Citalopram and escitalopram in older adults and associated QTc prolongation : a clinical audit

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Original article

Citalopram and escitalopram in older adults and associated QTc prolongation: A clinical audit

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Abstract

Background: Citalopram and escitalopram are commonly used serotonin-specific reuptake inhibitors (SSRIs) for the treatment of depression and anxiety; which are known to cause corrected QT interval (QTc) prolongation. **Methods:** In a sample of patients in older adult psychiatry who were prescribed citalopram or escitalopram, the doses, history of QTc prolongation, concurrent medications that may prolong QTc, electrocardiogram (ECG) reviews, and any discussion about the risk were audited. **Results:** The sample consisted of 17 older adult patients aged 65 years or more. Most of the patients (94.1%) were prescribed citalopram and only one patient was on escitalopram. Citalopram was prescribed commonly at 20mg (64.7%), and two (1.8%) patients were above the recommended dose for older adults. Escitalopram was within the recommended dose. There was no history of QTc prolongation in any patient. Concurrent medications that could prolong QTc were identified in 35.3% of the patients; all of these were antipsychotics. A small proportion (11.8%) of the patients had documentation stating QTc prolongation and arrhythmia risks for citalopram or escitalopram. A review of ECG when initiating or adjusting treatment was noted in only one patient. **Conclusion:** Although citalopram and escitalopram dosages were within the recommended limit, a considerable proportion of patients had concurrent medications with an additional risk of prolonging QTc. It is essential for health professionals to discuss and provide written information about the cardiac risk associated with citalopram and escitalopram with older patients and their caregivers.

Keywords

Antidepressants, Cardiac Risk, Citalopram, Escitalopram, Electrocardiogram, Old Age Psychiatry, Qtc

Introduction

Citalopram and escitalopram are serotonin-specific reuptake inhibitors (SSRI) used for the treatment of major depressive disorder, panic disorder, and obsessive-compulsive disorder.[1] These medications are known to cause corrected QT interval (QTc) prolongation, with risks of further arrhythmias.[2–4] QTc prolongation and Torsades de Pointes have been reported to be associated with citalopram.[5] Elderly patients have a higher vulnerability to the side effects of the drugs due to decreased metabolism and elimination, caused by normal aging processes. QTc gets prolonged with age and contributes to the risk of ventricular arrhythmia, Torsades de Pointes, and cardiac mortality.[6] A study reported that more than 10% of patients in a geriatric ward had drug-related long QT syndrome (LQTS) with a QTc interval of more than 500 ms, and a majority of them were prescribed at least one QT-prolonging drug.[7]

Considering the cardiac side effects, the maximum dose of both medications has therefore been reviewed by the Medicines Healthcare Regulatory Agency (MHRA).[8] The MHRA guidance suggests a maximum daily dose of 20mg of citalopram and 10mg of escitalopram in the elderly population.[8] It was suggested that the patients prescribed higher than these recommended dosages should have their treatment reviewed. It was highlighted that citalopram and escitalopram may have an additive effect on other drugs that prolong the QT interval. Co-administration of citalopram and escitalopram with medicines that prolong the QT interval was therefore contraindicated. The examples were antipsychotics (e.g., phenothiazine derivatives, haloperidol), tricyclic antidepressants, some antimicrobial agents (e.g., sparfloxacin, moxifloxacin, erythromycin IV, pentamidine, antimalaria treatment, particularly halofantrine), some antihistamines (astemizole, mizolastine), some antiretrovirals (e.g., ritonavir, saquinavir, lopinavir) and class IA and III antiarrhythmics (e.g., amiodarone, dronedarone, quinidine).[8]

Standards

Clinical practice standards for this audit are based on the MHRA guidance.[8] This states that the dose in the elderly (above 65 years of age) should be a maximum of citalopram 20mg, or escitalopram 10mg. This maximum daily dose should also be applicable for adults with hepatic impairment. Patients on citalopram or escitalopram should be informed about the risk of QT prolongation. There should be documentation about the discussion of the risk and the patient's consent to the treatment. In addition, an ECG must be requested at initiation or if concurrent medication known to prolong QT interval is to be continued.

Objectives

This audit aimed to explore the prescribing patterns of citalopram and escitalopram in a community sample of older adult mental health patients and to identify where prescribing practice meets the nationally agreed MHRA standards and where practice could be improved. This may inform future prescribers of the QTc risks of certain medications and appropriate decisions can be made.

Method

The clinical audit was conducted in June 2023 in an older adult psychiatry service covering a city in West Midlands, UK. The patients belonged to various teams under the older adult community mental health services, which included the Enhanced Community Mental Health Team for Older Adults (ECMHT), Memory Assessment Service (MAS), and Home Treatment Team (HTT).

The sample was identified by clinicians and doctors who identified patients from their caseloads. In addition, a manual search of recent clinic letters was conducted to identify further patients. All patients on citalopram and escitalopram who were identified in the above process were included and no patients were excluded.

Data were collected using an audit tool, agreed upon by the team. Specific information collected included the antidepressant medication and the prescribed dose; any risk factors related to increased QTc risk with citalopram/escitalopram e.g. history of QT prolongation or hepatic disease; any concurrent medications with the risk QTc prolongation prescribed alongside citalopram/escitalopram; documentation that the risks/symptoms of QTc and arrhythmia were explained to the patient, and review of ECG.

The data was collected by accessing and assessing the electronic patient records, related health records, and documents. The timeframe we looked at was from the first contact with the patient as mentioned in the electronic record. The data was entered into an audit tool in Microsoft Excel. This was quality-checked and analysed using appropriate statistics. The project was approved as a clinical audit by the Trust.

Results

The sample included 17 patients in total who were prescribed citalopram or escitalopram. Most of them (n: 15, 88.2%) were female; 5 (29.4%) patients were between 65-74 years of age, 8 (47.1%) were aged between 75-84 years, and 4 (23.5%) patients were 85 or above. There were 13 (76.5%) Caucasian, 3 (17.6%) Asian, and ethnicity of one was not known. There was no history of hepatic disease or previous QTc prolongation in this sample. Less than half (n: 7, 41.2%) of patients had the diagnosis of depressive disorders. Other diagnoses were dementia (n: 5, 29.4%), bipolar disorder (n: 2, 11.8%), one each with paranoid schizophrenia, anxiety or panic disorders, and alcohol-related brain injury.

Considering doses of medications, citalopram was prescribed at 10 mg for 3 (17.6%) patients, 20mg for 11 (64.7%), 30 mg for one (5.9%), 40 mg for one (5.9%), and escitalopram 10mg for one (5.9%) patient. Concurrent medications that were associated with prolonged QTc were prescribed in 6 (35.3%) patients, all of these were antipsychotics. There were no patients prescribed a high dose of citalopram/escitalopram and on concurrent medication with QTc prolongation risk.

Only two (11.8%) patients had documentation clearly stating the QTc prolongation and arrhythmia risks for citalopram or escitalopram and only one (5.9%) patient had documentation of a review of ECG when initiating or adjusting treatment that may affect a patient's heart rhythm. All of the patients had sufficient communication with the general practitioner (GP) regarding their medications.

Discussion

This audit provided insight into prescribing practices after 2014 MHRA guidance regarding dose-dependent QTc prolongation associated with citalopram and escitalopram. Most patients had prescriptions within the recommended dosage for older adults; however, there is a need to adhere to the guidance and deviations should be acknowledged with appropriate reasons. Nonetheless, a study in a geriatric setting suggested that for patients who are already on higher dosage, the guidance should be weighed on an individual patient basis, taking into consideration all potential risk factors.[9]

There was a substantial proportion of patients (35.3%) who were on concurrent medications that could also prolong QTc and therefore posed a risk. Interestingly in this sample, the concurrent medication was always antipsychotic drugs. It may be highlighted that the degree of QTc prolongation varies between antipsychotics and is dose-dependent, and arrhythmias are more likely to occur if drug-induced QTc prolongation coexists with individual vulnerability with various clinical conditions along with old age.[10]

With all patients, there was good communication with the patient's GP via letters regarding medications. The communications were clear about medications changed, doses altered, or continued as prescribed previously. It is important to note that the vast majority of medications were initiated by the patient's GP and therefore they hold responsibility for the initial risk discussions. Without access to GP records, it was difficult to confirm the initial discussion in primary care. However, as a secondary care service, when deciding to start or alter medications known to prolong QTc, it may be advisable to discuss the risks again and review an ECG. It is better to provide written information to the patients and caregivers regarding this.

Several learning points were identified. In older adults, before starting new psychiatric medications, it is essential to take a detailed history of cardiac risk factors and to evaluate medications the patient is already taking that can prolong QTc. Appropriate investigations including ECG,

should be done, which may also include electrolytes,[11] The medications with lower risk of QTc prolongation should be considered, when possible. The side effects and risks should be discussed in detail with the patient and their caregivers, and adequately documented. It is important to provide written information as well.

Limitations

There were a few limitations in this audit. There were initial difficulties in identifying the patients who were on the specific medications, as there was no search function in the current version of the electronic record. This would be beneficial to identify appropriate samples and improve patient safety by flagging alerts for clinicians at potentially harmful interactions or combinations of medications. There was no access to primary care health records, which might help to glean the discussions about medications and side effects conducted at the initiation of the prescriptions. Details of concurrent medications and their dosages were not collected.

Conclusion

It is essential to review patients who were prescribed higher than recommended doses of citalopram or escitalopram based on their age and those who are on concurrent medications that are known to prolong QTc. While prescribing medications with the potential of increasing QTc and risk of arrhythmia, the clinical discussions should be detailed and documented. This should highlight the associated risk because of the concurrent other medications. It is also essential to review the ECG of older patients who are being prescribed medications with the potential of increasing QTc.

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References

1. NICE (National Institute for Health and Care Excellence). BNF content published by NICE [Internet]. 2024 [cited 2024 Apr 20]. Available from: https://bnf.nice.org.uk/

2. McClelland J, Mathys M. Evaluation of QTc prolongation and dosage effect with citalopram. Ment Health Clin. 2016 Jun 29;6(4):165.

3. FDA. FDA Drug Safety Communication: Revised recommendations for Celexa (citalopram hydrobromide) related to a potential risk of abnormal heart rhythms with high doses. FDA [Internet]. 2019 Jun 26 [cited 2024 Oct 21]; Available from: https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-revised-recommendations-celexa-citalopram-hydrobromide-related

4. Beach SR, Kostis WJ, Celano CM, Januzzi JL, Ruskin JN, Noseworthy PA, et al. Meta-analysis of selective serotonin reuptake inhibitor-associated QTc prolongation. J Clin Psychiatry. 2014 May;75(5):e441-449.

5. Deshmukh A, Ulveling K, Alla V, Abuissa H, Airey K. Prolonged QTc Interval and Torsades de Pointes Induced by Citalopram. Tex Heart Inst J. 2012;39(1):68.

6. Reardon M, Malik M. QT interval change with age in an overtly healthy older population. Clin Cardiol. 1996 Dec;19(12):949–52.

7. Rossi M, Marzi F, Natale M, Porceddu A, Tuccori M, Lazzerini PE, et al. Drug-Associated QTc Prolongation in Geriatric Hospitalized Patients: A Cross-Sectional Study in Internal Medicine. Drugs - Real World Outcomes. 2021 Apr 8;8(3):325.

8. Medicines and Healthcare Products Regulatory Agency. Citalopram and escitalopram: QT interval prolongation [Internet]. GOV.UK. 2014 [cited 2024 Oct 21]. Available from: https://www.gov.uk/drug-safety-update/citalopram-and-escitalopram-qt-interval-prolongation

9. Crépeau-Gendron G, Brown HK, Shorey C, Madan R, Szabuniewicz C, Koh S, et al. Association between citalopram, escitalopram and QTc prolongation in a real-world geriatric setting. J Affect Disord. 2019 May 1;250:341–5.

10. Haddad PM, Anderson IM. Antipsychotic-related QTc prolongation, torsade de pointes and sudden death. Drugs. 2002;62(11):1649–71.

11. Rochester MP, Kane AM, Linnebur SA, Fixen DR. Evaluating the risk of QTc prolongation associated with antidepressant use in older adults: a review of the evidence. Ther Adv Drug Saf. 2018 Jun;9(6):297–308.