

# Clinical reviews

Our panel of GPs review recent research papers in their specialist areas that may influence the way you practise

## Reviewers

### Addiction

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### Cardiovascular disease

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### Obstetrics and gynaecology

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### Paediatrics and allergy

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### Respiratory disease

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### Sexual health

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### Smoking cessation

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## Respiratory medicine

## Corticosteroid therapy for asthma raises risk of osteoporosis and fragility fractures

Use of oral or inhaled corticosteroids (OCS or ICS) appears to be an independent risk factor for osteoporosis and fragility fractures in patients with asthma, a UK population-based study has found.

The researchers performed two nested case-control studies using linked data from the Clinical Practice Research Datalink and the Hospital Episode Statistics databases, both with very large data sets.

All adults with asthma, diagnosed between April 2004 and December 2017, who also had either osteoporosis or fragility fractures, (vertebral, hip, forearm-wrist and humeral) were identified. Each patient was matched, by age and gender, with up to four controls from the same practice, who had asthma but did not have osteoporosis or fragility fractures.

Detailed assessments were made of the steroid exposure in the year prior to the index diagnosis of osteoporosis or fragility fractures, including type of steroid, number of prescriptions filled, and cumulative dose.

Other factors that may influence the risk of osteoporosis and fragility fractures such as age at the index date; gender, BMI; smoking and alcohol use; socioeconomic status; osteoporosis (only when the outcome was fragility fractures), any fracture (not those considered as an outcome) or falls prior to the index date were noted. These potential confounders were adjusted for in the statistical analysis.

From a cohort of 69,074 individuals with asthma, 1,564 patients with asthma and osteoporosis were identified, and matched with 3,313 controls. There were 2,131 patients with asthma and fractures matched with 4,421 controls. Most of the cases (>70%) were women with a mean age of 69 years for osteoporosis and 66 years for fragility fractures.

The reference for all analyses was no steroid exposure. Patients who had received  $\geq 9$  OCS prescriptions had a greater risk of osteoporosis than those receiving none; adjusted odds ratio (OR) 4.50 (95% CI: 3.21- 6.11)

Patients prescribed  $\geq 11$  ICS prescriptions were also more likely to be diagnosed with osteoporosis than those who received none; OR 1.60 (95% CI: 1.22-2.10)

The effects on fragility fractures were less pronounced. Patients who had received  $\geq 9$  OCS prescriptions had double the risk of fragility fractures; OR 2.16 (95% CI: 1.56-3.38).

Receiving  $\geq 11$  ICS prescriptions was associated with a slightly increased risk of fracture; OR 1.31 (95% CI: 1.02-1.68).

When risks were assessed using cumulative doses, similar increased risks were found.

Only half of patients (50.6%) receiving  $\geq 9$  OCS prescriptions were prescribed bisphosphonates and figures for those receiving  $\geq 11$  ICS prescriptions were lower (36.8%).

Study limitations include possible inclusion of some non-fragility fractures, lack of data on the number of years patients had been taking OCS or ICS, and prescriptions issued rather

than concordance was measured.

Nevertheless, the study was well powered and offers good evidence that we need to be more aware of the bone consequences of treating our asthma patients with both OCS and ICS.

The study authors comment: 'Current guidelines on asthma do not cover the management of bone comorbidities in detail .... and no specific bone protection guidance is given. Our results suggest that risk and prevention of osteoporosis and fragility fractures should be addressed explicitly in future guideline updates.'

Considering ordering bone density scans in patients with long-term steroid use would seem to be an appropriate measure.

### DR PETER SAUL

**Chalitsios CV, Shaw DE, McKeever TM.**  
**Risk of osteoporosis and fragility fractures in asthma due to oral and inhaled corticosteroids: two population-based nested case-control studies.**  
*Thorax* Epub ahead of print 2020  
doi:10.1136/thoraxjnl-2020-215664

