Elevated plasma natriuretic peptide levels were associated with cardiovascular events


**Question**
In asymptomatic persons without preexisting heart failure (HF), are elevated brain and proatrial natriuretic peptide levels associated with cardiovascular events, atrial fibrillation, and death?

**Methods**
Design: Cohort study with mean 5.2-year follow-up (Framingham Offspring Study).
Setting: Community-based study in the United States.

Patients: 3346 participants (mean age 58 y, 53% women) of the Framingham Offspring Study. Exclusion criteria were HF; serum creatinine > 177 μmol/L (> 2.0 mg/dL), unavailable natriuretic peptide levels, or missing covariate or follow-up data.

Risk factors: B-type natriuretic peptide (BNP) and N-terminal proatrial natriuretic peptide (N-ANP) measured using high-sensitivity, noncompetitive immunoradiometric assays. Other risk factors were age, sex, presence or absence of hypertension and diabetes, ratio of total-to-high-density lipoprotein cholesterol, body mass index, serum creatinine level, and smoking status.

Outcomes: All-cause mortality, a first major cardiovascular event (recognized myocardial infarction, coronary insufficiency, death from coronary heart disease, HF, and stroke); HF, atrial fibrillation, stroke or transient ischemic attack, and coronary heart disease events (recognized or unrecognized myocardial infarction, coronary insufficiency, and angina pectoris).

**Results**
Natriuretic peptide levels were analyzed as continuous (logarithmic transformation) and categorical (> 80th percentile of each peptide as the cutpoint) variables. After adjustment for other cardiac risk factors, increased BNP levels were associated with increased all-cause mortality, first major cardiovascular event, heart failure, atrial fibrillation, and stroke or transient ischemic attack (Table). Values > 80th percentile were also associated with an increase in death, first major cardiovascular event, HF, atrial fibrillation, and stroke or transient ischemic attack (Table).

**Conclusion**
In asymptomatic persons without preexisting heart failure, both elevated brain and proatrial natriuretic peptide levels were associated with increased incidence of cardiovascular events, particularly heart failure, atrial fibrillation, and death.

Source of funding: National Heart, Lung and Blood Institute.

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