

Prescribers need to carefully weigh the risks and benefits when prescribing glucocorticoids, as a large study has shown they raise the risk of patients developing venous thromboembolism

Venous thromboembolism risk with glucocorticoid use

Corticosteroids are widely used to treat a variety of conditions but side-effects include diabetes, osteoporosis, peptic ulceration, mood and behaviour changes, immunosuppression and adrenal suppression. An observational cohort study (Huerta et al, 2007) found that use of oral glucocorticoids (a class of corticosteroid) was an independent risk factor for venous thromboembolism (VTE).

New evidence

A Danish case-control study (Johannesdottir et al, 2013) examined the association between glucocorticoid use and VTE. It included 38,765 cases of VTE diagnosed between 2005 and 2011. Each case was matched to 10 controls on the basis of birth year and sex. Exposure to glucocorticoids was assessed by identifying filled prescriptions for systemic and inhaled glucocorticoids, or those acting on the intestines.

Use of glucocorticoids was defined according to the time between filling a prescription for glucocorticoids and the occurrence of VTE:

- » Present – most recent prescription within 90 days;
- » New – first ever prescription within 90 days;
- » Continuing – first ever prescription more than 90 days ago and most recent prescription within 90 days;
- » Recent – most recent prescription within 91-365 days;
- » Former – most recent prescription more than 365 days ago.

After adjustment for risk factors for VTE, comorbidities and other medications, present use of systemic glucocorticoids was associated with increased risk of VTE. Among people presently using glucocorticoids, new use was associated with a higher risk than continuing use. Recent systemic glucocorticoid use was also

associated with an increased risk of VTE, but former use was not.

The authors estimated the threefold increased risk of VTE seen with new use of systemic glucocorticoids corresponded to 11 extra cases a year per 1,000 new users. In most cases, the risk of VTE rose as the cumulative dose of glucocorticoids increased. All systemic glucocorticoids were associated with an increased risk of VTE, with prednisolone having the highest risk associated with present use and prednisone the highest risk associated with new use.



38,765

Cases of venous thromboembolism were included in a case-control study

For inhaled glucocorticoids, only new use was associated with an increased risk of VTE. For glucocorticoids acting locally on the intestines, present use was associated with an increased risk of VTE for both new use and continuing use. **NT**

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References

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- Johannesdottir SA et al (2013) Use of glucocorticoids and risk of venous thromboembolism: a nationwide population-based case-control study. *JAMA Internal Medicine*; 173: 9, 743-752.

BOX 1. COMMENTARY

Observational studies, such as this one, can only suggest an association, not prove causation.

The authors attempted to adjust for a number of potential confounders, including underlying diseases, that may themselves increase the risk of venous thromboembolism. It is possible that they did not fully adjust for all confounders; for example, they did not have any information on lifestyle.

Other issues that may limit the validity of the findings include the relative newness of the prescription database and the lack of data on adherence to therapy.

Nevertheless, this study highlights a potential increased risk of venous thromboembolism among people who use glucocorticoids, especially if these

are administered systemically.

The finding of increased risk of venous thromboembolism in people with new prescriptions for inhaled glucocorticoids is concerning. However, as the authors suggested, this could be partly explained by the fact that people with respiratory disease may have less respiratory capacity to compensate for pulmonary embolism, which could result in a falsely increased risk of venous thromboembolism in this population.

The findings of this study should serve as a reminder to prescribers to carefully weigh the risks and benefits when prescribing glucocorticoids.

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