Galectin-3, cardiovascular risk factors, and outcome in the general population

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Introduction and Aim

Galectin-3, a biomarker of fibrosis and inflammation, predicts outcome in subjects with heart failure. The association of galectin-3 with cardiovascular (CV) risk factors and mortality in the general population remains to be established.

Methods

We studied 7,968 subjects from the general population (derived from the Prevention of Renal and Vascular End-stage Disease study). At baseline, subjects were extensively phenotyped for all CV risk factors. We measured baseline plasma galectin-3 levels with an ELISA. All cause mortality was recorded, with a median follow-up of ~10 years.

Results

Galectin-3 levels were associated with age, gender, diabetes, hypertension, hypercholesterolemia, body mass index, renal function (all P<0.001), and smoking (P=0.002). The effect of hypertension, hypercholesterolemia and body mass index on galectin-3 levels was modified by gender (P for interaction <0.001) with females having stronger associations. Subjects were then categorized in quintiles according to their galectin-3 levels. Galectin-3 levels predicted all-cause mortality (total mortality: N=614, 7.7%), as shown in the Kaplan Meier curve. The green line represents the lowest quintile, and the red line represents the highest quintile. We observed increased risk for each quintile (Chi-square 168, P<0.001). After adjustment for classical CV risk factors, galectin-3 levels still predicted all-cause mortality (per doubling of galectin-3: HR 1.23, 95%CI 1.01-1.48; P=0.036).

Conclusions

Galectin-3 levels are associated with CV risk factors and this effect is modified by gender. Higher galectin-3 levels are associated with increased mortality rates in the general population. This underscores the potential involvement of galectin-3 in CV disease.

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