

# Beta-blockers have no mortality benefit in post-heart attack patients, say researchers

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Beta-blockers have been a cornerstone in the treatment of heart attack survivors for more than a quarter of a century. However, many of the data predate contemporary medical therapy such as reperfusion, statins, and antiplatelet agents, and recent data have called the role of beta-blockers into question. Two new studies published in *The American Journal of Medicine* evaluated the traditional management of these patients after their discharge from the hospital and in the light of changing medical treatment, as well as the impact of the discharge heart rate and conventional treatment with beta-blockers.

In a study by Bangalore et al. researchers analyzed 60 randomized [trials](#) with 102,003 [patients](#) evaluating beta-blockers in myocardial infarction. Each of these trials enrolled at least 100 patients. Fourteen trials (20,418 patients) provided data on a follow-up longer than one year. Trials were stratified into those that took place in the reperfusion era (more than 50% undergoing reperfusion or receiving aspirin/statin) and those that took place before the reperfusion era.

Researchers evaluated the impact of contemporary treatment (reperfusion/aspirin/statin) status on the association of beta-blocker use and outcomes in heart attack patients; the role of early intravenous beta-blocker; and the required duration of beta-blocker use. They found that beta-blockers have no mortality benefit in contemporary treatment of heart attacks.

"In patients undergoing contemporary treatment, our data support the

short-term (30 days) use of beta-blockers to reduce recurrent heart attacks and angina, but this has to be weighed at the expense of increase in heart failure, cardiogenic shock, and drug discontinuation, without prolonging life," explains lead investigator Sripal Bangalore, MD, MHA, of NYU Langone Medical Center, New York. "The guidelines should reconsider the strength of recommendations for beta-blockers post myocardial infarction."

In the second study, researchers led by senior investigator François Schiele, MD, PhD, Chief of Cardiology at the University Hospital Jean Minjoz, Besançon, France, aimed to describe the determinants of discharge heart rate in acute coronary syndrome patients and assess the impact of discharge heart rate on five-year mortality in hospital survivors. Over the last twenty years there has been growing interest in the use of heart rate as a marker for risk stratification in cardiovascular diseases, and as a prognostic factor for global and cardiovascular mortality. However, few data are available regarding the long-term impact of discharge heart rate.

The discharge heart rate was recorded in over 3,000 patients discharged over a one month period in 223 participating institutions in the French Registry of Acute ST Elevation or non-ST-Elevation Myocardial Infarction (FAST-MI). Patients were followed over five years. The objective of FAST-MI is to evaluate practices for managing heart attacks (myocardial infarctions) in "real life" conditions, and to measure their relationship with acute and long-term outcomes of patients admitted to coronary care units for heart attack in France, irrespective of the type of health care establishment to which the patients were admitted. An elevated ST segment seen on an electrocardiogram indicates that a relatively large amount of heart muscle damage is occurring, and is what gives this type of [heart attack](#) its name.

Heart rate was categorized into four groups: over 60, 61-67, 68-75, and

over 75 beats per minute. High heart rate was defined as more than 75 beats per minute. Landmark analysis was performed at one year.

"We found several factors related to a high heart rate. They included ST-elevation [myocardial infarction](#), diabetes, chronic obstructive pulmonary disease, bleeding/transfusion during hospitalization, left ventricular dysfunction, renal dysfunction, and prescription of beta-blockers at discharge. Women were also more likely to have a high heart rate," says Dr. Schiele.

"We found that the discharge heart rate is significantly related to one-year mortality, and that patients discharged with a high [heart rate](#) are at higher risk of death during the first year, irrespective of beta-blocker use," he concludes.

**More information:** "Clinical Outcomes with Beta-Blockers for Myocardial Infarction: A Meta-analysis of Randomized Trials," by Sripal Bangalore, MD, MHA, Harikrishna Makani, MD, Martha Radford, MD, Kamia Thakur, MD, Bora Toklu, MD, Stuart D. Katz, MD, James J. DiNicolantonio, PharmD, P.J. Devereaux, MD, PhD, Karen P. Alexander, MD, Jorn Wetterslev, MD, PhD, and Franz H. Messerli, MD. [dx.doi.org/10.1016/j.amjmed.2014.05.032](https://doi.org/10.1016/j.amjmed.2014.05.032)

"Discharge Heart Rate and Mortality after Acute Myocardial Infarction," by Marie France Seronde, MD, PhD, Raghd Geha, MD, Etienne Puymirat, MD, Aurès Chaib, MD, Tabassome Simon, MD, PhD, Laurence Berard, MD, Elodie Drouet, MSc, Vincent Bataille, MD, Nicolas Danchin, MD, PhD, and François Schiele, MD, PhD [dx.doi.org/10.1016/j.amjmed.2014.06.034](https://doi.org/10.1016/j.amjmed.2014.06.034)

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