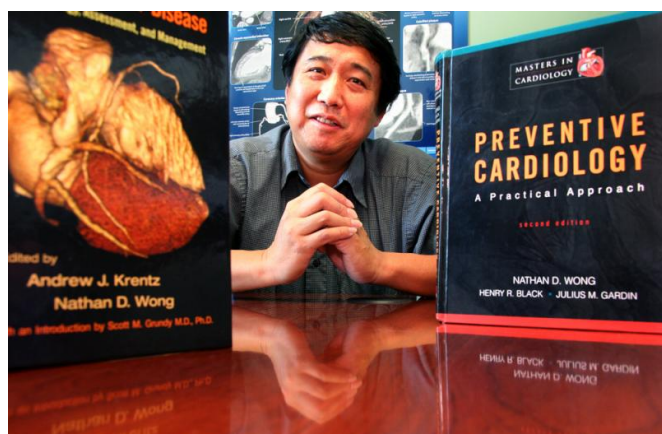


Controlling blood pressure, sugar, cholesterol linked to lower cardiovascular disease

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The author of several textbooks on preventive cardiology, Nathan D. Wong, directs the Heart Disease Prevention Program at UCI. Credit: Daniel A. Anderson / UCI

While controlling blood pressure, blood sugar and LDL-cholesterol levels reduces the risk of cardiovascular disease in people with diabetes, only 7 percent of diabetic participants in three major heart studies had recommended levels of these three factors, according to research from the Heart Disease Prevention Program at the University of California, Irvine School of Medicine.

The findings illustrate the need for persons with [diabetes](#) to better manage their [blood pressure](#), blood sugar and LDL-cholesterol levels, which are prime indicators of future [cardiovascular disease](#). The diabetic participants surveyed in the UCI review were enrolled in the three [heart](#) studies between the late '80s and early 2000s, when treatment was not as good as it is now. Still, more recent data show that only 25 percent of Americans with diabetes achieve all three of these targets.

The good news is that those in the heart studies who did control all three factors had a 62 percent lower risk of developing cardiovascular disease, according to Nathan D. Wong, lead author of the UCI report, which appears online in *Diabetes Care*.

"But we have done a dismal job nationally at getting most of our patients with diabetes controlled for even just these three measures," said Wong, director of the Heart Disease Prevention Program and a cardiology professor at UCI.

"Since cardiovascular diseases - including coronary [heart disease](#), stroke and heart failure - are leading causes of death for people with diabetes, these findings underscore the value of achieving target or lower levels of these modifiable risk factors," he added.

Wong and colleagues studied 2,018 adults (57 percent female) with diabetes mellitus but without known cardiovascular diseases who participated in the Atherosclerosis Risk in Communities Study, the Multi-Ethnic Study of Atherosclerosis or the Jackson Heart Study. Fifty-five percent were African American, 30 percent white, 11 percent Hispanic and 4 percent Asian/Pacific Islander.

The researchers compared measurements of the three key factors to American Diabetes Association guidelines that were in effect at the time - blood pressure under 130/80 mmHg, LDL (or bad) cholesterol less than 100 mg/dL and blood HbA1c (glycated hemoglobin) under 7 percent. Forty-one percent of the study group were on target in one of the three categories; 27 percent had achieved two of the benchmarks; but only 7 percent met the recommended scores in all three.

Study participants' control of individual and composite factors was also examined in relation to

the occurrence of new cardiovascular events (including heart attacks, coronary deaths, strokes, heart failure, percutaneous interventions and bypass surgeries) over an average follow-up of 11 years.

Wong said that proper management of any one factor translated to a 36 percent lower risk, proper management of any two factors was linked to a 52 percent lower risk, and proper management of all three factors correlated to a 62 percent lower risk of cardiovascular events compared to those without any factors controlled.

Blood pressure management appeared to benefit African Americans and women more than other ethnic groups or men; however, the converse was true for LDL control.

"Our analysis of three large U.S. cohorts including persons in whom diabetes has been diagnosed shows those who were at target levels for HbA1c, blood pressure and LDL to have substantially lower risks for cardiovascular disease than persons with diabetes who were not at target levels for such factors," Wong said. "These findings emphasize the importance of composite control of these modifiable risk factors to better address the cardiovascular disease risks seen in persons with diabetes, the need for the development of healthcare strategies to better ensure such management, and the need for studies to evaluate and eliminate barriers to [risk](#) factor control in persons with diabetes."

More information: Nathan D. Wong et al. Cardiovascular Risk Factor Targets and Cardiovascular Disease Event Risk in Diabetes, a Pooling Project of the Atherosclerosis Risk in Communities Study, Multi-Ethnic Study of Atherosclerosis, and Jackson Heart Study, *Diabetes Care* (2016). [DOI: 10.2337/dc15-2439](https://doi.org/10.2337/dc15-2439)

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