BIOMARKERS

IDENTIFYING SILENT
HEART DISEASE

Cardiovascular disease and cancer are major contributors to mortality. Screening programs have been implemented for the early identification of cancers; researchers now propose a similar strategy to identify preclinical, silent heart disease. “Our plan was to develop the idea that a biomarker like B-type natriuretic peptide (BNP) or high-sensitivity [assays for cardiac] troponin T (cTnT) could be used to screen (treated) primary prevention individuals to identify those with presymptomatic cardiac disease who could be selected for more detailed cardiac phenotyping,” explains Professor Allan Struthers from Dundee, UK.

The cross-sectional study involved 300 individuals aged ≥ 50 years with no previous known cardiovascular disease, who were stable on primary prevention therapy for ≥ 1 year. In this cohort, 49.0% were being treated for both hypertension and dyslipidemia, 40.7% for only hypertension, and 10.3% for only dyslipidemia. Echocardiography, myocardial perfusion imaging, or both, revealed that 34.0% of individuals had at least one form of silent heart disease (29.7% left ventricular hypertrophy, 21.3% diastolic dysfunction, 15.3% left atrial enlargement, 6.3% systolic dysfunction, and 6.3% myocardial ischemia).

BNP levels were higher in individuals with silent heart disease than in those without, and the area under the curve (AUC) for BNP to identify any form of silent heart disease was 0.78. Similarly, cTnT levels were elevated in those with silent heart disease, but this biomarker was less discriminating than BNP, with an AUC of 0.70. Use of BNP and cTnT levels together increased the AUC to 0.81. Estimated glomerular filtration rate, microalbuminuria, and uric acid were even less-discriminating biomarkers than cTnT.

Professor Struthers and colleagues now plan to “see if treating these silent cardiac abnormalities (when identified by BNP screening) would cost-effectively reduce cardiovascular events. Another key point that is underappreciated in primary prevention is that the different cardiac abnormalities each need different treatments,” as proposed in the original article. They believe that, in addition to risk-factor reduction, biomarker screening for, and individualized treatment of, presymptomatic disease should form a key part of future primary prevention strategies.

Gregory B. Lim

Original article Nadir, M. A. *et al.* Improving the primary prevention of cardiovascular events by using biomarkers to identify individuals with silent heart disease. *J. Am. Coll. Cardiol.* 60, 960–968 (2012)