

# Study examines link between beta-blocker use and risks of death and heart attack after surgery

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Some patients who received beta-blockers before and around the time of undergoing non-cardiac surgery appear to have higher rates of heart attack and death within 30 days of their surgery, according to a report in the October issue of *Archives of Surgery*.

Non-cardiac surgery carries a risk of death, stroke or heart attack in patients who have or are at risk for heart disease, according to background information in the article. "Prevention of these perioperative [around the time of surgery] cardiac complications continues to be the goal of intense research and investigations," the authors write. Following observations of an increase in heart rate before such events and clinical reports of fewer complications in patients taking beta-blockers for hypertension, researchers began investigating whether these medications should be given to patients undergoing surgery.

Haytham M. A. Kaafarani, M.D., of the Veterans Affairs Boston Health Care System, Boston University and Harvard Medical School, Boston, and colleagues examined 1,238 patients who underwent non-cardiac surgery—including plastic, vascular, abdominal or hernia repair surgery—at one medical center in 2000. Before their procedures, the patients were classified as high, intermediate, low or negligible cardiac risk, and each procedure was also classified as high-, intermediate- or low-risk. A total of 238 patients received beta-blockers perioperatively and were matched by age, sex, cardiac risk, procedure risk, smoking

status and kidney health to 408 patients who also underwent surgery at the same center but did not receive beta-blockers.

"Patients at all levels of cardiac risk who received beta-blockers had lower preoperative and intraoperative heart rates," the authors write. Over the 30 days after surgery, the beta-blocker group had higher rates of heart attack (2.94 percent vs. 0.74 percent) and death (2.52 percent vs. 0.25 percent) than those in the control group.

None of the deaths occurred among patients classified as high cardiac risk. However, those in the beta-blocker group who died had significantly higher heart rates before surgery than those who didn't (86 beats per minute vs. 70 beats per minute). "As subtle as it may be, this finding suggests that a low target preoperative rather than intraoperative heart rate is essential for the protective effect of beta-blockers," the authors write. "The relationship between preoperative (rather than intraoperative or postoperative) heart rate and perioperative mortality stresses the importance of not only initiating but also titrating the effect of beta-blockers to an acceptable target heart rate before surgery."

"In summary, our study adds to the controversy regarding the optimal use of perioperative beta-blockers in patient populations at various levels of cardiac risk," the authors write. "Further investigations in this field with standardizing of beta-blockade regimen and with monitoring of heart rate in populations at various levels of cardiac risk should be pursued."

Source: JAMA and Archives Journals

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