

NEW TEST FOR LONG
QT SYNDROME

Long QT syndrome (LQTS) is potentially lethal if left untreated. Accurate diagnosis is, therefore, vital. Patients with LQTS have impaired adaptation of the QT interval in response to changes in heart rate.

A study by Dr Sami Viskin and colleagues has now shown that this maladaptation is exaggerated upon standing—an action associated with a sudden increase in heart rate. A test has been proposed on the basis of this observation. According to Dr Viskin, from the Tel Aviv Medical Center in Israel, “the test is very easy to do and should be performed in addition to (not instead of) all the tests that we perform to confirm or exclude a diagnosis of LQTS.”

The multinational study cohort included 68 patients with LQTS and 82 control individuals. Sudden standing after resting in a supine position resulted in a similar acceleration of heart rate in both study groups: 28 ± 10 bpm in controls and 26 ± 11 bpm in patients with LQTS. In controls, the QT interval decreased by 21 ± 19 ms; however, since the QT interval decreased less than the RR interval, the QT interval corrected for heart rate (QTc interval) actually increased by 50 ± 30 ms. By contrast, the QT interval did not decrease in patients with LQTS (it lengthened by 4 ± 34 ms) and so the QTc interval was increased by 89 ± 47 ms, which was significantly more than in the controls ($P < 0.001$).

Patients with various types of LQTS were included in the study. Although patients with LQT1 ($n = 31$) and those with LQT2 ($n = 28$) had similar QT and QTc intervals at baseline, as well as similar increases in heart rate upon standing, individuals with LQT2 had a larger increase in their QTc interval upon standing than patients with LQT1 (114 ± 42 ms versus 67 ± 41 ms).

Finally, QT-related ventricular ectopy occurred in some patients upon standing and the investigators warn that this observation “suggests that untreated patients are at risk for more serious arrhythmias every time they stand up.”

Bryony M. Mearns

Original article Viskin, S. *et al.* The response of the QT interval to the brief tachycardia provoked by standing: a bedside test for diagnosing long QT syndrome. *J. Am. Coll. Cardiol.* 55, 1955–1961 (2010)