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## Can We Alternate Between T Wave Alternans Testing Methods?

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To the Editor:

The comments by Drs. Verrier, Kumar, and Nearing are well taken. Indeed, the modified moving average (MMA) method for detecting T wave alternans has incorporated techniques in an attempt to compensate for various sources of noise which might otherwise obscure the distinction between T wave alternans and noise.

However, major and fundamental unresolved questions remain;

1. When subject to the usual standards applied to the evaluation of a diagnostic test, will the MMA method predict outcomes?
2. Can MMA predict outcomes as well or better than established methods for measuring T wave alternans?
3. Is there any scientific, theoretical, or practical justification for using the MMA method in the first place?

The only way to answer questions 1 and 2 is by standardizing the MMA method, establishing, a priori, rigorous criteria for MMA test positivity (including means for accounting for rate dependence of T wave alternans), and then applying these testing criteria prospectively to independent patient populations. It is also essential that events are adjudicated by investigators who are blinded to the outcome of the MMA test result. These are the same standards any diagnostic test must fulfill before the test can be utilized in larger clinical trials, let alone clinical practice. In terms of question number 3, the scientific rationale for measuring T wave alternans with the MMA method remains elusive. It offers no theoretical or practical advantages over existing and well validated methods for measuring T wave alternans. The notion that MMA offers some benefit because it can measure T wave alternans from an ambulatory Holter is false. The mode of ECG acquisition is unrelated to the method of signal processing applied to the ECG data.

Clearly, new and better methods for identifying patients at risk for sudden cardiac death are badly needed. However, progress will require innovations that offer genuine advantages over existing techniques, and the application of rigorous scientific methods to ascertain the value of the technique in relevant patient populations.

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