Exploring Dimethylglycine, Methylmalonic Acid and Nicotinamide as Predictors of Acute Myocardial Infarction and Mortality

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BACKGROUND

- Elevated plasma dimethylglycine predicts incident acute myocardial infarction and mortality in patients with established cardiovascular disease (1).
- PPARα activation increases dimethylglycine, methylmalonic acid and nicotinamide in animal studies (2).

AIM

- To evaluate dimethylglycine, methylmalonic acid and nicotinamide as predictors of acute myocardial infarction and mortality. Additionally, we wanted to explore potential interactions between the three metabolites.

STUDY DESIGN

Prospective cohort study

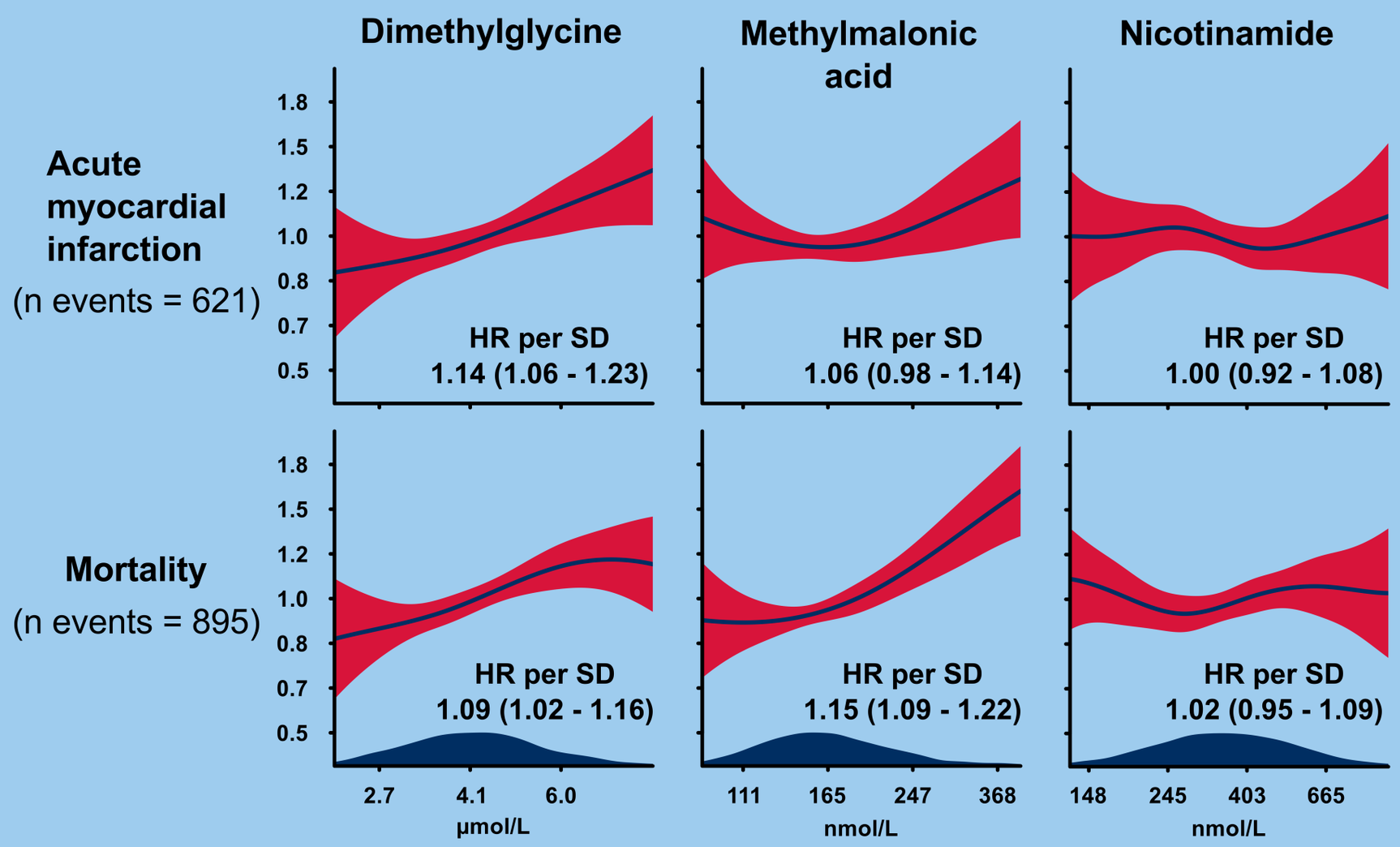
Patients with suspected coronary artery disease (n=4063), 72% male and median age 62 (55-70).

- Mean follow-up: 10.3 y
- Cox regression analyses

→ Incident acute myocardial infarction and mortality

1. Svingen GF et al. Elevated plasma dimethylglycine is a risk marker of mortality in patients with coronary heart disease. Eur J Prev Cardiol 2015
2. Lysne, V et al. Peroxisome Proliferator-Activated Receptor Activation is Associated with Altered Plasma One-Carbon Metabolites and B-Vitamin Status in Rats. Nutrients 2016

RESULTS: Associations between plasma metabolites and endpoints



- Hazard ratios are given per SD increase in the log-transformed exposure metabolite.
- The models are adjusted for sex, age, smoking, diabetes, hypertension, extent of coronary artery disease and plasma creatinine.
- There were no statistically significant interactions between the three predictor metabolites for any of the endpoints.

CONCLUSION

Elevated plasma dimethylglycine is associated with increased risk of acute myocardial infarction and mortality. Elevated plasma methylmalonic acid is associated with increased mortality.

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