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Beta-blockers before surgery appear associated with lower risk of heart-related events

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Giving beta-blocker medication to patients with heart disease undergoing noncardiac surgery appears to be associated with a lower risk of death and major adverse cardiovascular events (MACE) 30 days after surgery in patients with heart failure (HF) or a recent myocardial infarction (MI, heart attack), according to a study published by *JAMA Internal Medicine*.

The effect of beta-blockers on the cardiac risk of noncardiac surgery has been controversial, with clinical guidelines encouraging their use amidst criticism that the evidence supporting the practice is weak, the authors write in the study background. These are beta-blockers given by physicians to patients at the time of surgery, not the beta-blockers patients are prescribed to take as a maintenance medication to treat chronic heart disease.

Charlotte Andersson, M.D., Ph.D., of the University Hospital of Copenhagen, Denmark, and colleagues identified patients in nationwide Danish registries who had ischemic heart disease (prior heart attack, angina) with or without HF and with or without a history of MI who underwent noncardiac surgery between October 2004 and December 2009. Researchers measured the association between beta-blocker use and MACE and all-cause mortality.

Of the 28,263 patients with heart disease who had surgery, 7,990 (28.3 percent) had HF and 20,273 (71.1 percent) did not. Beta (β)-blockers

were used in 4,262 (53.3 percent) patients with HF and in 7,419 (36.6 percent) patients without HF.

The study findings suggest that among patients with HF, using beta-blockers was associated with a lower risk of MACE and mortality, but among patients without HF there was no association between beta-blocker use and MACE or mortality. Among patients without HF, beta-blocker use was associated with a lower risk of MACE and mortality among those who had a recent MI within the last two years.

"In conclusion, use of β-blockers among patients with ischemic heart disease and HF or recent MI undergoing noncardiac surgery is associated with a substantially decreased risk of major adverse cardiovascular events and all-cause mortality within 30 days after surgery," the authors conclude.

In a related commentary, Seamus P. Whelton, M.D., M.P.H., and Sandeep Bansal, M.D., M.P.H., of The Johns Hopkins School of Medicine, Baltimore, write: "In summary, the authors should be congratulated for their thoughtful analysis and interpretation of the perioperative administration of β-blocker therapy in this large cohort of patients with ischemic heart disease."

"The results from this retrospective cohort study can help to inform current practice while also underscoring the need for a large-scale, prospective, randomized clinical trial to more definitively answer this important question," they continue.

"This study by Andersson et al adds to the growing body of evidence questioning the widely held dogma that perioperative β-blocker therapy is 'good for what ails you.' Instead, the astute clinician may need to exercise more judgment in selectively prescribing these medications. In the end, we should not be too surprised that even something as

instinctive and habitual as perioperative β-blocker therapy for patients with ischemic heart disease must be prescribed in a judicious and personalized manner," they conclude.

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