AUTHOR’S REPLY

T-Wave Alternans and Heart Rate Turbulence in Patients After Myocardial Infarction – Reply –

We greatly appreciate Dr Madias’ remarks on our recent study demonstrating the usefulness of T-wave alternans based on the modified moving average method (MMA-TWA) and heart rate turbulence (HRT) using 24-h Holter ECG in patients following myocardial infarction (MI).\(^1\) Here, we reply to each of his 5 remarks.

First, with regard to the waiting time after an MI for performing the measurements, it is well-known that TWA should be measured >2 weeks after onset\(^2\) because some investigators have reported that TWA measured within 2 weeks after acute MI does not indicate increased risk for mortality.\(^3\) In our study, we measured both MMA-TWA and HRT using 24-h Holter ECG in the chronic phase of MI and if the patients had experienced an acute MI, the measurements were performed >2 weeks after onset. So our timing of the measurements was appropriate.

Second, concerning the “fairness” of comparing MMA-TWA with HRT, our study may be a little bit “unfair”. As Dr Madias indicated, the assessment of MMA-TWA was always attainable from interpretable 24-h Holter ECG recordings, whereas in the HRT assessment none or too few premature ventricular contractions confers a negative outcome. This bias may affect the outcomes of our study.

Third, “endpoint” data for the 15 patients with paroxysmal atrial tachyarrhythmias or intraventricular conduction disturbances are not available because we excluded these patients from the follow-up survey after enrollment.

Fourth, “endpoint” data for the patients with chronic atrial fibrillation or an implanted permanent pacemaker/cardiac resynchronization therapy system who were admitted because of an MI between June 2006 and January 2010 are not available because we could not measure MMA-TWA or HRT in these patients and they were therefore excluded from the study.

Fifth, regarding the recommendation that post-MI patients with positive MMA-TWA and HRT would be candidates for ICD therapy, the results of our study support such a proposal. Concerning those with negative MMA-TWA and HRT, or only one of these 2 measurements being positive, both measurements should be retested annually (or otherwise) for decision making because reproducible data from a large-scale study of MI patients are lacking for MMA-TWA and HRT testing.\(^4\)\(^,\)\(^5\) Long-term reproducibility in post-MI patients would clearly be of interest.

References


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