Risk of fragility fracture among patients with gout and the impact of urate-lowering therapy: propensity score-matched landmark analysis

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Introduction

The effect of serum uric acid on bone health is still under debate and previous studies that have assessed the association between provided conflicting results. We have determined the risk of fracture among gout patients and assessed the potential impact of urate-lowering therapy (ULT) on their fracture risk.

Methods

Utilising Clinical Practice Research Datalink, we identified patients with gout between 1990 and 2004 followed up until 2015. Each gout patient was individually matched to 4 controls on age, sex and practice. Absolute rate (AR) of fracture and adjusted hazard ratios (HR) were calculated using Cox regression models. We assessed the impact of urate-lowering therapy (ULT) on fracture and utilised landmark analysis and propensity score matching to account for immortal time and confounding by indication.

Results

We identified 32,774 patient with incident gout matched to 126,952 controls with a median follow-up of 11 years (IQR=6.9-13.5). The absolute rate of fracture was similar in both cases and controls (AR=53 and 54 per 10,000 person-years respectively) corresponding to the HR of 0.93 (95%CI 0.91-1.01). We did not observe statistically significant differences in the risk of fracture among those prescribed ULT within 1 and 3 years after gout diagnosis.

Discussion

Overall, gout was not associated with an increased risk of fracture in both men and women. Urate-lowering drugs prescribed early during the course of disease has no impact on the long-term risk of fracture. These findings should be reassuring for both patients and health care providers.

An automated software system to promote anticoagulation and reduce stroke risk: cluster randomised controlled trial

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Background and Purpose

Oral anticoagulants (OAC) substantially reduce risk of stroke in atrial fibrillation (AF), but uptake is suboptimal. Electronic health records (EHRs) enable automated identification of people at risk but not receiving treatment. We investigated the effectiveness of a software tool (AURAS-AF) designed to identify such individuals during routine care, through a cluster-randomised trial.

Methods

Screen reminders appeared each time the EHR of an eligible patient was accessed until a decision had been taken over OAC treatment. Where OAC was not started, clinicians were prompted to indicate a reason. Control

practices continued usual care. The primary outcome was the proportion of eligible individuals receiving OAC at six months. Secondary outcomes included rates of cardiovascular events and reports of adverse effects of the software on clinical decision making.

Results

Forty-seven practices were randomised. The mean proportion prescribed OAC at 6 months was 66.3% (SD=9.3) in the intervention arm and 63.9% (9.5) in the control arm, adjusted difference: 1.21% (95% CI -0.72, 3.13). Incidence of recorded transient ischaemic attack (TIA) was higher in the intervention practices (median 10.0 versus 2.3 per 1000 patients with AF, P=0.027), but at twelve months we found a lower incidence of both all cause stroke (p=0.06) and haemorrhage (p=0.054). No adverse effects of the software were reported.

Conclusions

No significant change in OAC prescribing occurred. A greater rate of diagnosis of TIA (possibly due to improved detection or over-diagnosis) was associated with a reduction (of borderline significance) in stroke and haemorrhage over 12 months.

ATAFUTI: Alternative Treatments of Adult Female Urinary Tract Infection: a double blind, placebo controlled, factorial randomised trial of Uva ursi and open pragmatic trial of ibuprofen

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Background

Urinary tract infections (UTIs) are one of the most common female conditions treated by general practitioners (GPs), and the majority of patients are prescribed antibiotics. A delayed prescription strategy may be useful if effective symptom relief can be provided.

Aims: To evaluate whether Uva ursi, a herbal extract, or advice to take ibuprofen provides relief from urinary symptoms and reduces antibiotic use in adult women with a suspected UTI.

Methods

Double blind, placebo controlled, factorial randomised trial of Uva ursi and open pragmatic trial of ibuprofen advice. Adult women presenting with a suspected lower urinary infection who were prepared to accept a delayed prescription for antibiotics were recruited in primary care. Participants were asked to take the study medication 3 times a day for three days or up to five days and to delay using their antibiotic prescription unless symptoms worsened.

Primary outcome: Symptom severity on days 2-4 from a self completed symptom diary

Secondary outcome: Antibiotic use

Results

382 women were recruited. For each of the four groups, the mean 'frequency' severity score decreased during days 2-4 compared to baseline. Although women allocated to uva ursi and ibuprofen experience marginally less severe symptoms this did not reach statistical significance. Uva ursi -0.09 (-0.36, 0.19) and ibuprofen -0.02 (-0.30, 0.26).

Discussion

This trial has not confirmed clinical benefit from Uva ursi nor from the advice to take ibuprofen on symptom burden in women with UTI. Further details on secondary outcomes and impact on antibiotic utilisation will be presented.

Derivation and validation of prediction models to estimate future risk of primary hip replacement in the primary care of the United Kingdom: a prospective open cohort study

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Introduction

We sought to derive and internally validate a risk algorithm to predict future primary total hip replacement (THR) among patients presenting to UK general practice with suspected or diagnosed hip osteoarthritis (OA).

Methods

We designed a prospective open cohort study using data from the Clinical Practice Research Datalink. Patients aged over 40 years with newly diagnosed hip OA or hip pain recorded between 1993 and 2015 were included and randomly divided 2:1 into derivation and validation cohorts. Candidate predictors were identified from a systematic review, QResearch risk algorithms, and a record-wide association study. A multidisciplinary expert panel including lay representation reviewed the candidate predictors - those with majority support were modelled using univariable and multivariable Cox proportional hazards regression. Model performance was summarised by calibration slopes and C-statistics.

Results

183,602 patients were included in the derivation cohort and 117,450 in the validation cohort. The 10-year risk of primary THR was 5.1% and 5.2% respectively. Of 51 candidate predictors, 23 were included in the final model. In the validation cohort, the risk algorithm was well calibrated (calibration slope: 1.07 (95%CI: 1.04 to 1.11)) and discrimination was good (C-statistic: 0.73 (0.72 to 0.74)).

Discussion

Our risk algorithm predicts future risk of primary THR for newly diagnosed hip osteoarthritis or hip pain, based on information that are routinely recorded in UK general practice. External validation is warranted before potential applications such as targeting high-risk patients for more intensive non-surgical management to prevent or postpone THR.