バイオマーカーにより心不全および死亡リスクが予測できる（Abstract＃18591）

バイオマーカーである心臓トロポニンTは心不全および心血管死のリスク予測に役立つ

Cardiac troponin T biomarker may help predict risk of heart failure, and cardiovascular death

血液バイオマーカーの1つである心臓トロポニンT(cTnT)は高齢者において心不全(HF)発症または心血管死と関連があると2010年AHA学会で発表され、JAMA 12月8日号に掲載される。研究者らは心不全の既往のない65歳以上の4,221人を対象にスタディ開始時、および2～3年後(2,918人)にcTnTを計測した。cTnT濃度は2,794人(66.2%)の患者において検出限度以上であった。追跡期間中央値11.8年の間に1,279人が新規のHFを発症し、1,103件の心血管死が発現したが、いずれのエンドポイントもcTnT高濃度と関連があった。HFおよび心血管死のリスクはcTnTのベースライン時点でのレベルに関係なく、フォローアップ時点での値が検出可能な者において検出不可の者よりも高かった。ベースライン時点でのcTnTが検出可能であった者はHFおよびリスクファクターで補正後の心血管死のリスクが50%高かった。一方、cTnTが50%以上低いとリスクファクターで補正後のHFリスクおよび心血管死リスクが低かった。

Full Text

Certain measures of the blood biomarker cardiac troponin T (cTnT), a cardiac-specific protein, using a highly sensitive test, are associated with the development of heart failure or cardiovascular death in older adults, according to a study that will appear in the December 8 issue of JAMA. The study is being released early online because it was presented at the American Heart Association's 2010 annual meeting.

"Older adults comprise the majority of new-onset heart failure (HF) diagnoses, but traditional risk-factor prediction models have limited accuracy in this population to identify those at highest risk for hospitalization or death," according to background information in the article. Blood-based biomarkers, including troponins, have been advocated for use as supplemental to clinical risk factors to identify older adults at high risk for adverse cardiovascular outcomes, but studies examining the prognostic value of these markers have reported inconsistent results.

Prior studies have used standard troponin assays that are only able to detect circulating troponin levels in a small proportion of individuals. Recently, a highly sensitive cardiac troponin T assay has been developed, designed to improve accuracy. "This assay has detected circulating cTnT in almost all patients with chronic HF or ischemic heart disease and provides independent prognostic information with respect to HF admission and cardiovascular death in these patients," the authors write.

Christopher R. deFilippi, M.D., of the University of Maryland School of Medicine, Baltimore, and colleagues examined the ability to detect a measurable cTnT concentration in older adults using the highly sensitive cTnT assay and whether higher concentrations would be associated with a greater risk of new-onset HF and cardiovascular death. The researchers analyzed data from the Cardiovascular Health study and included 4,221 community-dwelling adults ages 65 years or older without prior HF who had cTnT measured using the highly sensitive assay at the beginning of the study (1989-1990) and repeated after 2 to 3 years (n = 2,918). Concentrations of cTnT were equal to or more than the limit of detection in 2,794 participants (66.2 percent).

During a median follow-up of 11.8 years from the initial cTnT measurement, 1,279 participants experienced new-onset HF and 1,103 cardiovascular deaths occurred, with a greater risk of both end points associated with higher cTnT concentrations. Also, the risks of HF and cardiovascular death were higher among those participants with detectable compared with undetectable levels at follow-up, irrespective of the baseline level.

Analysis indicated that for participants with measurable cTnT levels at the beginning of the study, an increase of more than 50 percent was associated with an increased risk of HF and a greater risk of cardiovascular death, adjusting for baseline cTnT and risk factors. In contrast, a decrease of more than 50 percent was associated with a risk factor adjusted lower risk of HF and lower risk of cardiovascular death compared with those participants with 50 percent or less change.

For the prediction of both outcomes, the addition of baseline cTnT measurements to clinical risk factor models only modestly but statistically significantly improved classification.

"Detectable cTnT levels as measured by a highly sensitive assay were present in the majority of community-dwelling older adults in this cohort, and higher concentrations-within a normal range established for a younger general population-reflect a greater burden of cardiovascular risk factors and imaging evidence of cardiac disease. Independent of these comorbidities, cTnT concentrations were associated with risk of new-onset HF and cardiovascular death. Furthermore, longitudinal changes in cTnT concentrations were common in this cohort and correspond with a dynamic change in risk levels over time," the authors conclude.