

Aggressive control of cardiac risk factors might not benefit all patients with diabetes

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A mathematical model suggests that aggressively pursuing low blood pressure and cholesterol levels may not benefit, and could even harm, some patients with diabetes, according to a report in the June 28 issue of *Archives of Internal Medicine*.

Almost all treatment guidelines for patients with diabetes suggest aggressively treating high [low-density lipoprotein](#) (LDL or "bad" [cholesterol](#)) and [blood pressure](#) levels to reduce patients' risk of developing heart disease, according to background information in the article. "These recommendations, which are based on the average results of trials evaluating the relative benefits of intensive risk factor control, are not tailored to an individual's underlying cardiovascular disease risk," the authors write. "While this [risk stratification] approach is often advocated in patients without diabetes mellitus, there is an implicit assumption that all patients with diabetes mellitus are at equally high risk, requiring all patients to be treated aggressively."

Justin W. Timbie, Ph.D., of RAND Corp., Arlington, Va., and colleagues constructed a mathematical model to assess whether aggressive treatment would equally benefit all patients with diabetes. They began with data from 30- to 75-year-old participants in the National Health and Nutrition Examination Survey, which provided representative estimates for the nearly 8 million individuals with diabetes in the 1990s. At this time, aggressive cholesterol and blood pressure treatment was uncommon. After excluding participants with low LDL levels and [low blood pressure](#), the average LDL-C level was 151

milligrams per deciliter and the average blood pressure was 144/79 millimeters of mercury.

The researchers then simulated what would happen if these patients underwent increasingly intensive treatment until their LDL-C levels were lowered to 100 milligrams per deciliter and their blood pressure to 130/80 millimeters of mercury. Treating to these targets resulted in estimated gains of 1.5 quality-adjusted life years—years of life in perfect health—for LDL-C levels and 1.35 for blood pressure. These gains declined to 1.42 quality-adjusted life years for LDL-C and to 1.16 for blood pressure after considering treatment-related harms, which include muscle pain from taking statins and the safety hazards of taking multiple medications.

"Most of the total benefit was limited to the first few steps of medication intensification or to tight control for a limited group of very high-risk patients," the authors write. The nearly three-fourths of patients at average risk, however, received very little benefit. "By accounting for treatment-related harms, we identified numerous examples in which intensifying treatment would be contraindicated on the basis of risk-benefit considerations, and many more instances in which the expected benefits would be so small that shared patient-clinician decision making would seem to be the appropriate medical intervention."

"Given the large set of factors that moderate the benefit of treatment intensification, including patients' underlying [cardiovascular disease](#) risk, the diminishing efficacy of combination therapy and increasing polypharmacy and adverse effects, we recommend a strategy of tailoring treatments to individual patients on the basis of their expected benefit of intensifying treatment," they conclude. "Current treatment approaches that encourage uniformly lowering risk factors to common target levels can be both inefficient and cause unnecessary harm."

More information: Arch Intern Med. 2010;170[12]:1037-1044.

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