

Adding cardiovascular biomarkers to established risk factors increases risk prediction

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The addition of cardiovascular biomarkers to established risk factors

leads to a small improvement in risk prediction of cardiovascular disease, [according to a study](#) published online May 13 in the *Journal of the American Medical Association*.

Johannes Tobias Neumann, M.D., Ph.D., from University Medical Center Hamburg-Eppendorf in Germany, and colleagues examined the prognostic value of routinely available cardiovascular biomarkers when added to established risk factors using data from 28 general population-based cohorts from 12 countries. The analyses included 164,054 individuals, with a median follow-up of 11.8 years.

The researchers identified 17,211 incident atherosclerotic cardiovascular disease events. Significant associations were seen for all biomarkers with incident atherosclerotic disease (subdistribution hazard ratio per 1-standard deviation change, 1.13, 1.18, 1.21, 1.14, and 1.14 for high-sensitivity cardiac troponin I, high-sensitivity cardiac troponin T, N-terminal pro-B-type natriuretic peptide, B-type natriuretic peptide, and high-sensitivity C-reactive protein, respectively) and for all secondary outcomes.

The C-statistic was improved with the addition of each single [biomarker](#) to a model that included established risk factors. In people younger than 65 years, the C-statistic for 10-year incident atherosclerotic cardiovascular disease improved from 0.812 to 0.8194 with the combination of high-sensitivity cardiac troponin I, N-terminal pro-B-type [natriuretic peptide](#), and high-sensitivity C-reactive protein.

The most pronounced improvements in risk prediction were seen for the secondary outcomes of [heart failure](#) and all-cause mortality.

"The addition of biomarkers to established [risk factors](#) led to only a

small improvement in risk prediction metrics for atherosclerotic cardiovascular disease, but was more favorable for heart failure and mortality," the authors write.

More information: Johannes Tobias Neumann et al, Prognostic Value of Cardiovascular Biomarkers in the Population, *JAMA* (2024). [DOI: 10.1001/jama.2024.5596](https://doi.org/10.1001/jama.2024.5596)

Thomas A. Gaziano et al, Can Cardiovascular Risk Assessment Be Improved in the 21st Century?, *JAMA* (2024). [DOI: 10.1001/jama.2024.7644](https://doi.org/10.1001/jama.2024.7644)

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