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Original article

Gout characteristics associate with depression, but not anxiety, in primary care: Baseline findings from a prospective cohort study



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ABSTRACT

Objectives: To determine the prevalence of anxiety and depression in gout, examine associations between gout characteristics and these comorbidities and determine the role of allopurinol in any such relationships.

Method: As part of a prospective cohort study, a baseline questionnaire was sent to 1805 participants with gout aged ≥ 18 years from UK primary care. Participants had a gout diagnosis or prescriptions for allopurinol or colchicine in their medical records 2 years prior to baseline. Prevalence of anxiety was defined using the Generalised Anxiety Disorder questionnaire and depression using the Patient Health Questionnaire. Logistic regression was used to examine any association between gout characteristics (12-month attack frequency, oligo/polyarticular gout and gout duration) and the presence of anxiety or depression. Crude and adjusted associations were reported as odds ratios (OR) and 95% confidence intervals (CI). Adjusted gout characteristics were stratified by allopurinol use.

Results: One thousand one hundred and eighty-four participants responded to baseline (65.6%). Prevalence of anxiety and depression were 10.0% and 12.6% respectively. There was no association between gout characteristics and anxiety. However, there was an association between attack frequency and depression amongst those gout patients using allopurinol (2.87 [1.2 to 6.6]) and also between oligo/polyarticular gout and depression (2.01 [1.2 to 3.3]), irrespective of allopurinol use (2.09 [1.1 to 4.0]) or not (2.64 [1.0 to 6.8]).

Conclusion: Patients experiencing frequent gout attacks or attacks in multiple joints are likely to experience depressive symptoms, even when using allopurinol. Depression may influence medication adherence and participation in routine reviews, hence impacting adversely on gout management outcomes.

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1. Introduction

Gout is experienced by 2.5% of UK adults, making it the most common form of inflammatory arthropathy [1]. The primary risk factor for gout is an elevated serum urate level (hyperuricaemia), leading to monosodium urate (MSU) crystal deposition in and around joints, acute attacks of crystal synovitis and progressive joint damage [2]. Long-term treatment of gout involves using urate-lowering therapies (ULT), typically the xanthine oxidase inhibitor allopurinol [3].

Comorbidity is common in people with gout [4] and whilst the association with physical conditions has been widely investigated

[5–7], research into the potential association between gout and psychological comorbidity (including anxiety and depression) remains limited. In particular, there is sparse information on the prevalence of either anxiety or depression in gout patients in primary care, the setting where the majority of gout patients are managed and treated [8]. A small study of 50 gout patients undertaken in a Singapore Rheumatology department reported the prevalences of anxiety and depression, defined using the Hospital Anxiety and Depression Scale (HADS), to be 6% and 20% respectively [9]. The prevalence of depression (defined using the Patient Health Questionnaire [PHQ-9]) in adults aged 60 years or older with gout was 13.5% in the 2009–2010 National Health and Nutrition Examination Survey (NHANES) study, an estimate that was similar to that in the general population [10].

We have previously examined the incidence rate of general practice consultation for anxiety and depression in gout patients

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in UK primary care [11]. In this population, we found no association between a diagnosis for gout and a subsequent consultation for these psychological comorbidities, when compared to primary care consultants matched by age, gender, year of consultation and general practice. However, this research was based on historical medical consultation for either anxiety or depression, both of which are typically under-reported and under-diagnosed in general practice [12,13]. Furthermore, owing to the nature of medical consultation data, no consideration of specific gout characteristics was possible, which have been shown to influence the psychological quality of life in gout patients [14].

Previous research from English primary care and US secondary care populations found little influence of gout on psychological health, when compared to the influence on physical health [15–17]. However, when classification by gout characteristics was applied, such as by the number of painful joints [18], number of attacks in a 12-month period [14,18–20] or disease duration [20], associations were found between gout and poorer general psychological health (as measured using the SF12 or SF36). This suggests that different gout characteristics may be important in identifying those patients more likely to experience poorer psychological health. However, it remains unclear whether the prevalence of anxiety and depression is associated with specific gout characteristics in UK primary care. The only paper to have considered the association between gout and psychological comorbidity was conducted by Khanna et al. in a US secondary care sample. They found the prevalence of depression, determined from record review, to be greater in patients experiencing ≥ 2 flares in a 12-month period, even in patients treated with ULT [21].

The specific objectives of this study were:

- to establish the prevalence of anxiety and depression amongst UK primary care gout patients;
- to investigate the association between gout characteristics and anxiety and depression;
- to examine the role of allopurinol use on any association with these psychological comorbidities.

2. Methods

2.1. Study design and population

The study uses baseline data from a prospective primary care-based cohort study of people with gout [22]. Gout patients aged 18 years and older were recruited from 20 research-active General Practices across the West Midlands, UK. Participants were selected based on the presence of Read codes for a previous consultation for gout or a prescription of allopurinol or colchicine in the electronic medical records within the 2 years preceding the baseline questionnaire. Participants were mailed a postal questionnaire, with a two-staged reminder system in place for initial non-responders. With participant consent, questionnaire data were linked to participants' medical records. Approval was obtained from the North West–Liverpool East Research Ethics Committee (Ref no.: 12/NW/0297).

2.2. Baseline survey measures

The prevalence of anxiety and depression within the gout sample was assessed using two validated measures included in the baseline questionnaire. Anxiety status was determined using the Generalised Anxiety Disorder (GAD-7) questionnaire [23]. The GAD-7 consists of seven questions designed to identify cases of generalised anxiety disorder. Depression was assessed using the Patient Health Questionnaire (PHQ-9) [24], a nine-question

measure developed for use in primary care to identify the presence of depression. The GAD-7 and PHQ-9 have both been shown to be capable of screening for their respective conditions and are valid measures of clinically diagnosed anxiety and depression [23,24]. Scores of < 10 represent “no anxiety” or “no depression” and scores of ≥ 10 represent the presence of anxiety or depression for each measure [23,24].

The baseline questionnaire also collected data on age, gender, body mass index (BMI) and deprivation status. BMI was calculated from self-reported weight and height and deprivation status was assessed using the Indices of Multiple Deprivation (IMD), which is a neighbourhood level deprivation measure [25]. Other data collected included the frequency of alcohol consumption and self-reported comorbidities including hypertension, hyperlipidaemia, diabetes mellitus, angina, myocardial infarction, kidney stones, transient ischaemic attack, kidney failure or stroke.

Gout-specific characteristics recorded included: the frequency of gout attacks in the last 12 months, whether gout had ever been experienced in more than one joint at the same time (oligo/polyarticular gout), the age at which the diagnosis of gout had been made (gout duration), whether the participant was currently experiencing a gout attack, and whether the patient was currently using allopurinol.

2.3. Statistical analysis

The characteristics of the study sample were initially summarised using descriptive statistics. The mean age (standard deviation [SD]) and gender were reported. IMD was categorised into tertiles (the least deprived, mid-deprived and most deprived). BMI was categorised by those with a score:

- < 25.0 (healthy weight);
- 25.0–29.9 (overweight);
- 30.0–34.9 (obese);
- ≥ 35.0 (severely obese).

The frequency with which alcohol was consumed was categorised as:

- never;
- occasionally;
- 1–3 times per month;
- 1–2 times a week;
- 3–4 times a week;
- daily/almost daily.

The GAD-7 and PHQ-9 were reported as the proportion of respondents with or without anxiety symptoms, or with or without depression symptoms, by dichotomising each measure into either a score of < 10 (condition not present) or ≥ 10 (condition present) [23,24]. Subsamples with anxiety or depression were not mutually exclusive and the same patient could be included in each of these two comorbid disease groups. Frequency of gout attacks in the last 12 months was categorised by 0, 1–2 or ≥ 3 attacks. Use of allopurinol and history of oligo/polyarticular attacks were each dichotomised into “yes” or “no”. Gout duration was calculated by subtracting the age at diagnosis from the participant's current age and was categorised into quartiles as: ≤ 2 years, 3–8, 9–17 or ≥ 18 or more years.

Logistic regression analysis (conducted using STATA, version 12), was used to assess the association between the gout characteristics of:

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