



[Home](#) / [Online First](#)

 [Article Text](#)

[Article menu](#)



Clinical and epidemiological research
Concise report

[PDF](#)

Relationship between serum urate concentration and clinically evident incident gout: an individual participant data analysis

Nicola Dalbeth¹, Amanda Phipps-Green², Christopher Frampton³, Tuhina Neogi⁴, William J Taylor⁵, Tony R Merriman²

[Author affiliations +](#)

Abstract

Objectives To provide estimates of the cumulative incidence of gout according to baseline serum urate.

Methods Using individual participant data from four publicly available cohorts (Atherosclerosis Risk in Communities Study, Coronary Artery Risk Development in Young Adults Study, and both the Original and Offspring cohorts of the Framingham Heart Study), the cumulative incidence of clinically evident gout was calculated according to baseline serum urate category. Cox proportional hazards modelling was used to evaluate the relation of baseline urate categories to risk of incident gout.

Results This analysis included 18 889 participants who were gout-free at baseline, with mean (SD) 11.2 (4.2) years and 212 363 total patient-years of follow-up. The cumulative incidence at each time point varied according to baseline serum urate concentrations, with 15-year cumulative incidence (95% CI) ranging from 1.1% (0.9 to 1.4) for <6 mg/dL to 49% (31 to 67) for ≥10 mg/dL. Compared with baseline serum urate <6 mg/dL, the adjusted HR for baseline serum urate 6.0–6.9 mg/dL was 2.7, for 7.0–7.9 mg/dL was 6.6, for 8.0–8.9 mg/dL was 15, for 9.0–9.9 mg/dL was 30, and for ≥10 mg/dL was 64.

Conclusions Serum urate level is a strong non-linear concentration-dependent predictor of incident gout. Nonetheless, only about half of those with serum urate concentrations ≥10mg/dL develop clinically evident gout over 15 years, implying a role for prolonged hyperuricaemia and additional factors in the pathogenesis of gout.

<http://dx.doi.org/10.1136/annrheumdis-2017->

212288

Statistics from Altmetric.com



Picked up by **1** news outlets
Tweeted by **16**
On **1** Facebook pages
1 readers on Mendeley

[See more details](#)

[View Full Text](#)

Footnotes

Handling editor: Tore K Kvien

Contributors: ND conceived and planned the study, interpreted the data, and wrote the first draft of the manuscript. ND is responsible for the overall content of the manuscript as guarantor. AP-G contributed to analysis planning, data management and manuscript drafting. CF analysed the data and contributed to analysis planning and manuscript drafting. TN, WJT and TRM contributed to study conception and planning, data interpretation, and manuscript drafting.

Funding: This work was supported by the Health Research Council of New Zealand. TN is supported by NIH K24 AR070892.

Competing interests: ND has received consulting fees, grants or speaker fees from Takeda, Horizon, Menarini, AstraZeneca, Ardea, Pfizer, Amgen and Kowa outside of the submitted work. WJT has received consulting fees from AstraZeneca and Pfizer outside of the submitted work. TRM has received consulting fees or grants from Horizon, AstraZeneca and Ardea outside of the submitted work. The other authors have no financial disclosures.

Patient consent: Analysis of publicly available data.

Provenance and peer review: Not commissioned; externally peer reviewed.

Correction notice: This article has been corrected since it published Online First. The results section of the abstract has been corrected.

Presented at: This manuscript is based on work previously presented at the American College of Rheumatology Annual Scientific Meeting, San Francisco, USA, 2017, and was published as the following conference abstract: Dalbeth N, Phipps-Green A, Frampton C, Neogi T, Taylor WJ, Merriman TR. The Relationship between Serum Urate Concentration and Incident Gout: An Individual Participant Data Analysis [abstract]. *Arthritis Rheumatol.* 2017; 69 (suppl 10).

Request permissions

If you wish to reuse any or all of this article please use the link below which will take you to the Copyright Clearance Center's RightsLink service. You will be able to get a quick price and instant permission to reuse the content in many different ways.

dtb
Drug and Therapeutics Bulletin

Go beyond the research

Explore our podcasts for exclusive extras ▶

BMJ

Request permissions

Copyright information: © Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

Read the full text or download the PDF:

Buy this article

Subscribe

Log in



Consultant Physician General Internal Medicine/Rheumatologist

Oldham, Greater Manchester | £76,761 - £103,490 PA

An opportunity has arisen for an experienced and proactive consultant to join our busy and dynamic team.

Recruiter: Oldham Care Organisation

[Apply for this job](#)

Consultant Rheumatologist

Forth, Lanark | £78,304 - £105,570 per annum (pro rata)

We are looking to appoint a Consultant Rheumatologist based at Forth Valley Royal Hospital, which is located in Central Scotland.

Recruiter: NHS Forth Valley

[Apply for this job](#)

Consultant Rheumatologist

Grampian | £78304 to £105570

We are seeking to appoint an additional Consultant Rheumatologist to join the existing award-winning Rheumatology team

Recruiter: NHS Grampian

[Apply for this job](#)

Consultant Rheumatologist

Oxford, Oxfordshire |

The appointee will be expected to work closely with the existing Consultant Rheumatologists.

Other content recommended for you

[Urate crystal deposition in asymptomatic hyperuricaemia and symptomatic gout: a dual energy CT study.](#)

Nicola Dalbeth et al., Ann Rheum Dis

[Reference level of serum urate for clinically evident incident gout](#)

Xiao Chen et al., Ann Rheum Dis

[Serum urate association with hypertension in young adults: analysis from the Coronary Artery Risk Development in Young Adults cohort.](#)

Angelo L Gaffo et al., Ann Rheum Dis

[Psoriasis, psoriatic arthritis and risk of gout in US men and women.](#)

Joseph F Merola et al., Ann Rheum Dis

[Low-dose aspirin use and recurrent gout attacks.](#)

Yuqing Zhang et al., Ann Rheum Dis

[Increased Risk for MI Seen Early in NSAID Use](#)

Medscape CME

[Treat to Target in Gout: A Fundamental Approach to Clinical Challenges](#)

Medscape CME

eular
fighting rheumatic & musculoskeletal
diseases together



eular
TEXTBOOKS

CONTENT

[Latest content](#)

[Current issue](#)

[Archive](#)

[Browse by topic](#)

[Most read articles](#)

JOURNAL

[About](#)

[Editorial board](#)

[Thank you to our reviewers](#)

[Sign up for email alerts](#)

[Subscribe](#)

[EULAR textbooks](#)

AUTHORS

[Instructions for authors](#)

[Submit an article](#)

[Open Access at BMJ](#)

HELP

[Contact us](#)

[Reprints](#)

[Permissions](#)

[Advertising](#)

[Feedback form](#)



BMJ

[Website Terms & Conditions](#)

[Privacy & Cookies](#)

[Contact BMJ](#)

Online: ISSN 1468-2060 Print: ISSN 0003-4967

Copyright © 2018 BMJ Publishing Group Ltd & European League Against Rheumatism. All rights reserved.

京ICP备15042040号-3

RMD Open
Rheumatic & Musculoskeletal Diseases
eular **BMJ**



Share your research
with the world

Submit your paper today ▶