Beliefs about medicines among gout patients – data from the nor-gout study

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Background: Low adherence to medication is a concern in gout where urate lowering therapy (ULT) is indicated to prevent disease severity and comorbidities. The beliefs patients have about medication may impact on the success of achieving these treatment goals.

Objectives: To study which factors were associated to beliefs about medicines in patients with a recent gout attack and a need for ULT.

Methods: Baseline data from a prospective observational study was used in patients with crystal-proven gout who presented after a recent gout flare with insufficiently treated serum urate (sUA) level (<360 μmol/L) over 12 months in a UK rheumatology clinic. The primary outcome was self-reported gout. Factors associated with gout, such as body weight, drinking habit, history of chronic kidney disease, use of aspirin and thiazide diuretics were evaluated. Prescriptions of allopurinol, febuxostat or probenecid were retrieved from the NHANES dataset to evaluate the use of urate lowering agents among patients with gout.

Conclusions: Unexpectedly, using allopurinol medication was inversely associated with high beliefs, whereas higher BMI and better mental health were positively associated with high beliefs in the importance of medication in gout patients. These findings do not allow conclusions on causality, and beliefs in medicines in gout patients should also be studied longitudinally and in relationship to therapy response.


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FR0251 PREVALENCE OF GOUT AND THE USE OF URATE LOWERING AGENTS IN US GENERAL POPULATION

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Background: The prevalence of gout has been increasing worldwide. Previous study using National Health and Nutritional Examination Survey (NHANES) showed an increase of 1.2% in the prevalence of gout in the US general population from 1988 to 2007. However, it is unknown if this trend continued over the past decades. Therefore, we would like to determine the prevalence of gout in the US general population using NHANES 2007 to 2016. In addition, the use of urate lowering agents among patients with gout was analysed.

Objectives: To estimate the prevalence of gout and the use of urate lowering agents using the National Health and Nutritional Examination Survey from 2007 to 2016

Methods: Adult participants in NHANES 2007–2016 were included in the analysis. NHANES is a continuous national survey conducted by the US Centres for Disease Control and Prevention and is designed to evaluate the health and nutritional status of adults and children in the US. They are based on a representative sample of the non-institutionalised US civilian population. Each participant represents approximately 50,000 Americans.

The primary outcome was self-reported gout. Factors associated with gout, such as body weight, drinking habit, history of chronic kidney disease, use of aspirin and thiazide diuretics were evaluated. Prescriptions of allopurinol, febuxostat or probenecid were retrieved from the NHANES dataset to evaluate the use of urate lowering agents among patients with gout.

Disclosure of Interest: None declared


FR0249 AUDIT OF THE MANAGEMENT OF GOUT – ARE WE DOING IT RIGHT?

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Background: Gout is the most prevalent inflammatory arthritis, affecting 2.5% of adults in the UK. However, management is often inadequate in both primary and secondary care, with only 45% of patients achieving target serum urate (sUA) level (<360 μmol/L) over 12 months in UK rheumatology clinics. A better understanding of how well gout is managed in different areas of our service (discharge to GP, general rheumatology follow-up clinics, and specialist gout clinic) will inform service redesign.

Objectives: To compare the management of gout in the rheumatology service against the 2007 British Society for Rheumatology (BSR) and 2006 European League Against Rheumatism (EULAR) gout guidelines, and the NICE febuxostat technology appraisal (TA164).

Methods: We retrospectively audited all new out-patient referrals with gout seen in our department over a 12 month period (January–December 2015). Data were collected by electronic review of case notes and completion of a structured pro-forma. Three mutually exclusive groups were compared: those seen once in rheumatology and discharged to GP (group1), followed-up in general rheumatology clinics (group2), or followed-up in a specialist gout clinic (group3). Follow-up SUA levels were specifically compared to EULAR (<360 μmol/L) and BSR (<300 μmol/L) treatment targets.

Results: 150 new consecutive gout referrals (50 per group) were included in the audit: 83% were male and mean age was 62 years. Gout was diagnosed by monosodium urate crystal identification in 16 (11%) and 25% had tophi. 43 (29%) patients were already on ULT, and 107 (71%) patients were newly commenced therapy (ULT) is indicated to prevent disease severity and comorbidities.

Conclusions: Unexpectedly, using allopurinol medication was inversely associated with high beliefs, whereas higher BMI and better mental health were positively associated with high beliefs in the importance of medication in gout patients. These findings do not allow conclusions on causality, and beliefs in medicines in gout patients should also be studied longitudinally and in relationship to therapy response.


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Results were analysed using SPSS complex sample module version 22. Multiple regression was used to analyse the difference in prevalence of gout and utilisation of urate lowering agents.

**Results:** 23482 adults participants were included in the analysis. There was no further increase in the prevalence of gout in the general US population. The prevalence was 3.82% and 3.84% in NHANES 2007–2010 and 2011–2016, respectively (p=0.966). Although there is a decreasing trend in the serum urate levels among patients with gout, the utilisation of urate lowering agents remained low. Only 28.2% and 29.4% of patients with gout were prescribed urate lowering agents in 2007–2010 and 2011–2014, respectively. Among patients with gout, history of chronic kidney disease and use of thiazide diuretics are the most significant negative predictors for achieving the therapeutic target of SUV -6 mg/dL (Odds ratio of 2.33 and 0.41, respectively). Use of aspirin was not a significant predictor for treatment failure.

**Conclusions:** The prevalence of gout in the US general population has not increased over the past 10 years. Although the use of urate lowering agents among patients with gout remained low, the percentage of patients with gout achieving the therapeutic target has increased over the past 10 years. History of chronic kidney disease and use of thiazide diuretics are the most significant negative predictors for treatment success.

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**FRI0256 TESTING FOR A CAUSAL ROLE OF MITOCHONDRIAL VARIATION IN THE DEVELOPMENT OF GOUT**

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**Background:** Mitochondria execute critical roles in diverse cellular pathways. As a danger signal mitochondria induce inflammation in response to stress through NLRP3 inflammasome activation, central to gout development. We recently reported association of reduced mtDNA copy number (CN) with prevalent gout in New Zealand Māori and Pacific (Polynesian) populations. However the cause-effect relationship is unknown. This could be evaluated by testing for association with gout using nuclear genetic variants that associate with mtDNA CN.

**Objectives:** 1) Genome wide association study (GWAS) for mtDNA CN to identify nuclear and mitochondrial loci containing mtDNA copy number 2) test any such loci for association with gout.

**Methods:** The mtDNA CN GWAS comprised 1340 Eastern Polynesian (EP), 816 Western Polynesian (WP) and 4579 European samples (New Zealand, Germany, The Netherlands, Scotland) genotyped on the Illumina CoreExome v24 array. 343 mitochondrial single nucleotide polymorphisms (SNPs) were evaluated. As previously described the median of the absolute difference in X and Y probe intensities was used as a measure of mtDNA CN, and additional 10 000 randomly selected autosomal SNPs were used to calculate the principal components (PCs). A mtDNA CN GWAS was run on chromosomes 1–22 and the mitochondrial genome using Plink 1.9. v2, adjusting for the first 10 PCs, age and sex followed by association analysis with gout adjusting by age, sex and the first 10 PCs generated from a separate set of 3000 autosomal SNPs.

**Results:** The association of reduced mtDNA CN with gout in the EP and WP groups was reproduced but there was no evidence of association of mtDNA CN with gout in Europeans. Two genome-wide significant (p<1x10–7) variants MUC17 rs78010183 (T-allele) and SLC16A8 rs75640043 (T-allele) were associated with increased mitochondrial CN in EP and WP, respectively, and mitochondrial variant rs3928306 was associated with mtDNA CN (p=4.9x10–7) in Europeans. MUC17 rs78010183 also associated with increased mtDNA CN in Europeans, with the T allele also increasing CN (β=0.06, p=0.008). The T-allele of rs78010183 was associated with gout in Europeans (OR=9.32, p=5.53x10–3) and the SLC16A8 rs75640043 T-allele was associated with gout in the WP group (OR=6.85, p=5.50x10–3). The mitochondrial variant rs3928306 A-allele (very rare in Polynesians) was not associated with gout in Europeans (OR=1.09, p=0.36).

**Conclusions:** That genetic variants associated with mitochondrial copy number also associate with gout provides evidence for a potential causal role of mitochondrial copy number in gout. However, the nuclear genetic variants support a causal relationship of increased mtDNA CN with gout, conflicting with our previous observational report of association of reduced mtDNA CN with gout.

**REFERENCES:**

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**FRI0253 TRENDS FOR GOUT IN ADULTS IN AN URBAN AREA FOR A 5 YEAR PERIOD: INCIDENCE, PREVALENCE AND HOSPITALISATION RATES**

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**Background:** Gout is one of the most common arthritis nowadays which has a great influence on patient’s quality of life, course and outcomes of cardiovascular and renal pathology. Some recent papers demonstrate that the prevalence of gout has risen over the last decades and underline the scarcity or lack of epidemiologic data in different countries as well as the notable variations among them.

**Objectives:** We estimated incidence, prevalence and hospitalisation rates for gout in Minsk (the Republic of Belarus) for the 5 year period (2011–2015).

**Methods:** Minsk is a typical urban area which is considered to be representative for the urban population of the whole country. The data on the new onset gout and the first visit for gout in a corresponding year were collected from all rheumatologic and renal pathology.

**Results:** There were 2688 hospitalizations in Minsk for gout for the study period. The mean age of hospitalised patients was 57.3±10.3 years (median 58.0; range 25–87). 91.4% were men (92%; 87.8%–94.9%). It is worth noting that 45.6% of hospitalised patients were at the age 55–65% and 90.2% were under 70 years old with sharp decrease of hospitalizations after 65 years of age. Hospitalisation rates