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Reply to Letter to the Editor: Minimally Elevated Cardiac Troponin T and Elevated N-terminal Pro B-type Natriuretic Peptide Predict Mortality in Older Adults: Results from the Rancho Bernardo Study

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Reply

We thank Dr. van Gestel et al. for their interest in our work (1). They wonder whether the presence of underlying chronic obstructive pulmonary disease (COPD) might have contributed to the strong association between N-terminal pro-B-type natriuretic peptide (NT-proBNP) and outcomes in the Rancho Bernardo Study. We did not find this to be the case.

Van Gestel et al. state that COPD affects nearly 35% of individuals; however the manuscript they reference actually found this incidence only in current smokers (2). The cumulative incidence of COPD was only 14% in ex-smokers, and 12% in never smokers.

The Rancho Bernardo Study had a low prevalence of smoking with only 4% reporting a current smoking habit. Consistent with this, the prevalence of COPD in our cohort, as determined by self-report and review of history and medications, was extremely low at only 6%. Median NT-proBNP levels did not differ based on the presence or absence of COPD (208 pg/mL vs. 171 pg/mL, $p=0.20$) and adjusting for a history of COPD did not significantly influence the association of NT-proBNP with all-cause death and cardiovascular death: hazard ratios (95% confidence interval) per 1 unit log increase in NT-proBNP were 1.70 (1.24–2.33), $p=0.001$ vs. 1.67 (1.21–2.29) for all cause death and 1.97 (1.19–3.26), $p=0.009$ vs. 1.93 (1.17–3.19) for cardiovascular death in Cox proportional hazards models adjusted for age, sex, and other cardiovascular risk factors with and without COPD in the model.

Spirometry was not performed at the same Rancho Bernardo Study visit when NT-proBNP was measured which could lead to an underestimation of the true prevalence of COPD. However, elevated natriuretic peptide levels in the setting of COPD are likely due to right

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ventricular dysfunction secondary to pulmonary hypertension; thus individuals with asymptomatic COPD are unlikely to have significantly elevated levels of natriuretic peptides and would therefore be unlikely to explain a significant proportion of the association of NT-proBNP with all-cause and cardiovascular mortality (3).

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