Letters to the Editor must not exceed 400 words in length and must be limited to three authors and five references. They should not have tables or figures and should relate solely to an article published in Circulation within the preceding 12 weeks. Authors of letters selected for publication will receive prepublication proofs, and authors of the article cited in the letter will be invited to reply. Replies must be signed by all authors listed in the original publication. Please submit three typewritten, double-spaced copies of the letter to Herbert L. Fred, MD, % the Circulation Editorial Office. Letters will not be returned.

Heart Rate Turbulence: Higher Predictive Value Than Other Risk Stratifiers?

To the Editor:

We have read the article by Barthel et al describing the first prospective trial to determine the predictive value of heart rate turbulence (HRT) in patients after acute myocardial infarction. In previous studies, the ability of HRT to predict risk was only determined retrospectively. We would like to critically discuss previous studies, the ability of HRT to predict risk was only determined retrospectively. We would like to critically discuss previous studies, the ability of HRT to predict risk was only determined retrospectively.2 We would like to critically discuss here the uniqueness of the emerging risk factor, HRT, in comparison with other parameters. Interestingly, Barthel et al found that HRT was the strongest ECG-based risk predictor. This conclusion is surprising for 2 reasons, as follows. First, in an editorial comment3 on the original article by Schmidt et al, it was noted that the positive predictive value of HRT is only moderately higher than other ECG risk parameters, and it was suggested that some of the tests should be combined. However, Barthel et al considered only the heart rate variability (HRV) index and, as representatives, 3 other time domain parameters, but they did not analyze frequency domain, nonlinear HRV calculations, late potentials, prolonged QT interval, or T-wave alternans. Second, in a recent study,4 we investigated the suitability of short-term HRT (30 minutes) versus HRV analyses to characterize the regulatory differences in patients with dilated cardiomyopathy (DCM, n=37) and healthy controls (n=167). Although premature beats were excluded before HRV analysis, the highest correlation of HRT to HRV parameters was 0.94 in controls and 0.87 in DCM patients. The discrimination rate between DCM patients and controls was 86.3% for the complete data set (without HRT parameters). This rate was comparable high (88.0%) for the subgroup where HRT was applicable (only 14% of all data). The results of this study indicated that HRV and HRT have at least the same prognostic value, but HRV parameters have a significantly higher applicability. Moreover, we showed in 1998 that the predictive value of HRV using sophisticated parameters is significantly higher than the HRV index alone.5 Thus, taking only the HRV index as a reference parameter does not prove that HRT is the strongest risk predictor. We therefore think that the HRV parameters with the best predictive values as well as other ECG-based risk stratifiers should be retrospectively determined and then compared with HRT measurements. Thus, these observations cast doubt on the conclusion of Barthel et al that HRT is the strongest ECG-based risk predictor.

Hence, to summarize, Dr Wessel et al (1) abridged the HRT method in a hardly acceptable way, (2) investigated only a tiny population of different patients and healthy controls, and (3) restricted their study to simple diagnostic separation of the subjects rather than investigating their prognostic stratification.

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