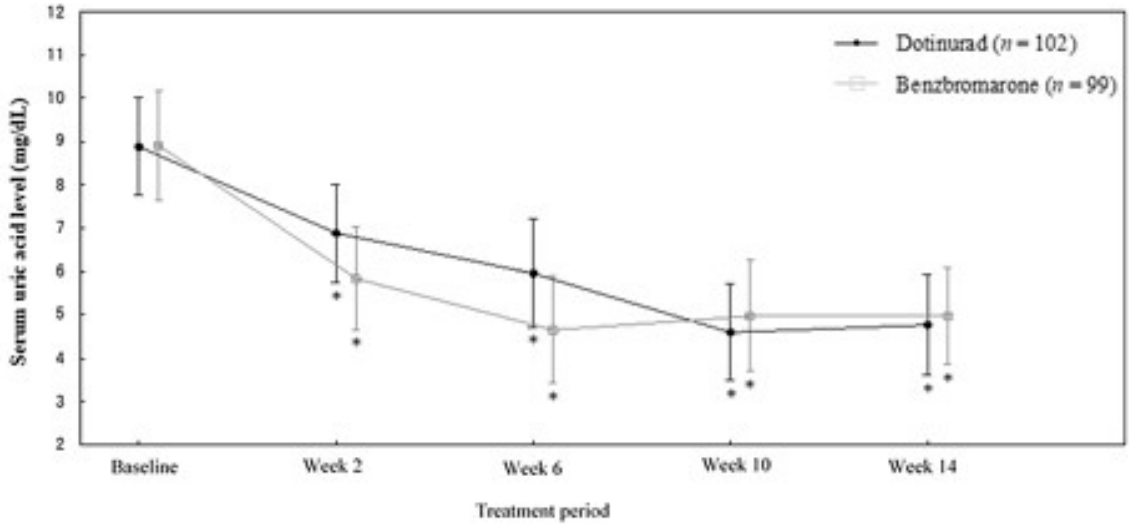
Group, average serum urate level (n)	Events, no. %	Time to recurrence, months*	
		Mean (95% CI)	Median (95% CI)
0, 6.00–6.99 mg/dl (27)	0	–	–
1, 7.00–8.20 mg/dl (61)	13 (21.3)	87 (70–103)	124 (–)
2, 8.21–9.32 mg/dl (61)	31 (50.8)	51 (43–60)	46 (41–50)
3, 9.33–12.40 mg/dl (62)	38 (61.3)	28 (24–33)	25 (22–28)
Total (211)	82 (38.9)	56 (48–64)	47 (43–51)

* 95% CI = 95% confidence interval.

Perez-Ruiz F, Herrero-Beites AM, Carmona L. A two-stage approach to the treatment of hyperuricemia in gout: the "dirty dish" hypothesis. Arthritis Rheum. 2011 Dec;63(12):4002-6

URICOSÚRICOS: DOTINURAD

Fig. 3 Changes in serum uric acid level in response to follow treatment with dotinurad and benzbromarone. Error bars indicates standard deviation



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URICOSÚRICOS: AR882

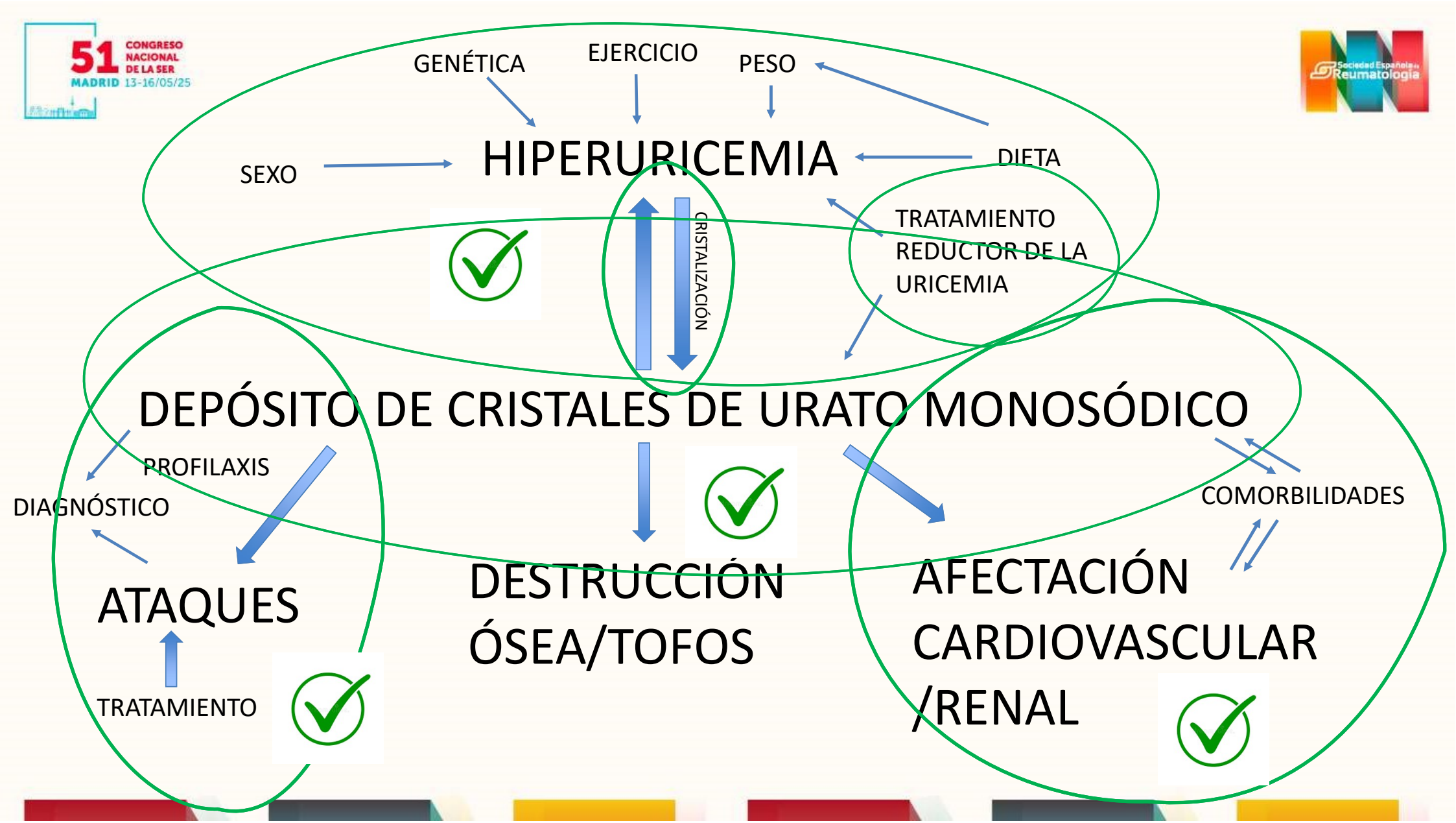
Table 1: Response rates of complete tophus resolution in tophaceous gout patients up to 12 months of treatment

Treatment	No. of subject with any tophus showing complete resolution	
	Month 6	Month 12
Allo 300 mg for 6 months, then AR882 75 mg+Allo 300 mg	1/13 (7.7%)	4/11 (36.4%)
AR882 75 mg for 12 months	4/14 (28.6%)	5/10 (50.0%)
AR882 50 mg+Allo 300 mg for 12 months	1/13 (7.7%)	1/8 (12.5%)

Allo: allopurinol

EULAR 2024

- GO LOW, GO SLOW, START EARLY


GENÉTICA
EJERCICIO
PESO
SEXO
HIPERURICEMIA
DIETA
CRISTALIZACIÓN
TRATAMIENTO REDUCTOR DE LA URICEMIA
DEPÓSITO DE CRISTALES DE URATO MONOSÓDICO
PROFILAXIS
DIAGNÓSTICO
ATAQUES
TRATAMIENTO
DESTRUCCIÓN ÓSEA/TOFOS
COMORBILIDADES
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