

# Patients receiving low dose steroid at increased risk of cardiovascular disease

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Glucocorticoids are steroids widely prescribed to treat a range of immune-mediated inflammatory diseases. While high doses of steroids are known to increase the risk of cardiovascular disease, the impact of lower doses is unknown. A study published in *PLOS Medicine* by Mar Pujades-Rodriguez at Leeds University and colleagues suggests that even

low doses of glucocorticoid may increase the risk of cardiovascular diseases.

To quantify glucocorticoid dose-dependent cardiovascular risk, researchers analyzed medical records of 87,794 patients diagnosed with 6 different immune-mediate [inflammatory diseases](#) receiving care from 389 United Kingdom primary care clinics in 1998-2017. The researchers found that for patients using less than 5 milligrams prednisolone per day, the absolute risk of cardiovascular disease nearly doubled compared to patients not using glucocorticoids (Hazard Ratio = 1.74; 95% confidence interval 1.64-1.84). Increased dose-dependent risk ratios were found across all CVDs measured, including atrial fibrillation, [heart failure](#), [acute myocardial infarction](#), peripheral arterial disease, [cerebrovascular disease](#), and [abdominal aortic aneurysm](#).

Previously, it was believed that taking 5 mg of glucocorticoid over the long-term was safe, but the study suggests that even patients taking low doses have double the risk of developing cardiovascular disease. These findings suggest patients needing long-term steroid treatment should be prescribed the lowest effective dose and have a personalized cardiovascular risk prevention plan that accounts for past and current steroid use. Although the study was limited by the lack of available hospital data on prescription drug adherence and may have reduced the size of dose-response estimates, the authors believe that the large sample size contributes to greater generalizability of the results.

According to the authors, "Our findings highlight the importance of implementing and evaluating targeted intensive cardiovascular risk factor modification interventions; promptly and regularly monitor patient cardiovascular risk, beyond diagnosis of inflammatory arthropathies and systemic lupus erythematosus, even when prescribing low prednisolone-equivalent doses".

**More information:** Pujades-Rodriguez M, Morgan AW, Cubbon RM, Wu J (2020) Dose-dependent oral glucocorticoid cardiovascular risks in people with immune-mediated inflammatory diseases: A population-based cohort study. *PLoS Med* 17(12): e1003432.  
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