

# Antihypertensive beta-blockers may increase cardiovascular risks in surgical patients

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A two-drug antihypertensive treatment that included a beta-blocker was associated with increased risk for major adverse cardiovascular events (MACEs) and death in a study of Danish patients who underwent noncardiac surgery, according to an article published online by *JAMA Internal Medicine*.

Use of  $\beta$ -blockers during noncardiac surgery is being reevaluated because of concerns about the validity of some prior studies.

Mads E. Jørgensen, M.B., of Gentofte Hospital, University of Copenhagen, Denmark and coauthors examined in-hospital records and out-of-hospital pharmacotherapy use in Danish patients with uncomplicated hypertension treated with at least two antihypertensive drugs ( $\beta$ -blockers, thiazides, calcium antagonists or renin-angiotensin system [RAS] inhibitors) undergoing noncardiac surgery between 2005 and 2011. The authors looked at 30-day risk of MACEs and all-cause mortality.

A total of 55,320 hypertensive patients underwent [noncardiac surgery](#) in Denmark between 2005 and 2011; baseline clinical characteristics were similar between the 14,644 patients treated with  $\beta$ -blockers and the 40,676 patients treated with other [antihypertensive drugs](#).

The study reports the 30-day incidence of MACEs was 1.32 percent and mortality was 1.93 percent in patients treated with  $\beta$ -blockers compared with 0.84 percent and 1.32 percent, respectively, in patients treated with

other drugs.

$\beta$ -blocker use was associated with increased risks of MACEs in two-drug combinations with RAS inhibitors, calcium antagonists and thiazides. The results were similar for all-cause mortality. Risk of MACEs associated with  $\beta$ -blocker use seemed especially pronounced for patients at least 70 years old, for men and for patients undergoing acute [surgery](#), according to the results.

The authors acknowledge study limitations that include the misclassification of some patients as hypertensive and an incomplete exclusion of patients with complicated hypertension.

"This association was seen irrespective of the antihypertensive drug combination and was consistent across subgroups. This observation may suggest that perioperative management of [patients](#) with hypertension should receive specific attention in clinical practice and future guidelines, but additional [randomized clinical trials](#) on this question may be warranted," the authors conclude.

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