

What's New in the Patient Safety World

March 2023

Overdiagnosis of Long QT Syndrome

We've done multiple columns on Torsade de Pointes and the importance of recognizing prolonged QT intervals (see list below). But we also cautioned that we can overdo it. In our December 2022 What's New in the Patient Safety World column "[Unintended Consequences of a QTc Formula?](#)" we highlighted a study in the oncology literature ([Richardson 2022](#)) which suggested that use of certain formulas for calculating the QTc interval may erroneously preclude some patients from receiving the most appropriate chemotherapy.

Now another recent study ([Bains 2023](#)) found that 16% of patients referred to the Mayo Clinic with a diagnosis of Long QT Syndrome (LQTS) were misdiagnosed or overdiagnosed. The main cause of LQTS misdiagnosis or overdiagnosis was a prolonged QTc interval secondary to vasovagal syncope (30%), followed by a seemingly positive genetic test result for a variant in 1 of the main LQTS genes that was ultimately deemed not to be of clinical significance (23%), positive family history of SCD that was deemed unrelated to LQTS (16%), isolated/transient QT prolongation (15%), or misinterpretation of the QTc interval as a result of inclusion of the U-wave (14%).

The authors conclude that knowing those 5 main determinants of discordance between a previously rendered diagnosis of LQTS and full diagnostic reversal or removal increases awareness and provides critical guidance to reduce the burden of overdiagnosed LQTS.

There are important practical implications in avoiding misdiagnosis of LQTS. Many patients diagnosed as having LQTS are restricted from participating in competitive sports. Others have received unnecessary pharmacotherapy (eg. beta blockers). Yet others have received implantable cardioverter defibrillators (ICD's). The accompanying editorial ([Wilde 2023](#)) concludes that "to make hasty diagnosis of a disease that requires life-long treatment is inappropriate, especially when this is done without the support of adequate specific experience."

So, while it is important to identify patients who may be at risk for Torsade de Pointes because of QT interval prolongation, it is also important to avoid misdiagnosis or overdiagnosis of LQTS that might lead to long-term inappropriate interventions.

Some of our prior columns on QT interval prolongation and Torsade de Pointes:

June 29, 2010 “[Torsade de Pointes: Are Your Patients At Risk?](#)”
February 5, 2013 “[Antidepressants and QT Interval Prolongation](#)”
April 9, 2013 “[Mayo Clinic System Alerts for QT Interval Prolongation](#)”
June 10, 2014 “[Another Clinical Decision Support Tool to Avoid Torsade de Pointes](#)”
April 2015 “[Anesthesia and QTc Prolongation](#)”
October 10, 2017 “[More on Torsade de Pointes](#)”
June 25, 2019 “[Found Dead in a Bed – Part 2](#)”
April 7, 2020 “[Patient Safety Tidbits for the COVID-19 Pandemic](#)”
February 16, 2021 “[New Methods for QTc Monitoring](#)”
November 22, 2022 “[The Apple Watch and Patient Safety](#)”
December 2022 “[Unintended Consequences of a QTc Formula?](#)”

References:

Richardson DR, Parish PC, Tan X, et al. Association of QTc Formula With the Clinical Management of Patients With Cancer. JAMA Oncol 2022; 8(11): 1616-1623 Published online September 22, 2022
<https://jamanetwork.com/journals/jamaoncology/article-abstract/2796766>

Bains S, Neves R, Bos J, et al. Phenotypes of Overdiagnosed Long QT Syndrome. J Am Coll Cardiol 2023; 81(5): 477-486
<https://www.jacc.org/doi/abs/10.1016/j.jacc.2022.11.036>

Wilde A, Schwartz P, et al. Long QT Syndrome, a Diagnosis That Warrants Expert Opinion and Expert Centers. J Am Coll Cardiol 2023; 81(5): 487-489
<https://www.jacc.org/doi/10.1016/j.jacc.2022.11.037>

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