Has the gout epidemic peaked in the UK? A nationwide cohort study using data from the Clinical Practice Research Datalink, from 1997 to across the COVID-19 pandemic in 2021

The burden of gout increased globally across the 20th and 21st centuries.¹ However, a study using cross-sectional datasets demonstrated stable prevalence of hyperuricaemia and gout in the USA between 2007 and 2016.² Additionally, given poor persistence with urate-lowering treatment (ULT), the impact of COVID-19 pandemic on ULT prescription in a nationwide cohort merits assessment to ascertain any detrimental impact.³ The objectives of this study were to examine temporal trends in incidence and prevalence of gout, and ULT prescription between 1997 and 2021.

Anonymised data from Clinical Practice Research Datalink (CPRD), one of the largest databases of electronic health records originating during routine clinical care, were used. The study spanned from 01 January 1997 to 31 August 2021. Gout status and ULT prescriptions were ascertained using Read and product codes (online supplemental material).

Point prevalence (95% CIs) of gout on 1 July of each year was calculated with CPRD population registered on that date as denominator. Incidence (95% CI) of gout per 1000 person-years in each calendar year was calculated using number of incident cases and total follow-up period in that year. The incidence and prevalence were directly standardised to the study population for age, sex and length of registration in CPRD³ (online supplemental material). Proportion (95% CI) of prevalent gout cases prescribed ULT within 90 days prior to 1 July in each year, and incident gout cases prescribed ULT within 1 year of diagnosis were calculated and directly standardised to the relevant study

populations. Standardised rates were used to examine temporal trend using joinpoints analysis. Crude rates for 1999 and 2021 were stratified by age and sex to compare age–sex distribution of gout before and during the COVID-19 pandemic.

Data for 373 371 patients with gout were included. The standardised prevalence (95% CI) of gout increased from 0.98% (0.97% to 0.96%) in 1997 to 2.33% (2.31% to 2.35%) in 2021, with annual average percentage change (AAPC) (95% CI) 3.9% (3.3% to 4.4%) (figure 1). The standardised incidence (95% CI) of gout increased from 1.31 (1.26 to 1.37)/1000 person-years in 1997 to 1.97 (1.94 to 2.01)/1000 person-years in 2013, and reduced to 0.98 (0.94 to 1.03)/1000 person-years in 2021. The standardised prevalence of ULT prescription increased from 25.92% in 1997 to 39.53% in 2021 (AAPC (95% CI) 1.3% (1.0% to 1.5%)), whereas the proportion of incident gout cases prescribed ULT within 1 year reduced. Fewer women than men were prescribed ULT ever, and within 1 year of diagnosis, despite older age at onset and higher comorbidity burden as reported previously.⁴

The standardised prevalence of gout remained stable across the pandemic while the standardised incidence (95% CI) reduced from 1.54 (1.50 to 1.58)/1000 person-years in 2019, to 1.07 (1.00 to 1.07) and 0.98 (0.94 to 1.03)/1000 person-years in 2020 and 2021, respectively. The age–sex distribution of prevalent gout was similar in 2019 and 2021 (online supplemental figure S1). However, gout incidence was significantly lower in 2021 than in 2019 across all ages and in both sexes (online supplemental figure S1). The prevalence (95% CI) of ULT prescription in gout improved from 36.72% (36.41% to 37.02%) in 2019 to 39.53% (39.19% to 39.91%) in 2021.

The gout epidemic appears to have peaked in the UK in 2013, with a significant reduction in incidence between 2013 and 2019, that is, before the COVID-19 pandemic potentially due to reduction in alcohol and red meat consumption.^{5,6} The sharp

Figure 1 Temporal trend 1997–2021. Gout prevalence (lower left panel). The APCs (95% CI) were 6.6% (6.4% to 6.8%), 4.4% (2.7% to 6.0%), 3.3% (2.8% to 3.8%), 0.8% (0.2% to 1.3%), and –0.8% (–2.9% to 1.3%) in 1997–2006, 2006–2009, 2009–2014, 2014–2019, 2019–2021, respectively. Gout incidence (lower right panel). The APCs (95% CI) during 1997–2013, 2013–2019, and 2019–2021 were 2.6% (2.0% to 3.2%), –4.5% (–7.2% to –1.8%), and –23.2% (–39.0% to –3.3%), respectively. ULT prevalence (upper left panel). The APCs (95% CI) between 1997 and 2000, 2000 and 2003, 2003 and 2010, 2010 and 2021 were 4.5% (2.4% to 6.6%), 1.4% (–1.9% to 4.8%), –0.4% (–0.9% to 0.1%) and 2.3% (2.1% to 2.5%), respectively. ULT prescription within 1 year of diagnosis (upper right panel). The APCs (95% CI) between 1997 and 2008, 2008 and 2019 were –0.4% (–0.7% to –0.2%) and –1.3% (–1.5% to –1.1%), respectively. The APC (95% CI) reported are for the overall gout population. *Significant joinpoints. Blue line male, red line female, black line overall. Dotted lines 95% CI. APC, average percentage change; ULT, urate-lowering treatment.

decline in its incidence during the COVID-19 pandemic likely represents underdiagnosis, potentially because of the inability to seek healthcare due to restrictions imposed on the population and COVID-19-related workload on the health service, rather than due to improved lifestyle, as alcohol consumption increased during COVID-19 pandemic.⁷ However, this may cause a surge in gout cases presenting to health services in the near future.

Overall, ULT prescriptions increased steadily since 2010, without any detrimental impact of the COVID-19 pandemic, as observed for other rheumatic diseases.⁸ While encouraging, additional steps, for example, partnership with primary care and guideline implementation are needed for continued improvement. The modest increase in ULT among prevalent gout cases during the pandemic may be driven by worsening gout control, potentially due to increased alcohol consumption,⁷ as prevalence of first ULT prescription within 1 year of diagnosis continued to decline in this period.

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