



How to Prevent Tests from Being Indeterminate

Microvolt T-Wave Alternans Tests may be classified as indeterminate because of excessive noise, excessive number of bad beats, inadequate heart rate achieved, or too rapid a rise in heart rate.

In general, the occurrence of indeterminate tests will be reduced by always following the recommended patient prep and exercise procedures. In particular: **After the pie chart is filled, SLOWLY increase the heart rate to 120 bpm over a period of at least 2 minutes, preferably longer.** This **SLOW** increase of heart rate up to 120 bpm reduces indeterminacy in three ways:

- Ensures that the heart rate rises slowly enough to permit the accurate detection of the onset of sustained alternans, if present.
- Ensures that there are adequate data to allow accurate classification of the test even in the presence of intermittent noise or bad beats.
- May also prevent premature patient fatigue.

What to do if a Test is Classified as Indeterminate

In general, after a Microvolt T-Wave Alternans Test is completed, keep the sensors and electrodes on the patient until the report is printed out. If the test is classified as indeterminate, repeating the test after the patient has rested will often result in a second test that is determinate. Examine the printed report to ascertain the probable cause of indeterminacy and pay particular attention to the following specific issues when repeating the test.

Specific Issues to Pay Attention to When Repeating a Test Because of Indeterminacy

Cause of Indeterminacy: Excessive Noise

Before repeating the test, check preparation of sensors and electrodes, and re-prepare any if necessary. While repeating the test, pay close attention to minimizing muscle artifact. Make sure the heart rate is raised slowly after the pie chart is filled, as discussed above.

Cause of Indeterminacy: Excessive Number of Bad Beats

Make sure the heart rate is raised slowly after the pie chart is filled, as discussed above.

Cause of Indeterminacy: Adequate Heart Rate not Achieved

If immediate re-testing does not result in a determinate test and the patient is on beta-blockers, consult with the physician to see whether beta-blockers should be withheld for 24 hours before repeating the test on the patient.

Cause of Indeterminacy: Heart Rate Rise too Rapid

Make sure the heart rate is raised slowly after the pie chart is filled, as discussed above.