Late-Onset of Prolonged QTc: A Clinical Wake-Up Call

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Introduction

- High risk Long QTc (LQTS) is defined as >500ms[1]
- LQTS is associated with increased incidence of torsades de pointe[1]
- Causes of LQTS include congenital cardiac conditions, electrolyte disturbances, endocrine and metabolic disorders, myocardial ischemia, hypothermia, and drug effects[1]
- Citalopram is known to cause LQTS with studies indicating ECG changes in the first few weeks of treatment[2,3]

Case Description

A 63-year-old female with a past medical history of type 2 diabetes, depression, hypothyroidism, hyperlipidemia, and chronic kidney disease presented to discuss results from a cardiac event monitor and continued tachycardia. Patient reported intermittent symptoms of palpitations, fatigue, and dizziness. She denied any episodes of syncope. ECG obtained in clinic showed a heart rate of 111 and a QTc of 655. Her current medications included pharmaceuticals of low risk for causing prolonged QTc such as pantoprazole, atorvastatin and gabapentin. She was also taking citalopram, which is known to be high risk for LQTS. Her maintenance dosage of had been reduced from 40mg to 20 mg daily six months prior. Electrolyte imbalances and thyroid hormone abnormality were considered on the differential diagnosis. Potassium, calcium, and magnesium levels as well as TSH and free T4 were ordered and found to be within normal ranges. Citalopram was immediately weaned from 20mg to 10mg to 5mg and then stopped over a three-week period. She was scheduled for repeat in-office ECGs in subsequent two- and four-week periods and referred to cardiology.

Discussion

- This case was uncommon in the lack of presence LQTS on event monitoring while on same dose of citalopram just two months prior to the significant finding in office.
- Patient successfully weaned from SSRI and her QTc reduced below the high-risk range. However, this case serves as a reminder that practitioners ought to be cautious when prescribing citalopram, consider all alternative antidepressants, and if citalopram benefits outweigh the risks, close monitoring via periodic ECG is necessary for patient safety.[2,3,4]
- It is also important to consider the cumulative effect of adding of other medications that are known to cause prolonged QTc such as escitalopram, quetiapine, risperidone, azithromycin, levofloxacin, ondansetron, diphenhydramine, and hydroxyzine.[1,3]

Key Points:

Use periodic ECGs to monitor patients taking citalopram

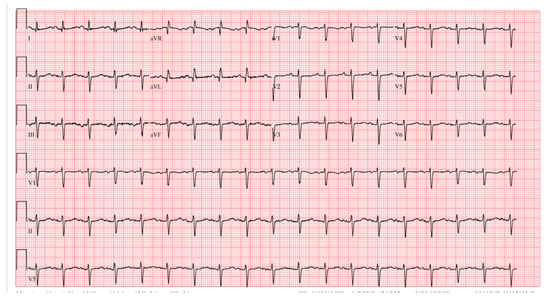
Look for alternative medications to avoid side effects

Be aware of the cumulative effects of prescribing multiple potential LQTS agents

References

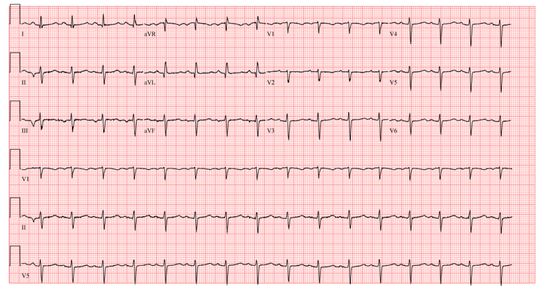
1. Groffen AJ, Bikker H, Christiaans I. Long QT Syndrome Overview. 2003 Feb 20 [Updated 2024 Mar 21]. In: Adam MP, Feldman J, Mirzaa GM, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2025. Available from: https://www.ncbi.nlm.nih.gov/books/NBK1129/
2. 2. Sharbaf Shoar N, Fariba KA, Padhy RK. Citalopram. [Updated 2023 Nov 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK482222/
3. 3. Farzam K, Tivakaran VS. QT Prolonging Drugs. [Updated 2023 Jul 2]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK534864/
4. 4. Castro VM, Clements CC, Murphy SN, Gainer VS, Fava M, Weilburg JB, Erb JL, Churchill SE, Kohane IS, Iosifescu DV, Smoller JW, Perlis RH. QT interval and antidepressant use: a cross sectional study of electronic health records. BMJ. 2013 Jan 29;346:f288. doi: 10.1136/bmj.f288. PMID: 23360890; PMCID: PMC3558546

QTc 655 HR 111



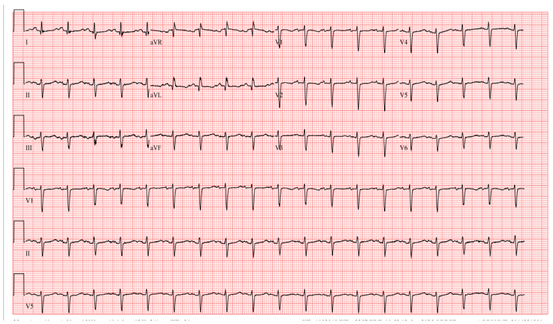
Initial presentation

QTc 528 HR 96



After 2 weeks

QTc 493 HR 114



After 4 weeks