**Correspondence**

**Letter by Kavsak and MacRae Regarding Article, “Utility of Absolute and Relative Changes in Cardiac Troponin Concentrations in the Early Diagnosis of Acute Myocardial Infarction”**

To the Editor:

Reichlin and colleagues report further findings from the Advan-
tageous Predictors of Acute Syndrome Evaluation (APACE) trial, this time presenting data assessing absolute versus relative concentration changes in cardiac troponin (cTn) for the diagnosis of acute myocardial infarction (AMI). Their finding that an absolute difference in cTn is superior to relative change is important in reinforcing the value of using change criteria. However, questions persist about whether focusing solely on either the absolute change or on a relative change is appropriate or practical in the context of the diagnosis of AMI, or for subsequent prognosis for an adverse cardiac event.

Counter to statements made by the authors, there have been previous retrospective studies that assessed the effect of either an absolute or relative change in cTn concentration on the prevalence of AMI. Moreover, these studies were extended to diagnosis and prognosis by the use of both sensitive and high-sensitivity cTn assays. The method of assessing change is the major difference between these previous studies and the thorough work of Reichlin and colleagues. Rather than treating absolute concentration change and relative change as mutually exclusive variables, as Reichlin and colleagues did, assessing both variables at specific ranges of concentration is likely to provide additional information. Such a dual approach may overcome analytic sensitivity and concentration range issues, and clinical conditions that result in chronic elevations of cTn, as well. Specifically, use of criteria from the 2007 universal definition (ie, >3 SD absolute change, or 20% relative change) and use of an absolute difference of 0.03 µg/L (or >0.02 µg/L) for concentrations <0.10 µg/L and a 20% change for higher concentrations identified patients with acute coronary syndrome at subsequent risk for myocardial infarction/death at 30 days through 1 year. This dual-change criteria was informative for specimens collected as little as 1 hour apart with a sensitive cTnI assay; however, the same criterion was not as informative for a high-sensitivity cTn assay with this short interval sampling. For a high-sensitivity assay, the combination of absolute and relative changes for predicting an adverse cardiac event may need to be empirically determined and assessed in subsequent clinical studies.

To this end, Reichlin and colleagues may have evidence to support optimal absolute and relative change criteria for AMI diagnosis, but the performance of both these variables combined was not explored. Moreover, their suggestion that a 7 ng/L change in high-sensitivity cTnT should be useful to “differentiate AMI from other conditions that lead to stable chronic elevations” must be tempered by the fact that, at higher cTn concentrations, 7 ng/L will be within the imprecision of the assay. There must be a concomitant increase in the absolute delta at higher concentrations to avoid misclassification based on imprecision or variation of the assay due to instrumenta-
tion. Otherwise, analytic issues may again impede progress in understanding and implementing cTn change for the diagnosis and management of patients with symptoms suggestive of acute coronary syndrome.

Disclosures

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References

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