

**Το μεταβολικό σύνδρομο
και οι ρευματικοί ασθενείς**

Υπερουριχαιμία

**Γ.Π.Καμπάκης
Ρευματολόγος**

Σύγκρουση συμφερόντων

Γ.Π. Καμπάκης

Καμία για αυτήν την παρουσίαση

Εκπαιδευτικές-ερευνητικές-συμβουλευτικές επιχορηγήσεις
την τελευταία διετία:

Abbvie, Menarini, MSD, Pfizer, UCB

UA + Μεταβολικό Σύνδρομο

- Αντίσταση στην ινσουλίνη
Εναπόθεση κοιλιακού λίπους
 - Glc $\geq$ 100 mg/dl
 - ΑΠ $\geq$ 130/85 mmHg
 - Τριγλυκερίδια $\geq$ 150 mg/dl
 - HDL $\leq$ 40mg/dl (Γ:50)
 - Περίμετρος κοιλιάς $\geq$ 102εκ (Γ:88)
- ΣΝ
- ΣΔ
- Λιπώδης διήθηση ήπατος

Table 1. Definition of metabolic syndrome by WHO, NCEP ATP III, and IDF^a

WHO Definition (2)	NCEP ATP III Definition (3)	IDF Definition (4)
Insulin resistance identified by type 2 diabetes or impaired fasting glucose or impaired glucose tolerance or insulin resistance (by insulin clamp) plus two or more of the following: BMI >30 kg/m ² and/or waist:hip ratio >0.9 (male) and >0.85 (female) Triglycerides ≥150 mg/dl BP ≥140/90 mmHg and/or antihypertensive drugs HDL cholesterol <35 (male) and <39 (female) Microalbuminuria (albumin excretion rate ≥20 µg/min) or albumin:creatinine ratio ≥30 mg/g	Metabolic syndrome is defined by three or more of the following risk factors: Waist circumference >88 cm (women) and >102 cm (men) Triglycerides ≥150 mg/dl HDL cholesterol <40 (male) and <50 (female) BP ≥130/85 mmHg Fasting glucose level ≥110 mg/dl	Central obesity (waist circumference, ethnicity specific) plus two or more of the following: Triglycerides ≥150 mg/dl or treatment for this abnormality HDL cholesterol <40 (male) and <50 (female) or specific treatment BP ≥130/85 mg/dl or pharmacologic treatment

^aIDF, International Diabetes Federation; NCEP ATP III, National Cholesterol Education Program Adult Treatment Panel III; WHO, World Health Organization.

Υπερουριχαιμία



**Μεταβολικό
Σύνδρομο**

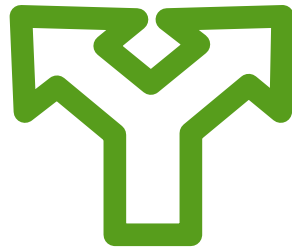
Υπερουριχαιμία



**Μεταβολικό
Σύνδρομο**

Υπερουριχαιμία

**Μεταβολικό
Σύνδρομο**



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^aClinical Epidemiology Unit, Boston University School of Medicine, Boston, Mass; ^bGlobal Health Economics and Outcomes Research, Takeda Pharmaceuticals International, Inc., Deerfield, Ill; ^cSection of Rheumatology, Department of Medicine, Boston University School of Medicine, Boston, Mass.

†Categories collapsed due to small sample sizes.

Comorbidities of Gout and Hyperuricemia in the US General Population: NHANES 2007-2008

Yanyan Zhu, PhD,^a Bhavik J. Pandya, PharmD,^b Hyon K. Choi, MD, DrPH^{a,c}

^aClinical Epidemiology Unit, Boston University School of Medicine, Boston, Mass; ^bGlobal Health Economics and Outcomes Research, Takeda Pharmaceuticals International, Inc., Deerfield, Ill; ^cSection of Rheumatology, Department of Medicine, Boston University School of Medicine, Boston, Mass.
The American Journal of Medicine (2012) 125, 679-687

74% AY

71% XNA

53% Παχυσαρκία

26% ΣΔ

24% Νεφρλιθίαση

14% Έμφραγμα Μυοκαρδίου

11% ΚΑ

10% ΑΕΕ

Comorbidities of Gout and Hyperuricemia in the US General Population: NHANES 2007-2008

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Υπερουριχαιμία



**Μεταβολικό
Σύνδρομο**

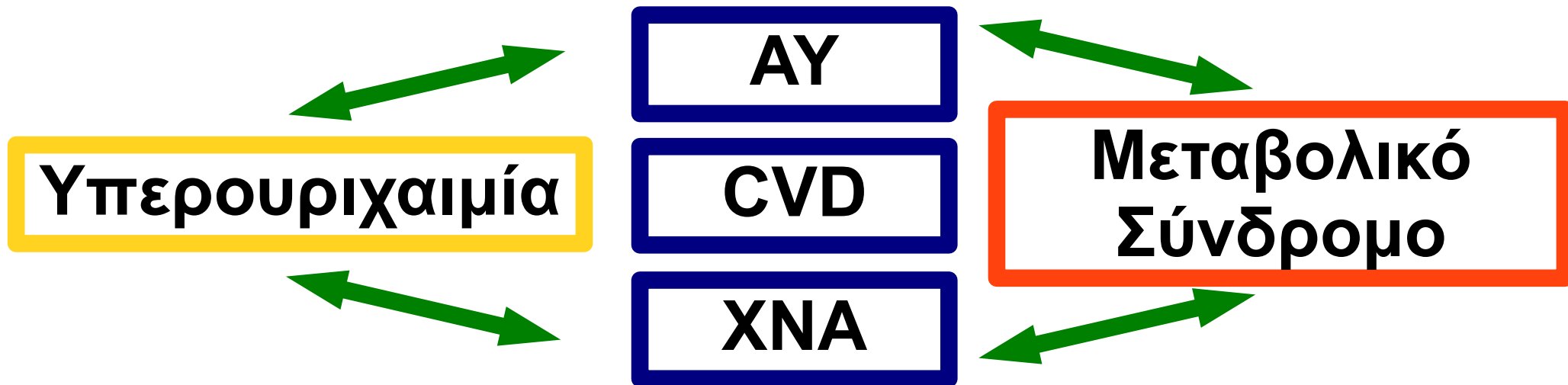
Υπερουριχαιμία

AY

CVD

XNA

**Μεταβολικό
Σύνδρομο**



Υπερουριχαιμία και ΑΥ

Υπερουριχαιμία και ΑΥ

- Ouppatham et al. J Postgrad Med 2008 259

σε μελέτη 5500 ενστόλων κατέδειξαν

ότι η παρουσία υπερουριχαιμίας προβλέπει την αυξημένη ΑΠ
ακόμη και μετά από διόρθωση ως προς πιθανούς συγχυτικούς παράγοντες
(όπως μείωση νεφρικής λειτουργίας)

- In vitro

διαλυτό ουρικό οξύ είναι βιολογικά ενεργό μόριο που ευοδώνει την αύξηση της
αρτηριακής πίεσης τόσο στο αγγειακό ενδοθήλιο όσο και στους νεφρούς, έτσι:

- + διεγείρει το σύστημα RAS στους νεφρούς
- + αναστέλλει τη σύνθεση αγγειακού NO (ενός ισχυρού αγγειοδιαστολέα)
- + διεγείρει την υπερπλασία λείων μυικών κυττάρων (στένωση του αυλού)
- + σωληναριακή βλάβη και φλεγμονή στο διάμεσο ιστό

- Ζωικά μοντέλα

χορήγηση οξονικού οξέος (αναστολέα ουρικής) σε αρουραίους αυξάνει τόσο τα
επίπεδα ουρικού οξέος όσο και της ΑΠ

- Διορθώνεται μετά χορήγηση αλλοπουρινόλης/ φεμπουξοστάτης
- Σε κλινική μελέτη RCT με πρόσφατης διάγνωσης ιδιοπαθή ΑΥ η μείωση των
επιπέδων ουρικού οξέος μετά χορήγηση αλλοπουρινόλης οδήγησε σε μείωση
της ΑΠ

Effect of Allopurinol on Blood Pressure of Adolescents With Newly Diagnosed Essential Hypertension: A Randomized Trial

Daniel I. Feig, MD, PhD¹, Beth Soletsky, RN¹, and Richard J. Johnson, MD²

Blood Pressure (BP) Response to Placebo and Allopurinol (Posttreatment Values)

Parameter	Mean (95% Confidence Interval)		P Value
	Placebo	Allopurinol	
Change in casual systolic BP, mm Hg	−2.0 (0.3 to −4.3)	−6.9 (−4.5 to −9.3)	.009 ^a
Change in casual diastolic BP, mm Hg	−2.4 (0.2 to −4.1)	−5.1 (−2.5 to −7.8)	.05
Change in 24-h ambulatory systolic BP, mm Hg	0.8 (3.4 to −2.9)	−6.3 (−3.8 to −8.9)	.001 ^a
Change in 24-h ambulatory diastolic BP, mm Hg	−0.3 (2.3 to −2.1)	−4.6 (−2.4 to −6.8)	.004 ^b
Systolic BP load, % ^c	48.6 (34.0 to 50.2)	23.3 (15.8 to 30.9)	.01 ^a
Diastolic BP load, % ^c	29.2 (25.6 to 37.1)	18.1 (12.3 to 23.8)	.01 ^b
Hypertensive, No./total (%) ^d	29/30 (97)	10/30 (33)	.001 ^b

Υπερουριχαιμία και ΧΝΑ

Υπερουριχαιμία και ΧΝΑ

- Νεφρική λειτουργία ↓

Απέκκριση ουρικού ↓

Υπερουριχαιμία

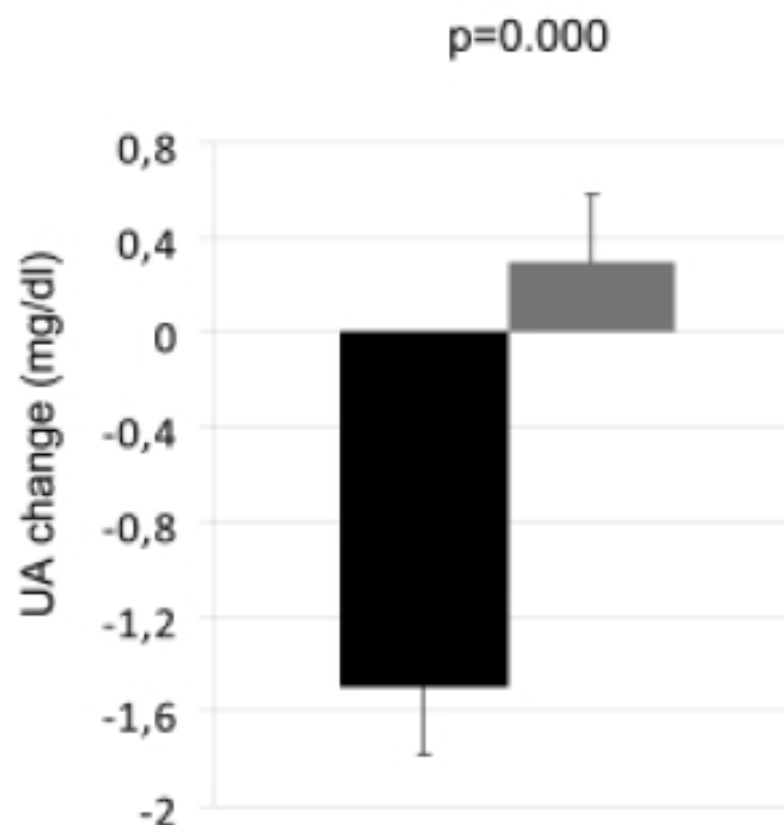
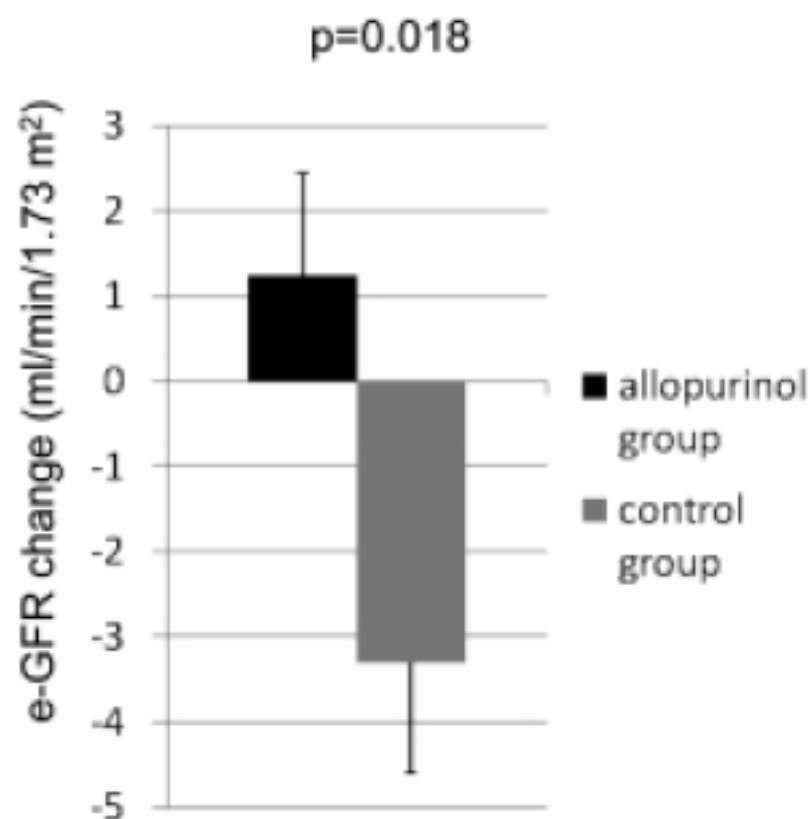
- Uricase knock out mice → ΟΝΑ

- UA ↓

ρυθμός έκπτωσης της νεφρικής λειτουργίας ↓

Effect of Allopurinol in Chronic Kidney Disease Progression and Cardiovascular Risk

[Marian Goicoechea](#), [Soledad García de Vinuesa](#), [Ursula Verdalles](#), [Caridad Ruiz-Caro](#), [Jara Ampuero](#), [Abraham Rincón](#), [David Arroyo](#), and [José Luño](#)



Υπερουριχαιμία και ΣΝ

Is There a Pathogenetic Role for Uric Acid in Hypertension and Cardiovascular and Renal Disease?

Richard J. Johnson, Duk-Hee Kang, Daniel Feig, Salah Kivlighn, John Kanellis, Susumu Watanabe, Katherine R. Tuttle, Bernardo Rodriguez-Iturbe, Jaime Herrera-Acosta and Marilda

TABLE 2. Hyperuricemia Predicts Cardiovascular Events: Studies of the General Population

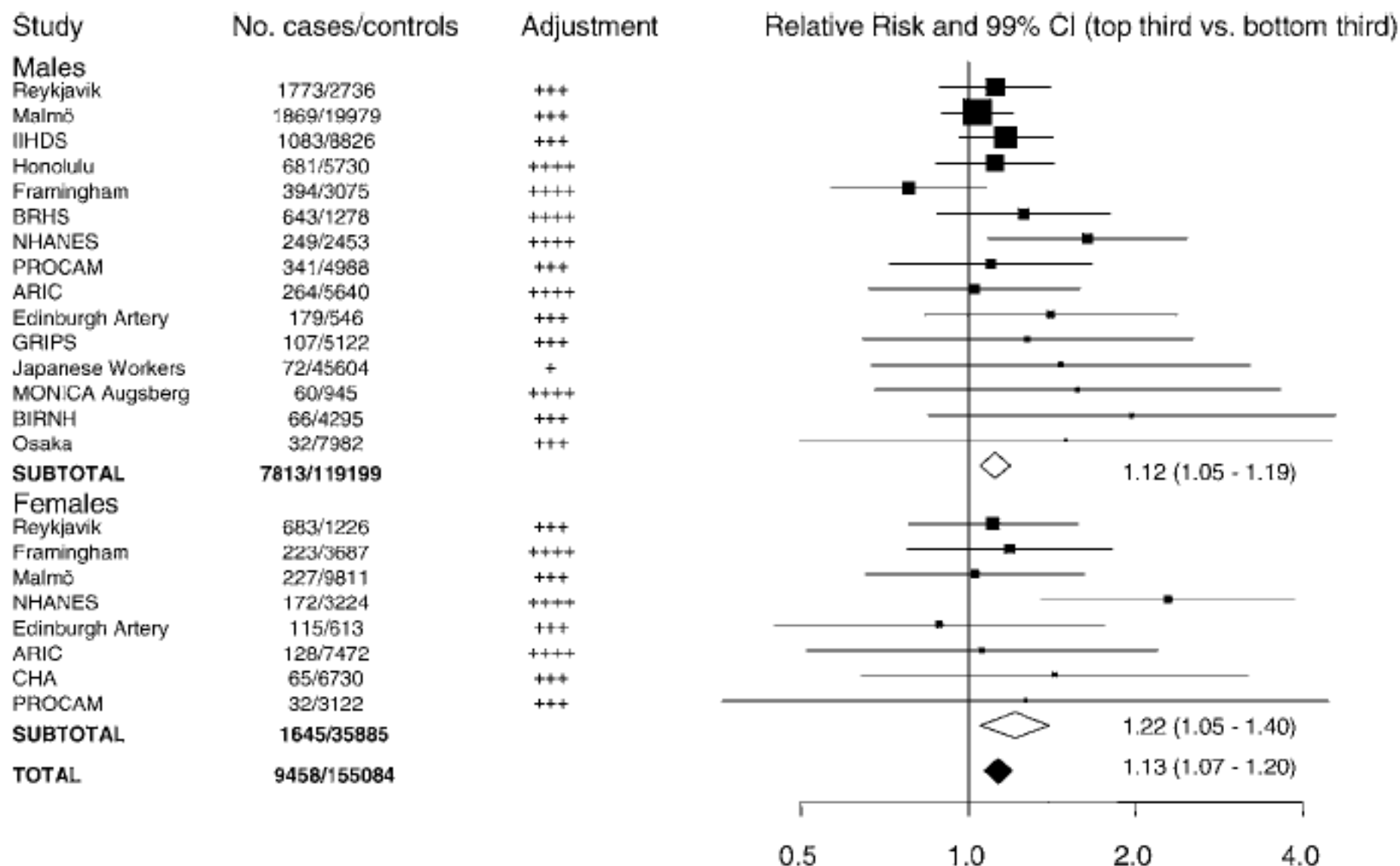
Study	Length of Follow-Up, y	Univariate Correlation With Events	Independent Predictor in Multivariate Analyses
Framingham			
1985 ¹⁹	26	Yes	No
1987 ²⁰	30	Yes	Yes (women)
1988 ²¹	32*	Yes	Yes
1999 ²²	17.3†	Only women	No
Honolulu Heart (Japanese American men)			
1975 ²³	2	Yes	Yes
1995 ²⁴	20	Yes	Yes
1996 ²⁵	21	Yes	Yes (in alcohol abstainers)
Chicago Heart Association Detection Project			
1979 ²⁶	5	Yes	Yes (only women)
1989 ²⁷	11.5	Only women	Yes (only women)‡
NHANES I			
1995 ²⁸	13.5	Yes	Yes (only women)
2000 ²⁹	16.4	Yes	Yes
ARIC (Atherosclerosis Risk in Communities Study)			
2000 ³⁰	8	Only women	No
British Regional Heart Study (adult males)			
1997 ³¹	16.8	Yes	No
Social Institute of Finland			
1982 ³²	5	Yes	No
Gothenburg			
1988 ³³	12	Yes	Yes‡
MONICA (Monitoring Trends and Determinants in Cardiovascular Diseases)			
1999 ³⁴	8	Yes	Yes‡
CASTEL (Cardiovascular Study in the Elderly)			
1993 ³⁵	7	Yes	Yes‡

TABLE 3. Hyperuricemia Predicts Cardiovascular Events: Studies of the Hypertensive Population

Study	Length of Follow-Up, y	Univariate Correlation with Events	Independent Predictor in Multivariate Analyses
Hypertension Detection Follow-Up Program			
Cooperative Research Group			
1985 ³⁶	5	Yes	Yes
1987 ³⁷	5†	Yes	Only women
Work site			
1999 ³⁸	6.6	Yes	Yes
PIUMA (Progetto Ipertensione Umbria Monitoraggio Ambulatoriale)			
2000 ³⁹	4	Yes	Yes
European Working Party on High BP in the Elderly			
1991 ⁴⁰	3	Yes	No
SHEP (Systolic Hypertension in the Elderly Program)*			
2001 ⁴¹	5	Yes	Yes
Syst-China*			
2001 ⁴²	3	Yes	Yes
Syst-Eur*			
2002 ⁴³	2	No	No

Serum Uric Acid and Coronary Heart Disease in 9,458 Incident Cases and 155,084 Controls: Prospective Study and Meta-Analysis

Jeremy G. Wheeler¹, Kelsey D. M. Juzwishin¹, Gudny Eiriksdottir², Vilundur Gudnason², John Danesh^{1*}

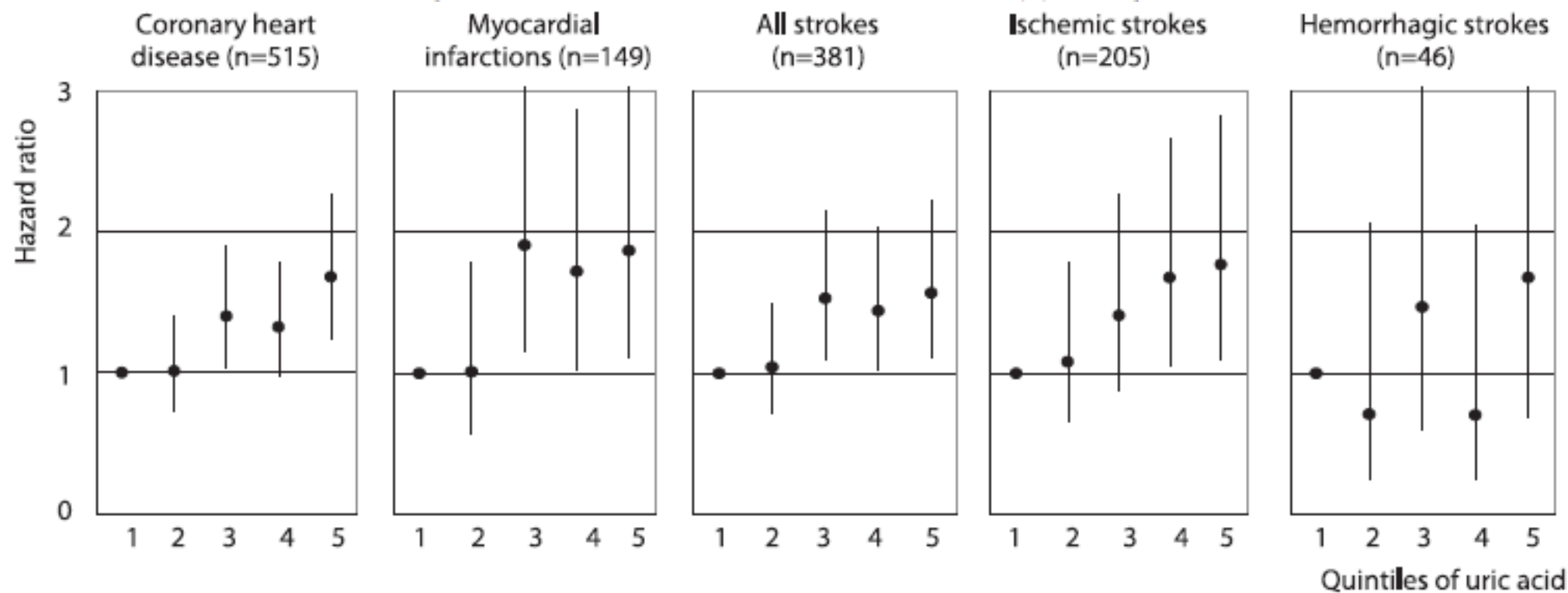




Uric Acid Is a Risk Factor for Myocardial Infarction and Stroke : The Rotterdam Study

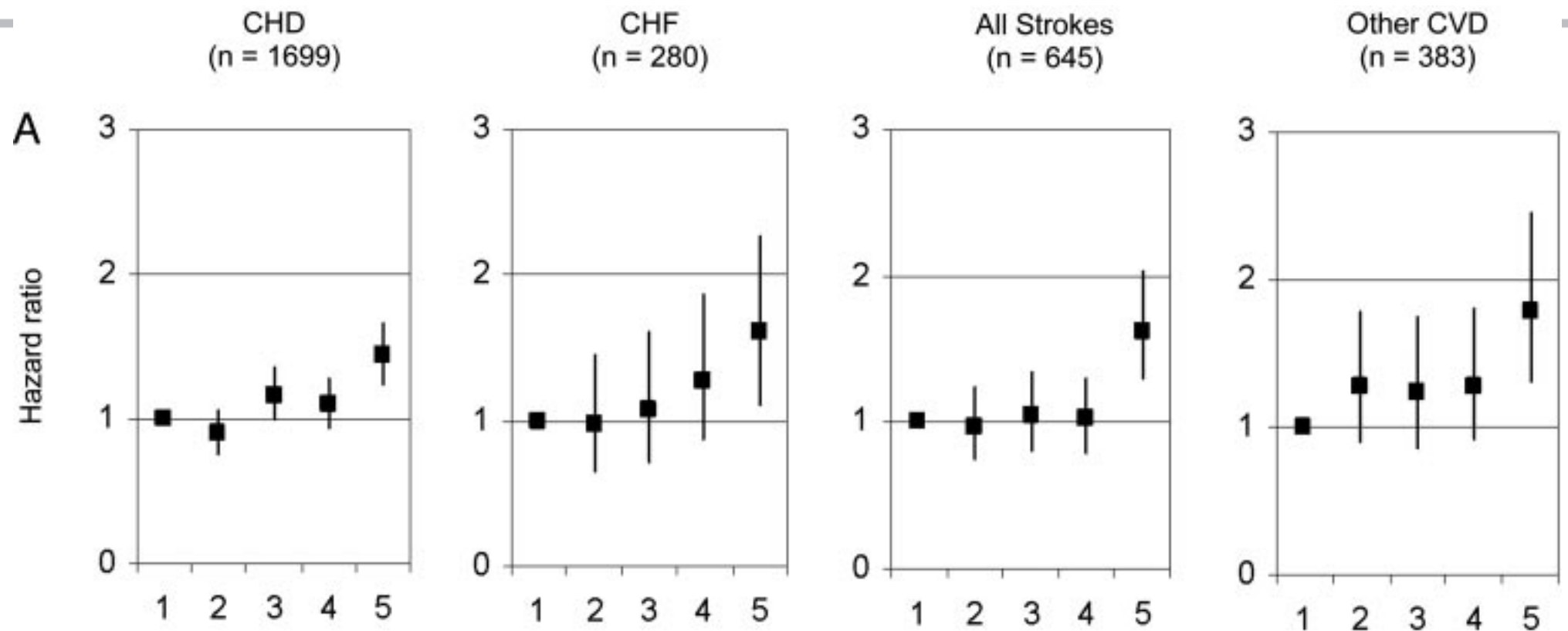
Michiel J. Bos, Peter J. Koudstaal, Albert Hofman, Jacqueline C.M. Witteman and Monique M.B. Breteler

Stroke. 2006;37:1503-1507; originally published online May 4, 2006;



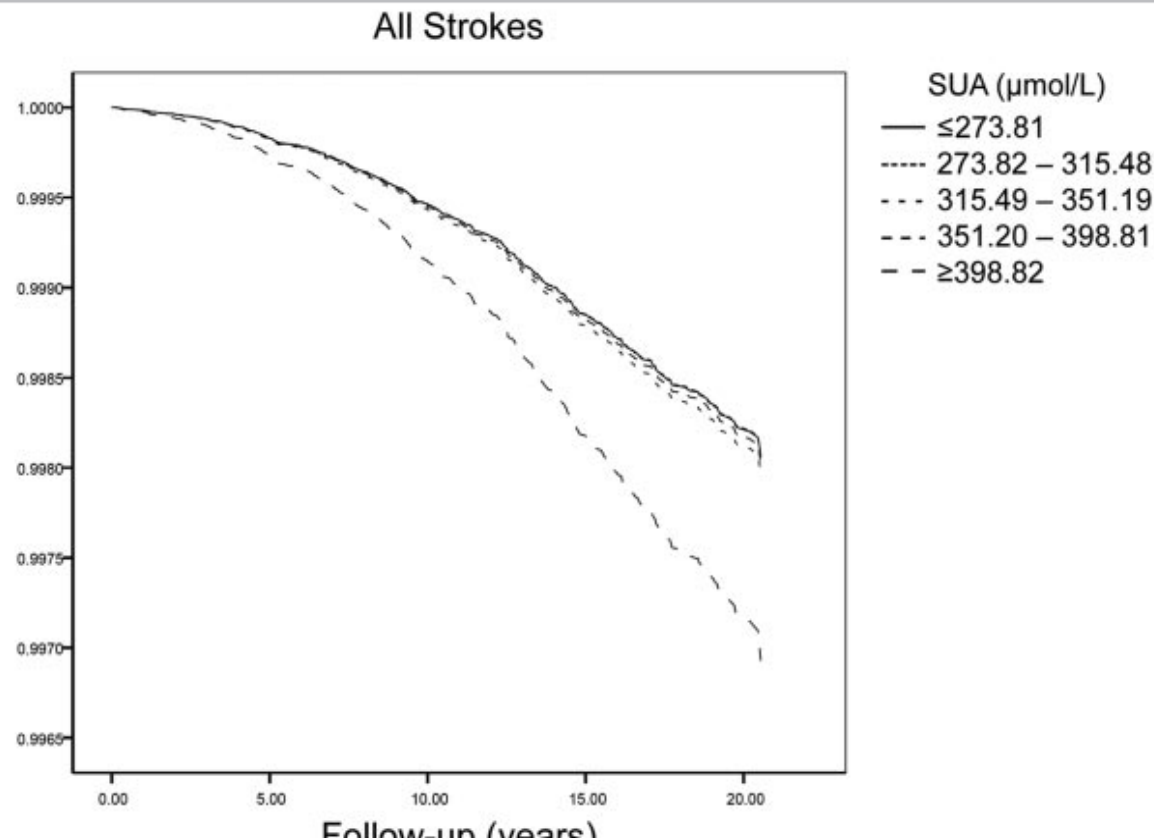
Serum Uric Acid and Risk of Cardiovascular Mortality: A Prospective Long-Term Study of 83 683 Austrian Men

Alexander Strasak,^{1*} Elfriede Ruttmann,² Larry Brant,³ Cecily Kelleher,⁴ Jochen Klenk,⁵ Hans Concin,⁶ Günter Diem,⁶ Karl Pfeiffer,¹ Hanno Ulmer,^{1,6} and the VHM&PP Study Group



Serum Uric Acid and Risk of Cardiovascular Mortality: A Prospective Long-Term Study of 83 683 Austrian Men

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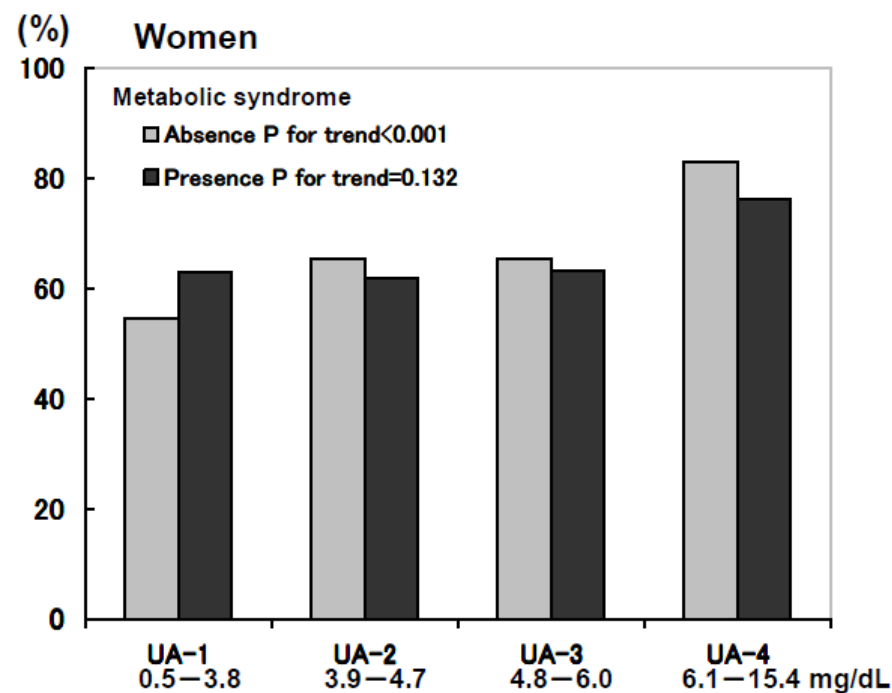
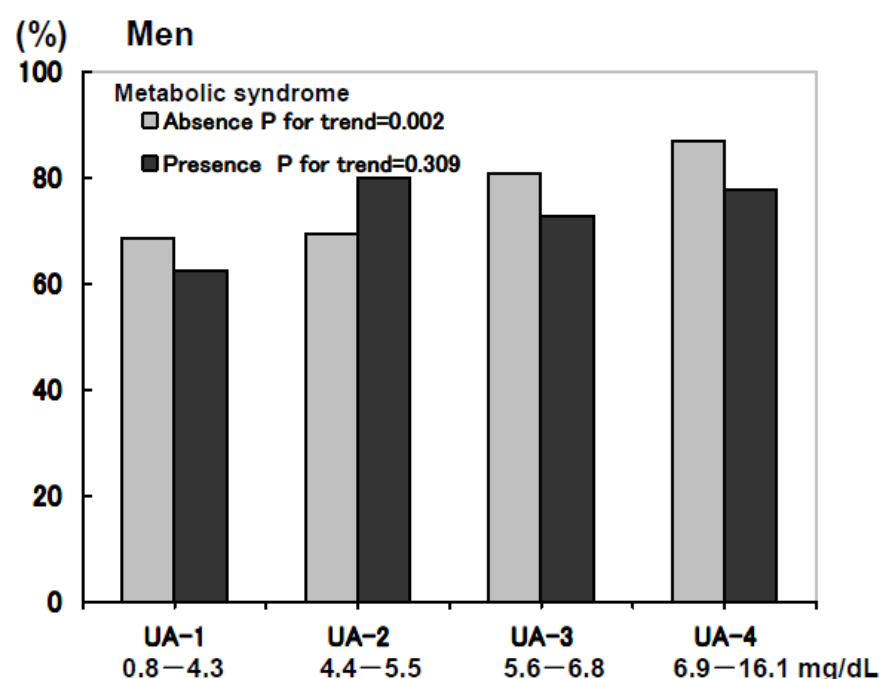


ORIGINAL INVESTIGATION

Open Access

Uric acid is an independent risk factor for carotid atherosclerosis in a Japanese elderly population without metabolic syndrome

Shuzo Takayama^{1,2}, Ryuichi Kawamoto^{1,3*}, Tomo Kusunoki^{1,3}, Masanori Abe^{1,2} and Morikazu Onji²



CLINICAL STUDY

Serum uric acid and its association with metabolic syndrome and carotid atherosclerosis in obese children

Lucia Pacifico¹, Vito Cantisani², Caterina Anania¹, Elisabetta Bonaiuto¹, Francesco Martino¹, Roberto Pascone³ and Claudio Chiesa^{1,4}

In the group of 120 obese children, after adjustment for age, sex, pubertal stage, and creatinine, an independent association between UA levels and the presence of MS syndrome was observed (unstandardized coefficient, 0.044 (95% confidence intervals (CI) 0.015–0.072); $P<0.01$).

Carotid IMT significantly increased in the fourth quartile of UA compared with that in the first, second, and third quartile (0.49 (0.46–0.53), 0.53 (0.49–0.56), and 0.55 (0.52–0.59) vs 0.61 (95% CI, 0.58–0.64); $P<0.01$).

When multivariate analysis was performed after adjusting for age, gender, pubertal stage, creatinine, and MS (considered as a single clinical entity), or the individual components of MS simultaneously included, the association between UA and carotid IMT was significant ($P<0.01$).

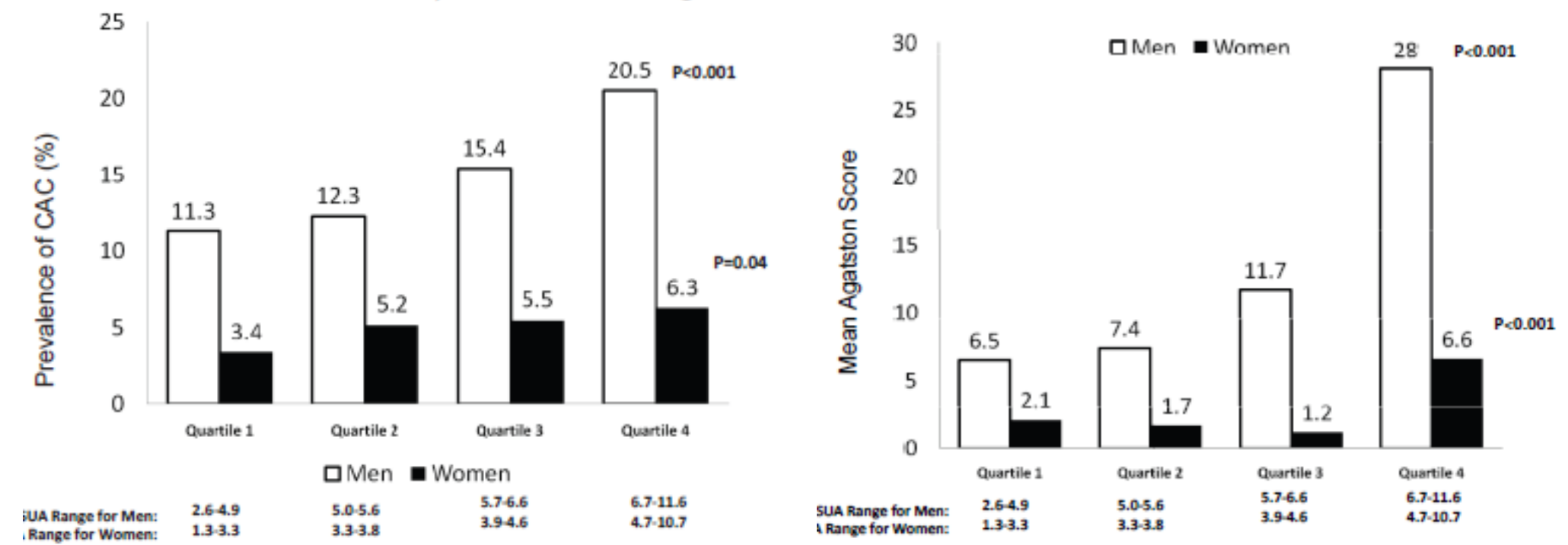
Conclusions: In obese children and adolescents, increased UA levels are associated with carotid atherosclerosis.

RESEARCH ARTICLE

Open Access

Hyperuricemia and the risk for subclinical coronary atherosclerosis - data from a prospective observational cohort study

Eswar Krishnan^{1*}, Bhavik J Pandya², Lorinda Chung¹ and Omar Dabbous²



Serum Uric Acid Is Associated with Carotid Plaques: The National Heart, Lung, and Blood Institute Family Heart Study

J Rheumatol. 2009 February ; 36(2): 378–384. doi:10.3899/jrheum.080646.

SUA, mg/dl	No. Subjects	Prevalence of Carotid Plaques, %	Crude OR	Adjusted OR (95% CI)
Men				
< 5	360	26.1	1.0 (reference)	1.0 (reference)
5 to < 6	685	28.0	1.10	1.29 (0.92–1.82)
6 to 6.8	595	30.4	1.24	1.61 (1.12–2.30)
≥ 6.8	606	35.2	1.53	1.75 (1.21–2.51)
Test for trend				p = 0.002

Serum Urate Is Not Associated with Coronary Artery Calcification: The NHLBI Family Heart Study

TUHINA NEOGI, MD, PhD, FRCPC, ROBERT TERKELTAUB, MD, R. CURTIS ELLISON, MD, STEVEN HUNT, PhD, and YUQING ZHANG, DSc

J Rheumatol. 2011 January ; 38(1): 111–117. doi:10.3899/jrheum.100639.

Υπερουριχαιμία και ΣΔ

Υπερουριχαιμία και ΣΔ

Serum Uric Acid Levels and the Risk of Type 2 Diabetes: A Prospective Study

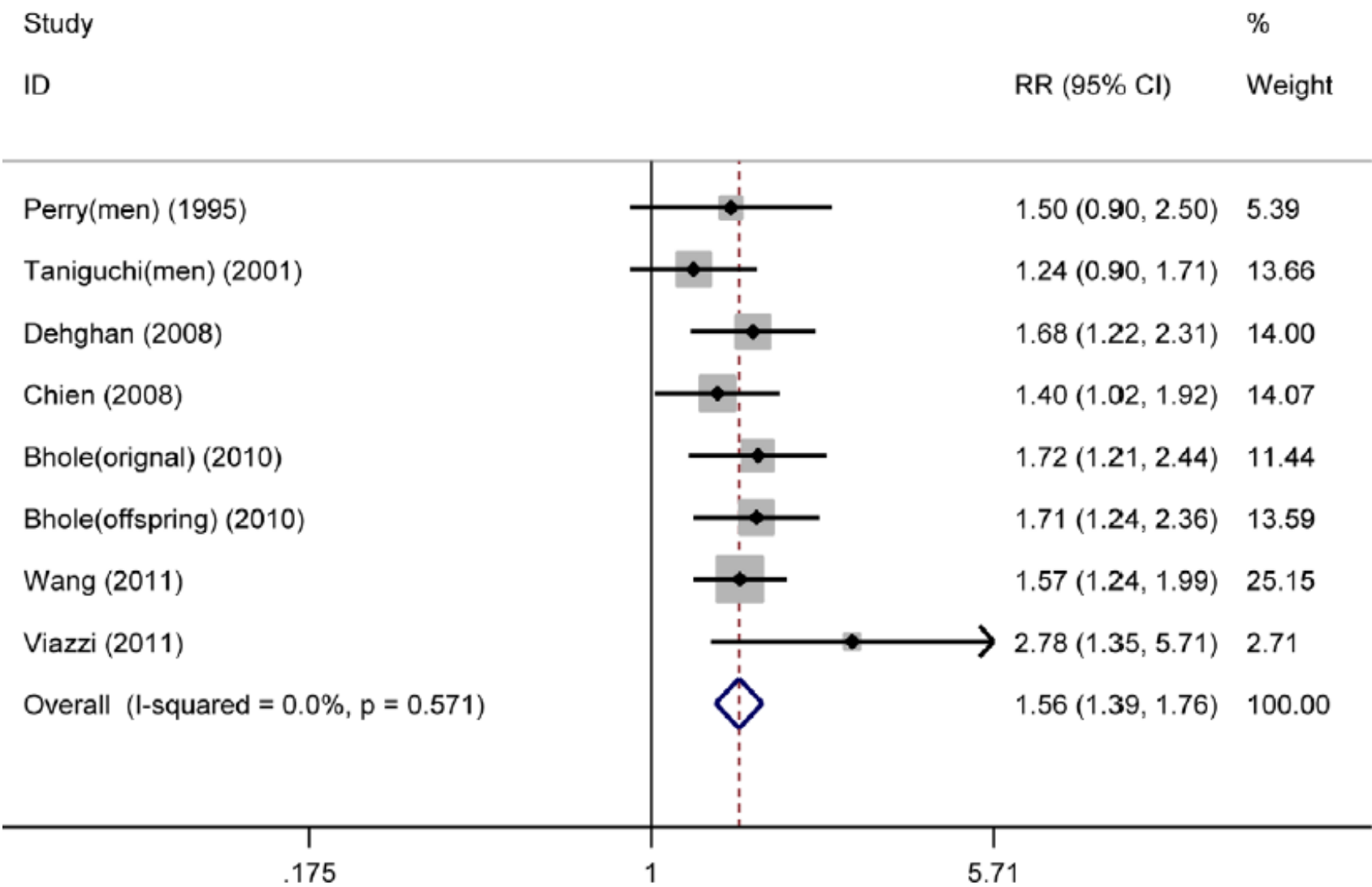
Vidula Bhole, MD, MHSc¹, Jee Woong J. Choi¹, Sung Woo Kim¹, Mary de Vera, MSc^{1,2},
Hyon Choi, MD, DrPH^{1,2,3,4}

Am J Med. 2010 October ; 123(10): 957–961

		Uric Acid, Categorical (mg/dL)					Uric Acid, Continuous (per mg/dL)
		< 5.0	5.0-5.9	6.0-6.9	7.0-7.9	≥8.0	
Original	No. of Diabetes Cases	299	174	106	43	19	---
Cohort	Person-Years of Follow-up	91436	28405	12202	3753	1194	---
	Incidence/1000 Person-Years	3.3	6.1	8.7	11.5	15.9	4.7**
	Univariate RR (95% CI)	1.00	1.84 (1.53, 2.23)	2.62 (2.09, 3.29)	3.57 (2.56, 4.96)	4.82 (3.00, 7.73)	1.44 (1.36, 1.53)
	Age- and sex-adjusted RR (95% CI)	1.00	1.69 (1.39, 2.06)	2.37 (1.86, 3.02)	3.11 (2.21, 4.38)	4.48 (2.76, 7.26)	1.40 (1.31, 1.50)
	Multivariable RR (95% CI)*	1.00	1.46 (1.20, 1.78)	1.59 (1.24, 2.04)	1.72 (1.21, 2.44)	2.36 (1.44, 3.89)	1.20 (1.11, 1.28)
Offspring	No. of Diabetes Cases	131	121	119	75	51	---
Cohort	Person-Years of Follow-up	45139	24369	18097	8580	4674	---
	Incidence/1000 Person-Years	2.9	5.0	6.6	8.7	10.9	4.9**
	Univariate RR (95% CI)	1.00	1.90 (1.48, 2.43)	2.68 (2.09, 3.44)	3.79 (2.85, 5.04)	4.83 (3.49, 6.69)	1.42 (1.34, 1.50)
	Age- and sex-adjusted RR (95% CI)	1.00	1.82 (1.40, 2.36)	2.50 (1.89, 3.31)	3.57 (2.59, 4.93)	4.50 (3.15, 6.43)	1.40 (1.31, 1.49)
	Multivariable RR (95% CI)*	1.00	1.00 (0.77, 1.31)	1.05 (0.78, 1.40)	1.71 (1.24, 2.36)	1.61 (1.10, 2.37)	1.15 (1.06, 1.23)

High Serum Uric Acid and Increased Risk of Type 2 Diabetes: A Systemic Review and Meta-Analysis of Prospective Cohort Studies

Qin Lv¹✉, Xian-Fang Meng²✉, Fang-Fang He¹, Shan Chen¹, Hua Su¹, Jing Xiong¹, Pan Gao¹, Xiu-Juan Tian¹, Jian-She Liu¹, Zhong-Hua Zhu¹, Kai Huang³*, Chun Zhang¹*



RESEARCH ARTICLE

Open Access

Association between hyperuricemia, prediabetes, and prehypertension in the Croatian adult population - a cross-sectional study

Jasna Vučak^{1*}, Milica Katić², Ivan Bielen³, Davorka Vrdoljak⁴, Dragica Ivezić Lalić⁵, Ksenija Kranjčević⁶ and Biserka Bergman Marković²

Table 4 Relationship between purine-rich diet and HU, PreHT, PreDM, and BMI

Diet*	N (%)	HU	PreHTN	PreDM	BMI(25–29.9)	BMI(>30)
		N=228	N=641	N=771	N=994	N=834
		N (%)	N (%)	N (%)	N (%)	N (%)
Score 0–4	873 (37.4%)	56 (24.6%)	223 (34.8%)	255 (33.1%)	373 (37.5%)	284 (34.1%)
Score 5–10	1156 (49.5%)	128 (56.1%)	327 (51.0%)	382 (49.5%)	490 (49.3%)	428 (51.3%)
Score 11–15	292 (12.5%)	43 (18.9%)	87 (13.6%)	127 (16.5%)	126 (12.7%)	116 (13.9%)
Score 16–20	13 (0.6%)	1 (0.4%)	4 (0.6%)	7 (0.9%)	5 (0.9%)	6 (0.7%)
p**		<0.001	0.406	0.002	0.200	0.009

*frequency of pro-uric food intake according to Table 1.

** χ^2 test.

Relationship Between Serum Uric Acid Concentration and Insulin Resistance and Metabolic Syndrome

Tae Woo Yoo, MD; Ki Chul Sung, MD; Hun Sub Shin, MD; Byung Jin Kim, MD;
Bum Soo Kim, MD; Jin Ho Kang, MD; Man Ho Lee, MD; Jung Ro Park, MD;
Hyang Kim, MD; Eun Jung Rhee, MD; Won Young Lee, MD; Sun Woo Kim, MD;
Seung Ho Ryu, MD*; Dong Geuk Keum, MD**

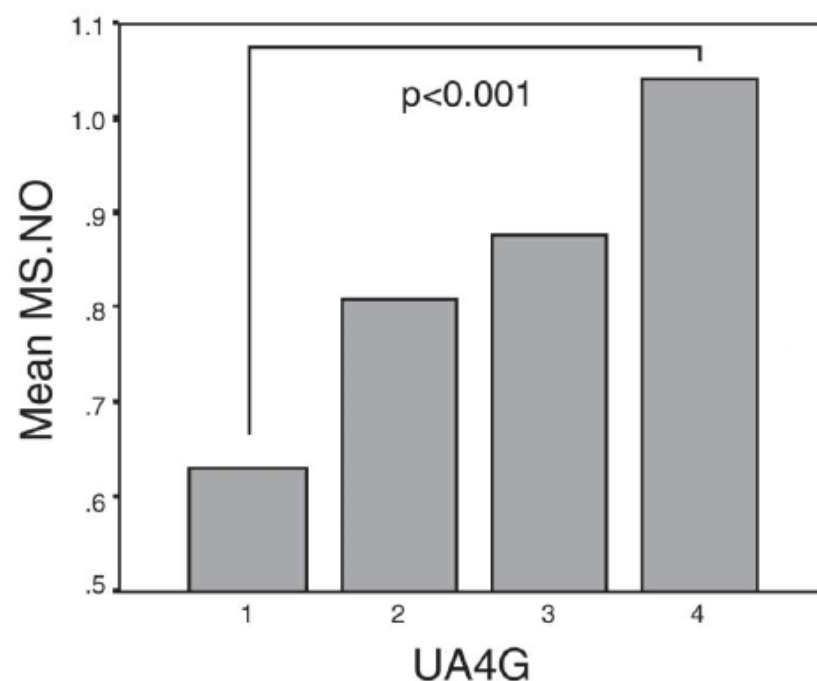


Fig 1. Number of metabolic syndrome variables by serum uric acid concentrations. UA4G, serum uric acid concentration quartiles group; Mean MS. NO, mean number of metabolic syndrome components.

Uric Acid and the Development of Metabolic Syndrome in Women and Men

Xuemei Sui, MD^{1*}, Timothy S. Church, MD, PhD², Rebecca A. Meriwether, MD³, Felipe Lobelo, MD¹, and Steven N. Blair, PED^{1,4,5}

Metabolism. 2008 June ; 57(6): 845–852.

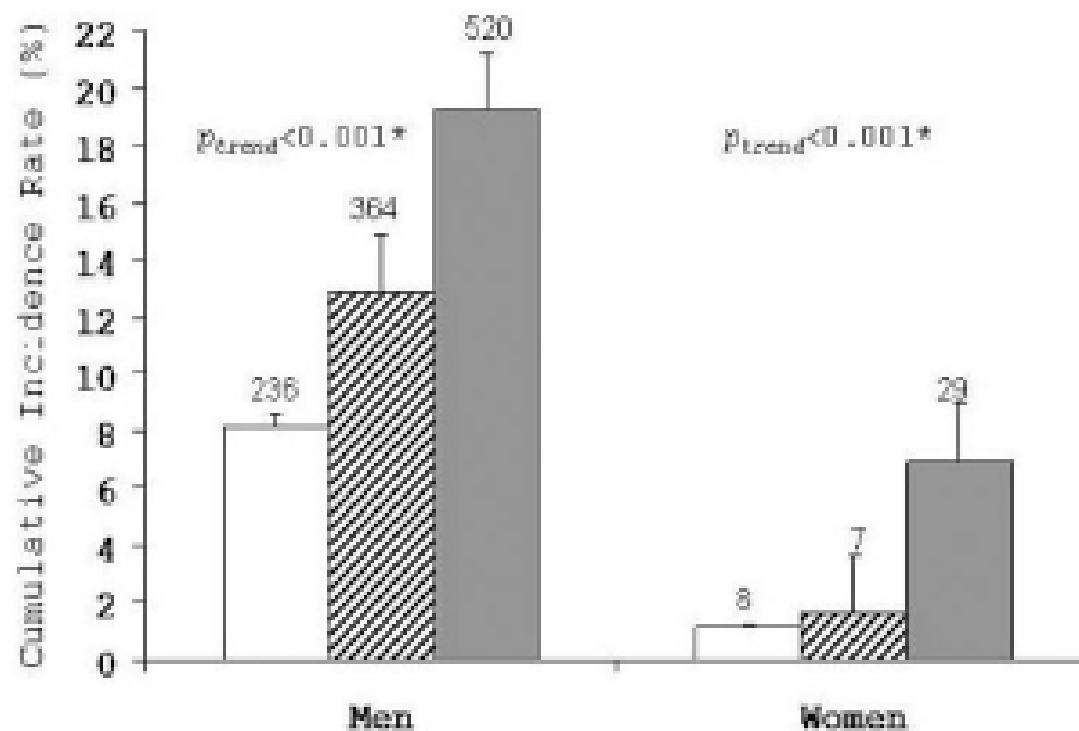


Fig. 1.

Cumulative incidence of metabolic syndrome by thirds of uric acid in men and women, Aerobics Center Longitudinal Study, 1977–2003. The 95% confidence intervals are shown. White bars represent the lower third; striped bars, the middle third; and grey bars, the upper third of baseline serum uric acid. The number of cases is shown above the bars. Number at risk in lower, middle, and upper thirds of serum uric acid was 2,897, 2,827, and 2,705 in men and 418, 424, and 418 in women, respectively. *adjusted for age and examination year.



CLINICAL RESEARCH STUDY

Prevalence of the Metabolic Syndrome in Individuals with Hyperuricemia

Hyon K. Choi, MD, DrPH,^{a,b} Earl S. Ford, MD, MPH^c

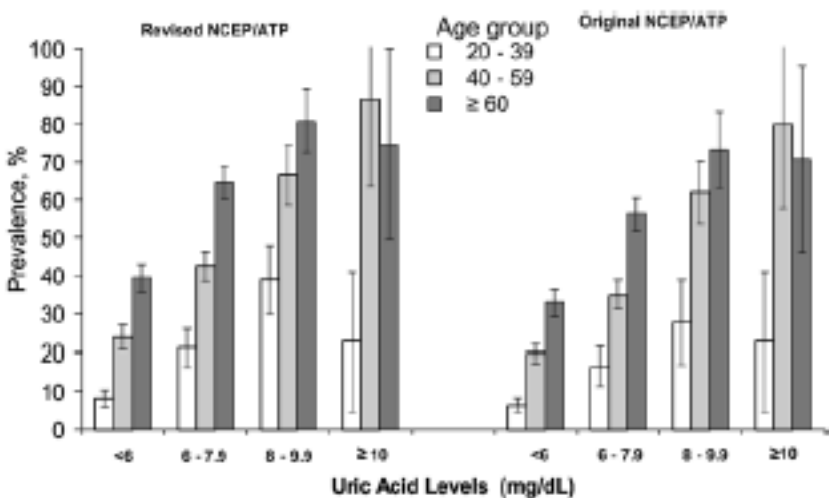


Figure 2 Prevalence of the metabolic syndrome according to serum uric acid levels stratified by age group. Error bars indicate 95% CIs. Data are presented incorporating sample weights and adjusted for clusters and strata of the complex sample design of NHANES III. NCEP/ATP = National Cholesterol Education Program Adult Treatment Panel.

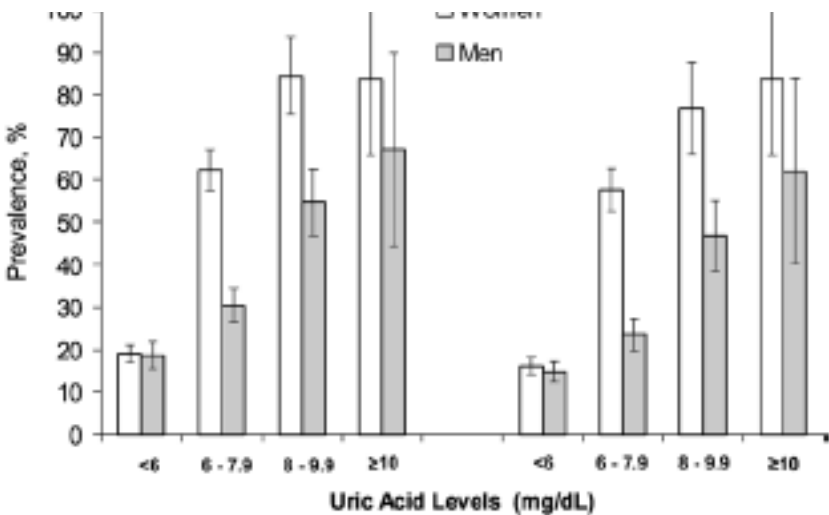
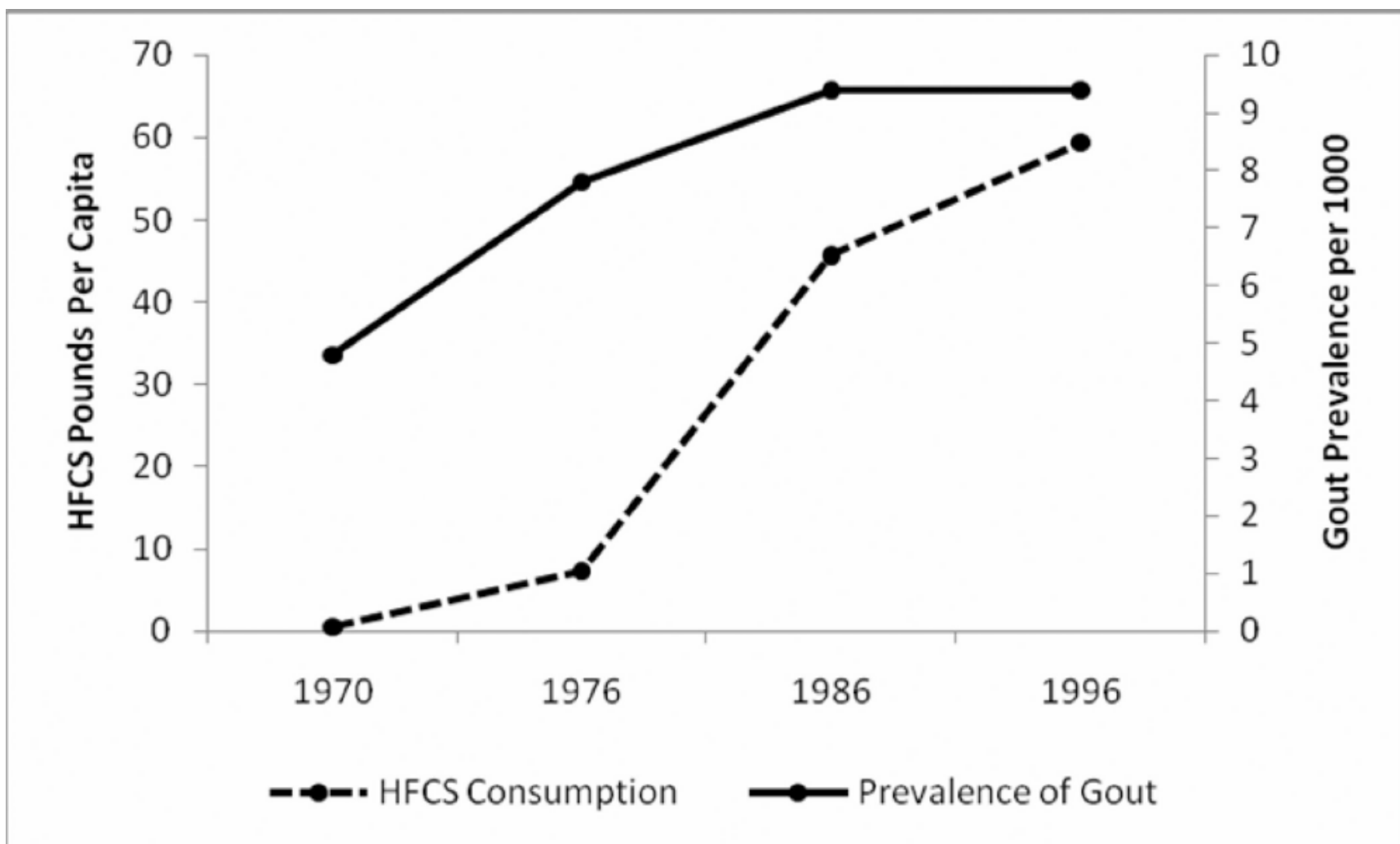


Figure 1 Prevalence of the metabolic syndrome according to serum uric acid levels stratified by sex. Error bars indicate 95% CIs. Data are presented incorporating sample weights and adjusted for clusters and strata of the complex sample design of NHANES III. NCEP/ATP = National Cholesterol Education Program Adult Treatment Panel.

The Epidemiology of Uric Acid and Fructose

Young Hee Rho, MD, PhD, MPH¹, Yanyan Zhu, PhD¹, and Hyon K. Choi, MD, DrPH¹

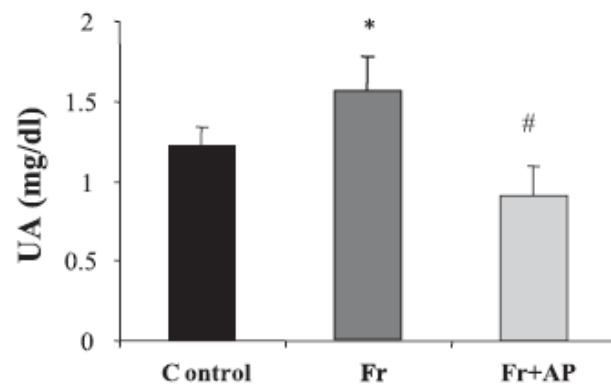
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Semin Nephrol. 2011 September ; 31(5): 410–419



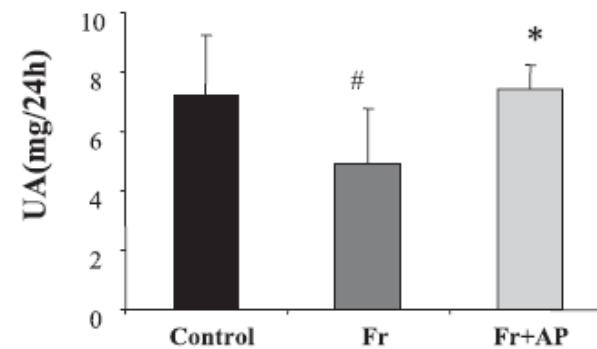
A causal role for uric acid in fructose-induced metabolic syndrome

Takahiko Nakagawa,¹ Hanbo Hu,¹ Sergey Zharikov,¹ Katherine R. Tuttle,²
Robert A. Short,^{2,3} Olena Glushakova,¹ Xiaosen Ouyang,¹ Daniel I. Feig,⁴
Edward R. Block,¹ Jaime Herrera-Acosta,^{5,†} Jawaharlal M. Patel,¹ and Richard J. Johnson¹

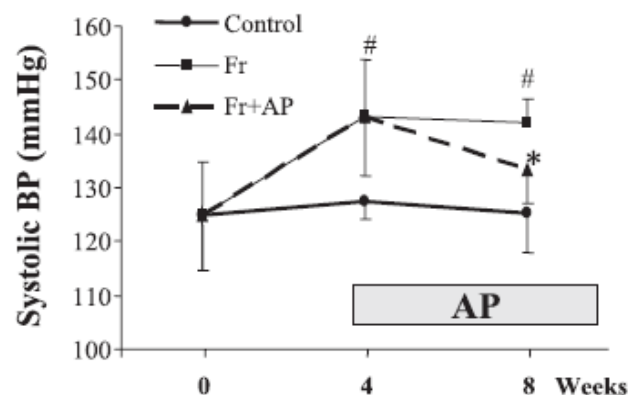
A Serum Uric acid



B Urinary excretion of uric acid

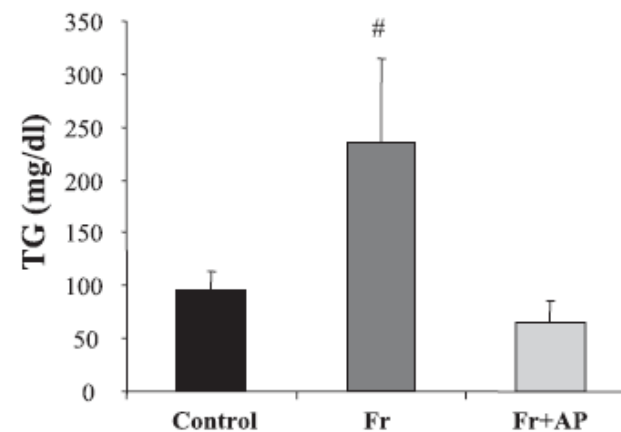


C



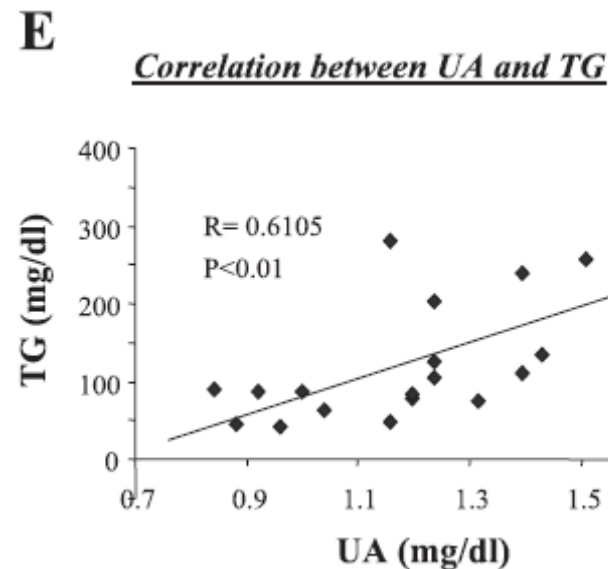
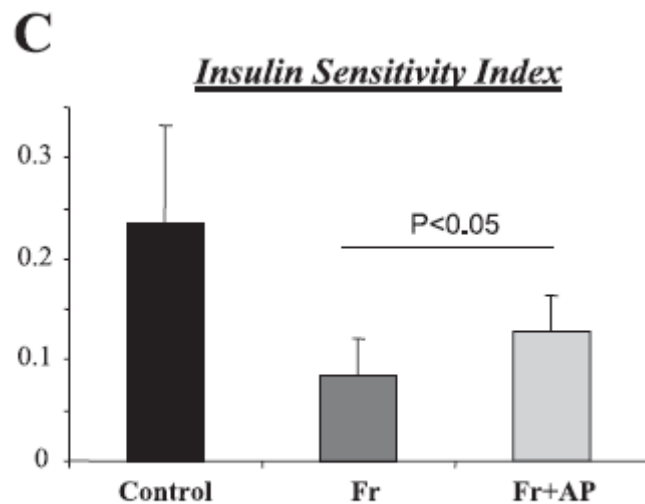
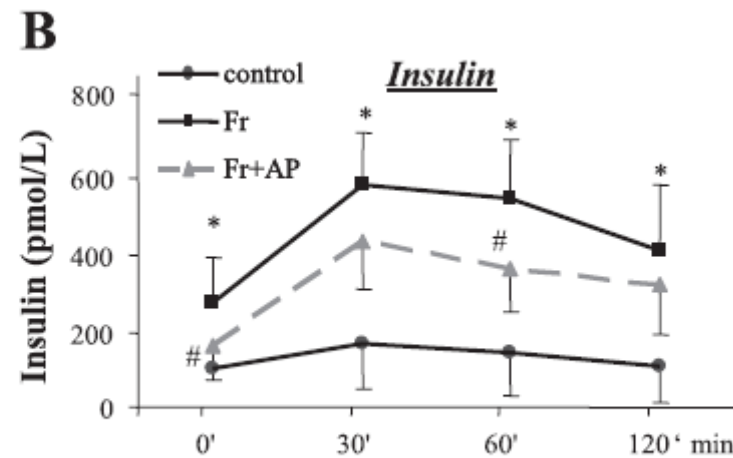
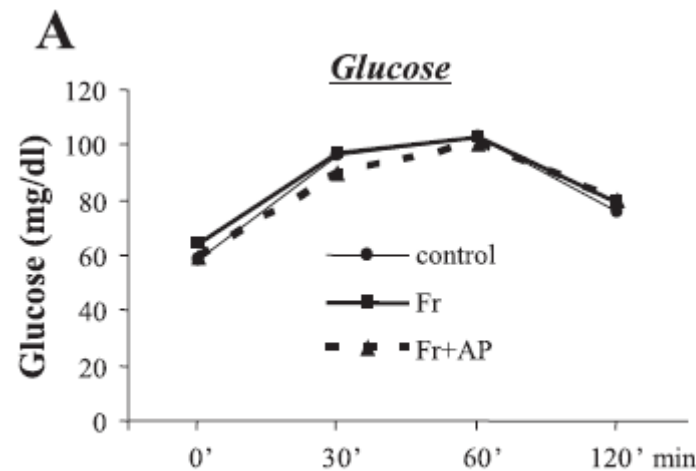
D

Triglyceride



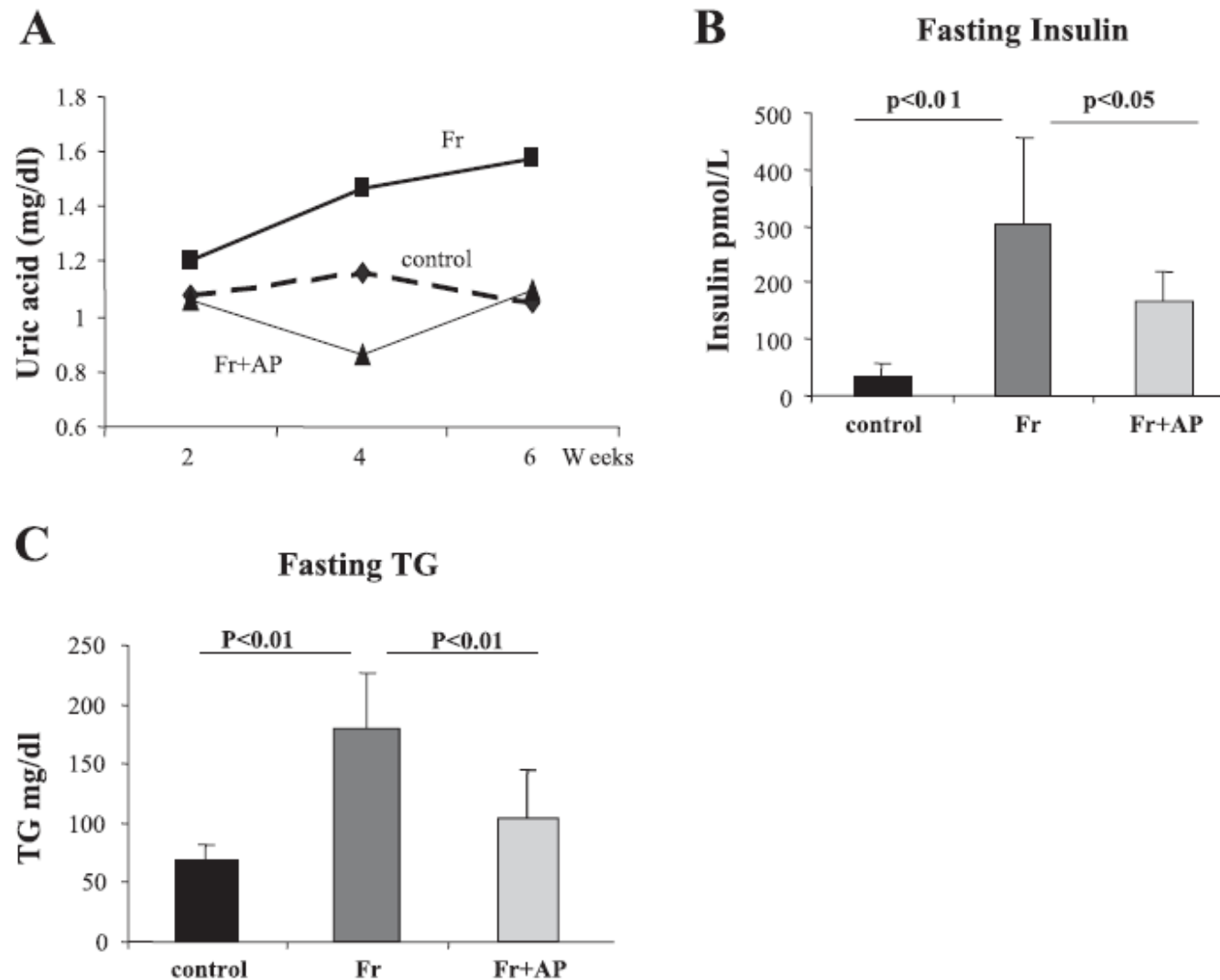
A causal role for uric acid in fructose-induced metabolic syndrome

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ORIGINAL ARTICLE

Prevalence of insulin resistance and metabolic syndrome in patients with gouty arthritis

Han-Gyul Yoo · Sang-Il Lee · Han-Jung Chae ·
Seoung Ju Park · Yong Chul Lee · Wan-Hee Yoo

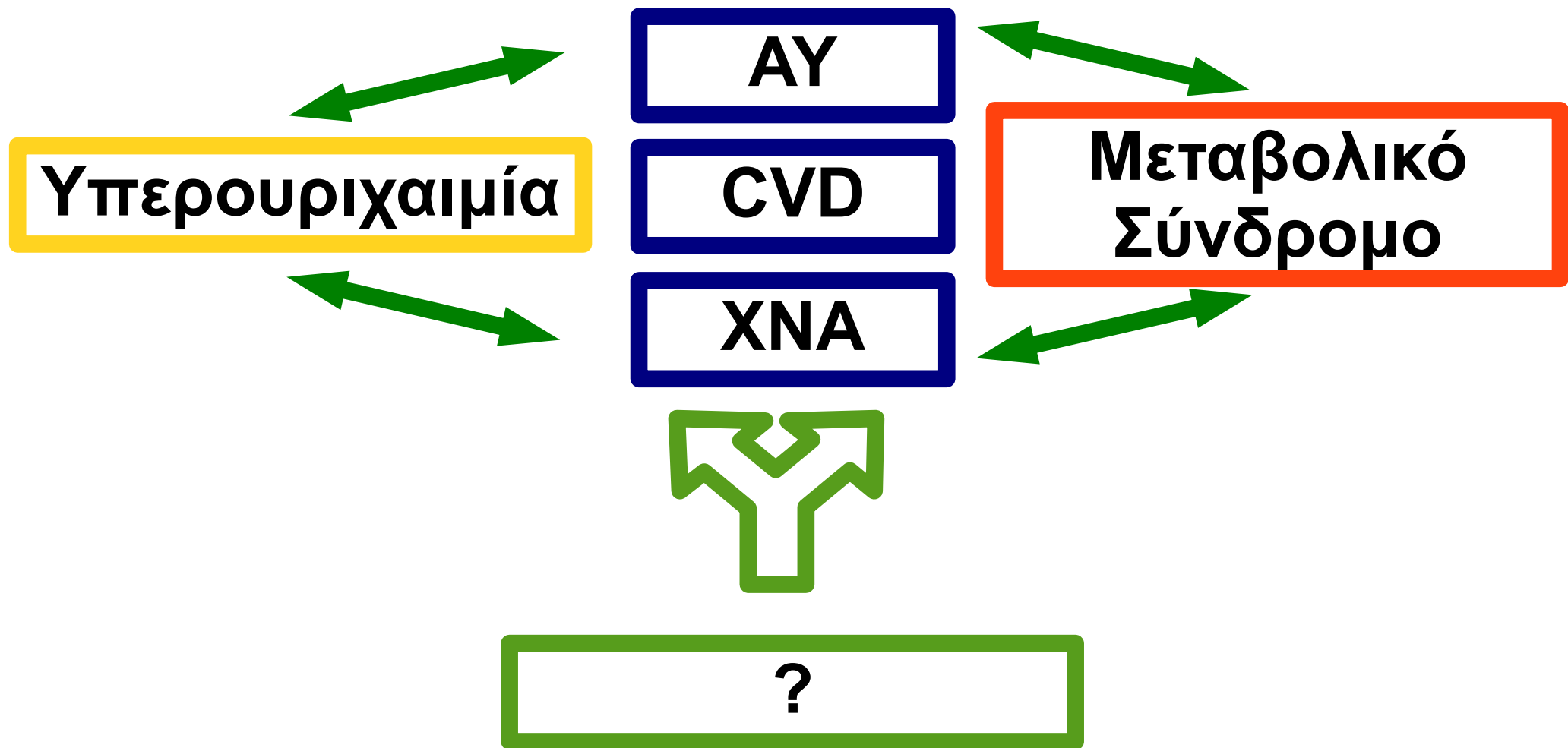
83 patients with gouty arthritis

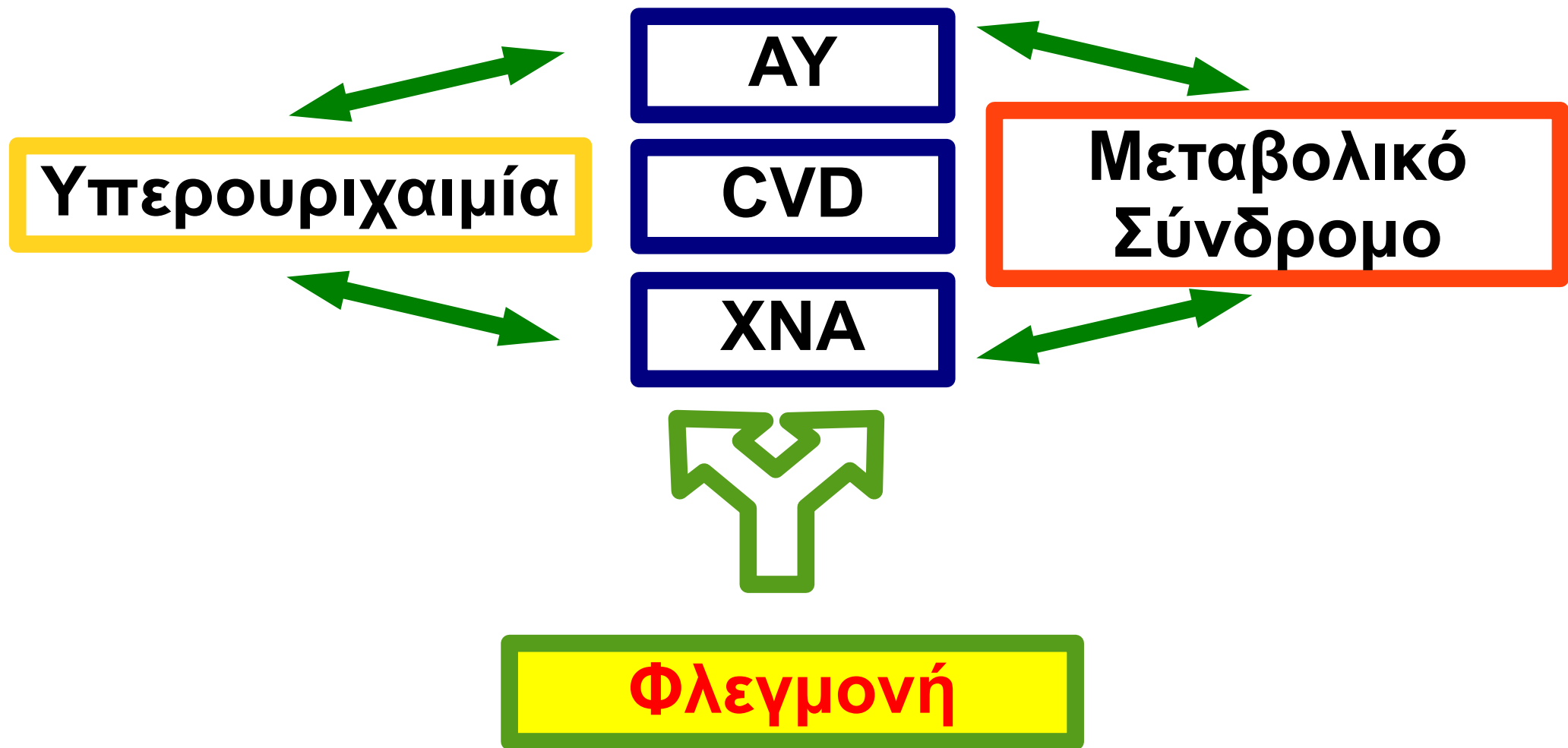
The mean value of HOMA-IR in patients with gout was 2.63 ± 1.36 and is significantly higher than control study (1.91 ± 1.01 , $P < 0.05$)

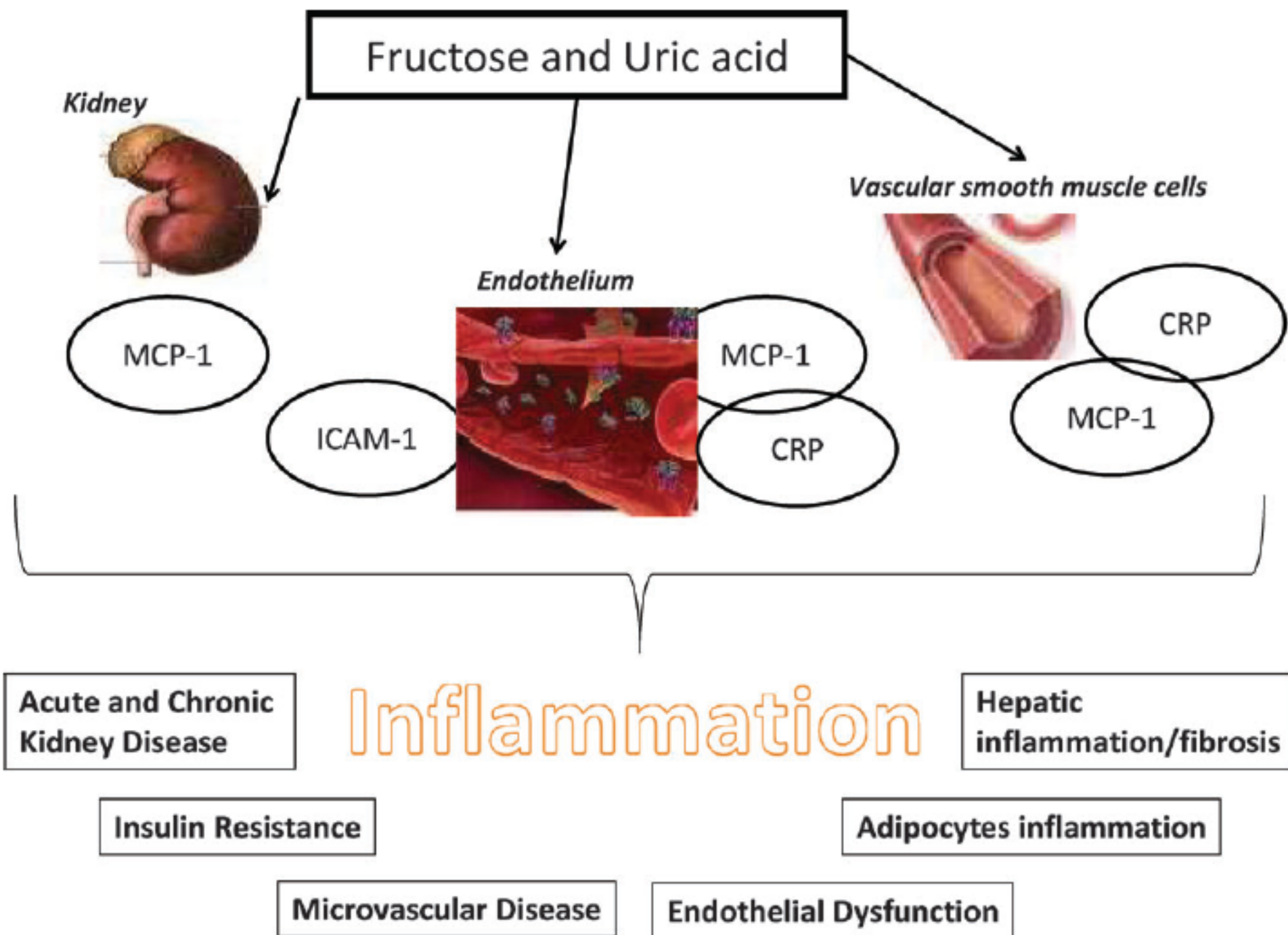
There were significant correlations between 24-h urinary uric acid excretion and waist circumference ($r(2) = 0.225$, $P = 0.049$), fasting insulin ($r(2) = 0.241$, $P = 0.035$), and insulin resistance (HOMA-IR) ($r(2) = 0.271$, $P = 0.017$).

There were significant correlations between insulin resistance and waist circumference ($r(2) = 0.341$, $P < 0.01$), BMI ($r(2) = 0.390$, $P < 0.01$).

The value of HOMA-IR (insulin resistance) and the prevalence of metabolic syndrome in patients with gout are significantly higher than normal healthy control groups. The hyperuricemia in gout might be caused by the increased adiposity associated with insulin resistance.



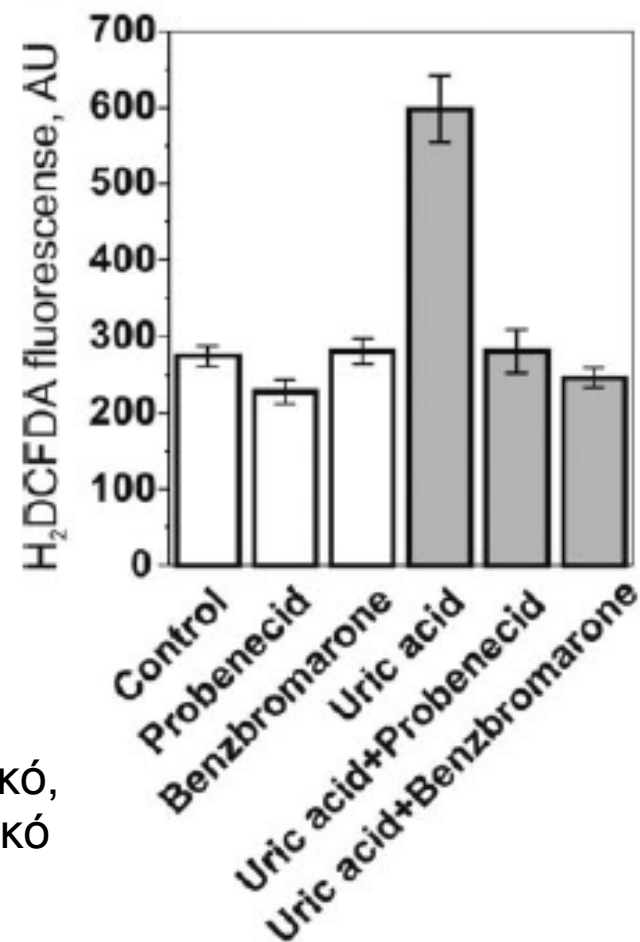
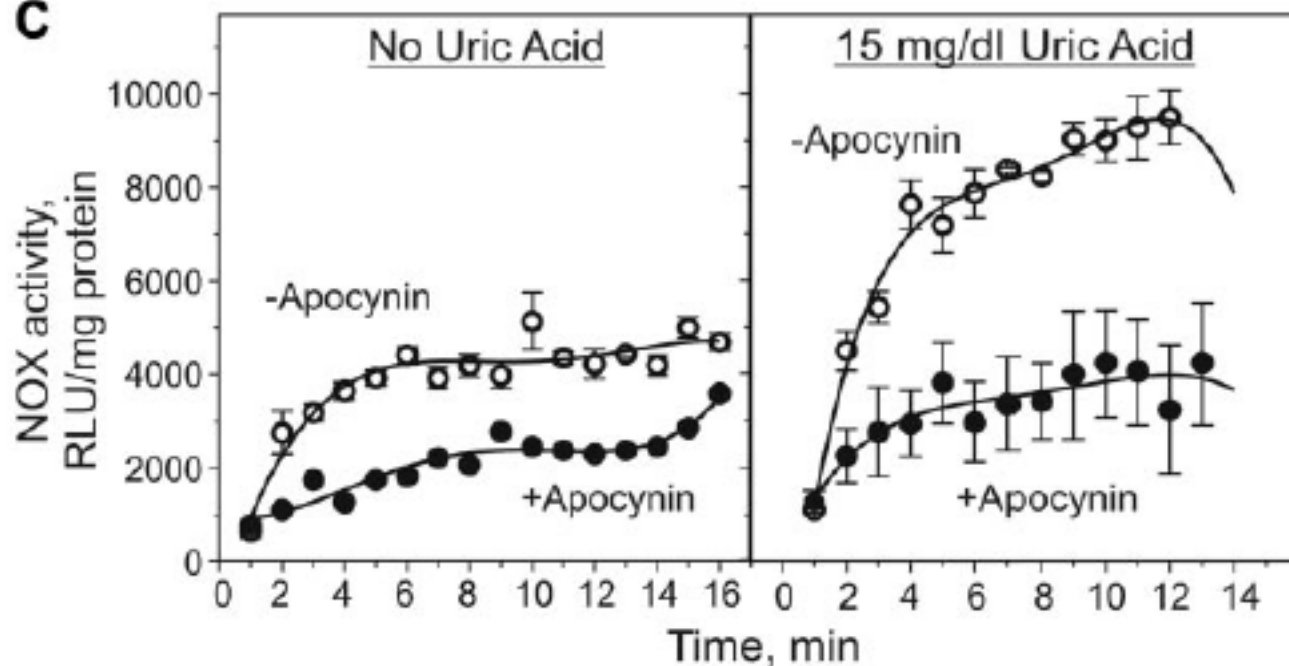




Adverse effects of the classic antioxidant uric acid in adipocytes: NADPH oxidase-mediated oxidative/nitrosative stress

Yuri Y. Sautin, Takahiko Nakagawa, Sergey Zharikov, and Richard J. Johnson

C



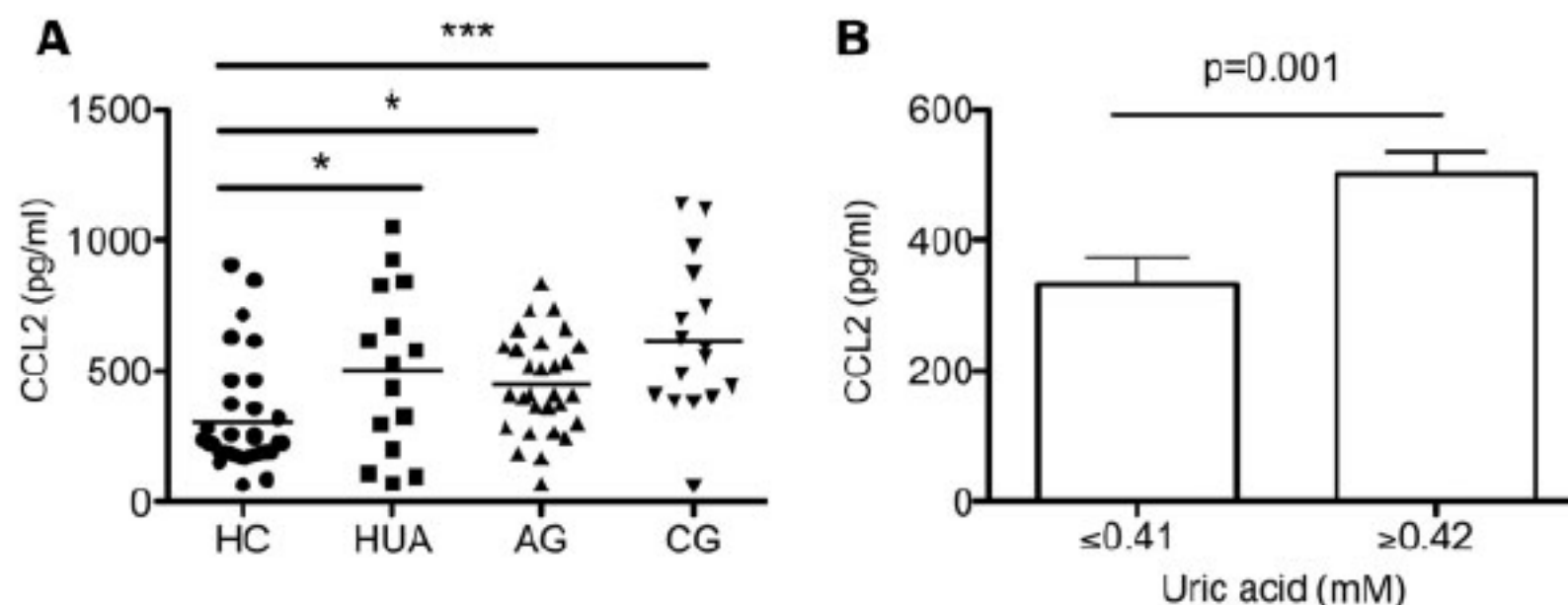
Παρότι το UA είναι στον εξωκυττάριο χώρο ισχυρό αντιοξειδωτικό, εισερχόμενο στα λιποκύτταρα προκαλεί μιτοχονδριακό οξειδωτικό στρες διεγείροντας την NADPH οξειδάση

Concise report

doi:10.1093/rheumatology/kes326

Hyperuricaemia elevates circulating CCL2 levels and primes monocyte trafficking in subjects with inter-critical gout

Rebecca Grainger¹, Rene J. McLaughlin¹, Andrew A. Harrison² and Jacquie L. Harper¹





Παρότι ΡΑ και ΥΑ αποτελούν σχετικά συχνές παθήσεις η συνύπαρξη είναι εξαιρετικά σπάνια

10% ασθενών με ΡΑ έχουν υπερουριχαιμία

Agudelo et al. Does hyperuricemia protect from rheumatoid inflammation? A clinical study.
Arthritis Rheum 1984; 27: 443-8.

30% ασθενών με τοφώδη ΥΑ έχουν θετικό ρευματοειδή παράγοντα σε χαμηλό τίτλο

Kozin F, McCarty D J. Rheumatoid factor in the serum of gouty patients.
Arthritis Rheum 1977; 20: 1559-60.

Case reports of coexistent gout and rheumatoid arthritis

Source	Sex/ Age (yr)	Age at diagnosis (yr)		RF titre	Rheuma- toid nodules	Tophi	MSU		Uric acid	Response to colchicine	Histopathology
		Gout	RA				Synovial	Tophi			
McCarty 1964 ³	M:75	63	75	2560	+	+		+	↑		Rheumatoid nodule
Owen et al, 1964 ⁴	M:64	49	63	320	+	+		+	13·2	Yes	Synovium, pannus
Bloch-Michelle et al, 1968 ⁵	F:38	26	31	320			+		11·0		Synovium, pannus and MSU crystals
Schwartzberg et al, 1978 ⁶	M:39	39	23	5120	+	+	+		10·0	Yes	Synovium, pannus and nodule with MSU crystals
Wallace et al, 1979 ⁷	F:73	72	38	5120	+	+	+		16·2	Yes	NA
Rizzoli et al, 1979 ⁸	M:58	58	70	1280	+	+		+	12·6	Yes	Meniscectomy MSU crystals
Jessee et al, 1980 ⁹	M:71	61	64	640	+	+	+		7·2	Yes	Rheumatoid nodule
Atdjian et al, 1981 ¹⁰	M:56	50	55	5120	+	+	+	+	6·4		Rheumatoid nodule and MSU crystals; synovium, pannus
Raman et al, 1981 ¹¹	F:67	63	50	256		+		+	↑		Rheumatoid nodule
Waterworth 1981 ¹²	M:61	61	64	320	+		+		↑		Rheumatoid nodule
Gordon et al, 1985 ¹³	M:60	54	56	2048	+	+		+	↑	Yes	Rheumatoid nodule; synovium, pannus
Martinez-Cordero et al, 1988 ¹⁴	M:37	27	30	1280		+		+	8·9		Rheumatoid nodule
Spector et al, 1989 ¹⁵	M:39	41	57	640	+			+	4·5		Rheumatoid nodule
Wendling et al, 1991 ¹⁶	F:45	45	45	2560			+		↑	Yes	NA
Present study	F:61	58	42	2560	+	+		+	13·2		NA

Studies on the interaction of rheumatoid factor with monosodium urate crystals and case report of coexistent tophaceous gout and rheumatoid arthritis

T P GORDON, M J AHERN, C REID, AND P J ROBERTS-THOMSON

ORIGINAL ARTICLE

Serum uric acid is independently associated with hypertension in patients with rheumatoid arthritis

VF Panoulas^{1,2}, KMJ Douglas¹, HJ Milionis², P Nightingale³, MD Kita¹, R Klocke¹, GS Metsios¹, A Stavropoulos-Kalinoglou¹, MS Elisaf² and GD Kitas¹

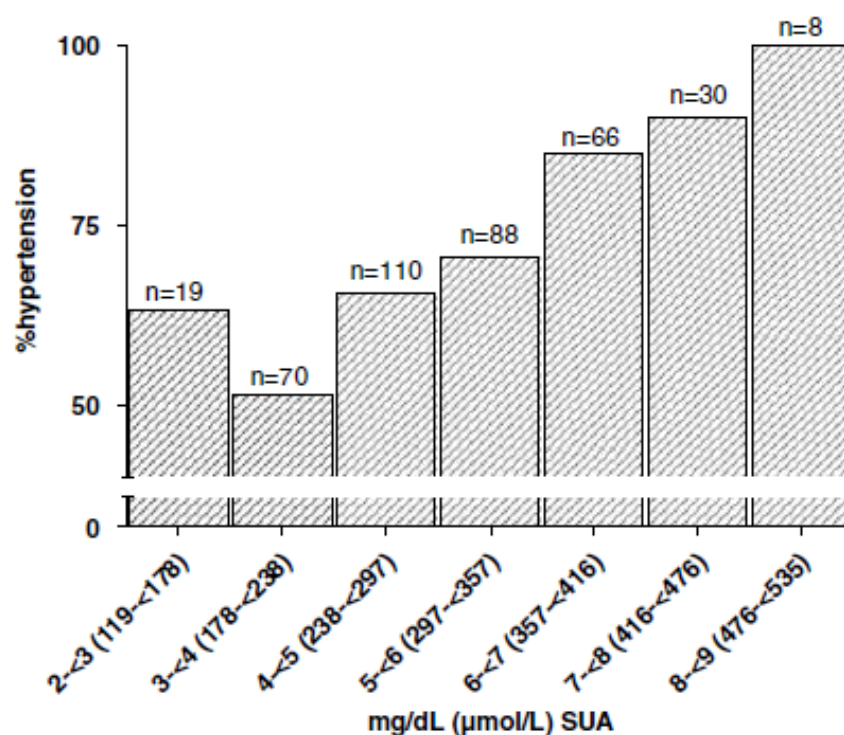


Figure 1 Prevalence of hypertension in RA patients per 1 mgdl⁻¹ (59.48 μmol l⁻¹) serum uric acid (SUA) increase.

Association of serum uric acid with cardiovascular disease in rheumatoid arthritis

V. F. Panoulas^{1,2}, H. J. Millionis², K. M. J. Douglas¹, P. Nightingale³, M. D. Kita¹, R. Klocke¹, M. S. Elisaf² and G. D. Kitas^{1,*}

TABLE 3. Univariate and multivariate analyses of the association between SUA quintiles and CVD in RA patients

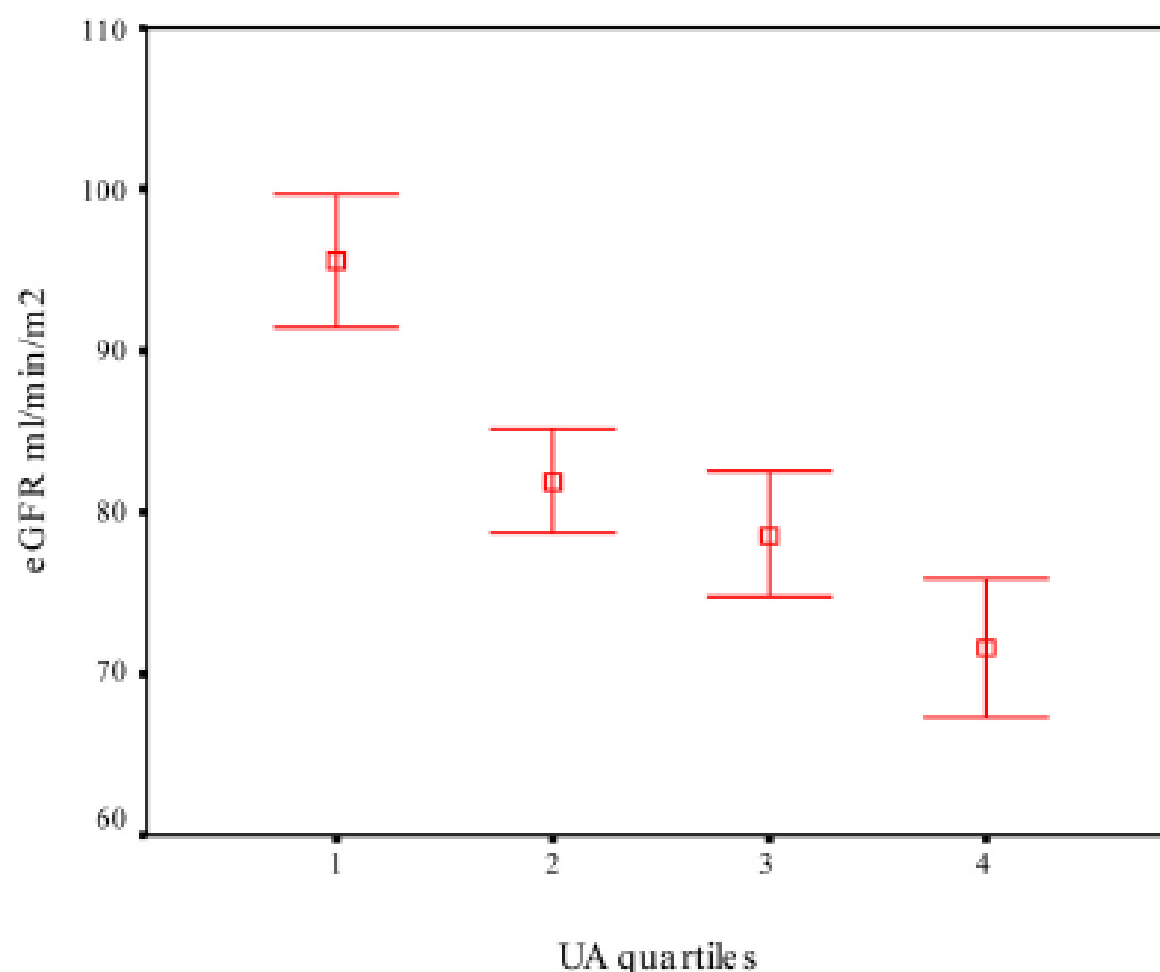
Serum uric acid (mg dl ⁻¹) Quintile	Crude		Adjusted ^a	
	OR (95% CI)	<i>P</i> [*]	OR (95% CI)	<i>P</i> [*]
1 (<3.86)	1	—		
2 (3.86–4.69)	1.45 (0.62–3.39)	0.39	2.68 (0.7–10.21)	0.148
3 (4.69–5.36)	0.986 (0.4–2.43)	0.98	1.35 (0.32–5.68)	0.68
4 (5.36–6.38)	1.2 (0.5–2.87)	0.68	0.95 (0.23–3.9)	0.94
5 (≥6.38)	3.21 (1.46–7.06)	0.004	6.46 (1.66–25.05)	0.007

Research article

Open Access

Uric acid is a strong independent predictor of renal dysfunction in patients with rheumatoid arthritis

Dimitrios Daoussis¹, Vasileios Panoulas¹, Tracey Toms¹, Holly John¹, Ioannis Antonopoulos¹, Peter Nightingale², Karen MJ Douglas¹, Rainer Klocke¹ and George D Kitas^{1,3}



Serum uric acid levels in psoriatic arthritis

JOHN R. LAMBERT AND V. WRIGHT

Hyperuricaemia has been generally accepted as a frequent accompaniment of psoriasis and psoriatic arthritis. This association was first noted by Herrmann et al. (1930), who reported levels of uric acid above the upper limit of normal in 44 of 140 patients with psoriasis, especially in those with arthritis. Other authors reported similar findings (Steinberg et al., 1951; Tickner and Mier, 1960; Baumann and Jillson, 1960; Eisen and Seegmiller, 1961; Beveridge and Lawson, 1967; Pokorny and Resl, 1968; Solanet and Shulman, 1972). The prevalence of hyperuricaemia varied in these series from 21 to 50 %, the increase being more marked in males and in patients with arthritis. Eisen and Seegmiller (1961) found correlation of the serum uric acid level with the extent of skin involvement, and it has been postulated that the hyperuricaemia results from increased purine synthesis from the rapid epidermal cell turnover. However, their work with radioactively labelled glycine showed a pattern of turnover resembling primary rather than secondary gout. Further evidence for the association was reported by Kaplan and Klatskin (1960) who described 3

patients with psoriasis, gout, and sarcoidosis. However, Lea et al. (1958) found no difference between the values of 19 psoriatic patients and controls. Schattenkirchner (1970) found no increase in the frequency of raised serum uric acid levels in psoriatic arthritis compared with seronegative chronic polyarthritis, and Little et al. (1975) found that in patients with severe psoriasis, with or without arthritis, the mean serum uric acid levels were in the middle of their normal range. A careful study was undertaken of our patients to try to resolve these conflicting reports.

Serum Uric Acid Level as an Independent Risk Factor for All-Cause, Cardiovascular, and Ischemic Stroke Mortality: A Chinese Cohort Study

JIUNN-HORNG CHEN,¹ SHAO-YUAN CHUANG,² HSIN-JEN CHEN,² WEN-TING YEH,² AND WEN-HARN PAN³

DOI 10.1002/art.24584

Role of asymptomatic hyperuricemia and serum uric acid levels in the pathogenesis of subclinical atherosclerosis in psoriatic arthritis: comment on the article by Chen et al

High Prevalence of Subclinical Atherosclerosis in Psoriatic Arthritis Patients Without Clinically Evident Cardiovascular Disease or Classic Atherosclerosis Risk Factors

CARLOS GONZALEZ-JUANATEY,¹ JAVIER LLORCA,² ENCARNACION AMIGO-DIAZ,¹
TRINIDAD DIERSEN,² JAVIER MARTIN,³ AND MIGUEL A. GONZALEZ-GAY¹



ΣΝ

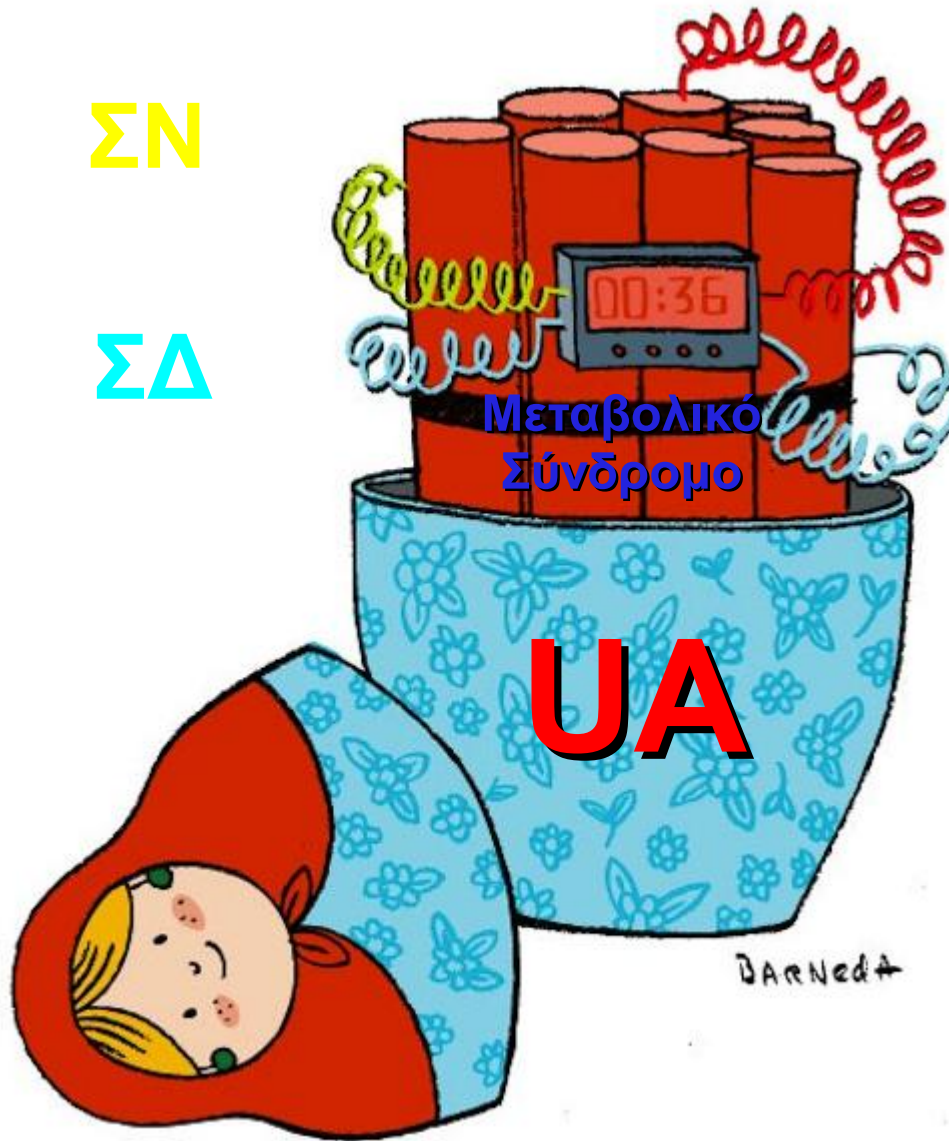
ΑΥ

ΣΔ

ΧΝΑ

Μεταβολικό
Σύνδρομο

ΥΑ



DARNedA

