

QT prolongation with the use of ondansetron: A neglected and overlooked adverse effect

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Madam, Ondansetron, commonly prescribed under the name 'Onset' in Pakistan, is one of the four FDA approved 5HT₃ serotonin receptor antagonists for its antiemetic properties. It is commonly used in the prevention of postoperative, chemotherapy and radiation therapy-induced nausea and vomiting.

Due to its comparatively better safety profile, Ondansetron is also used as a first line emetic in treating nausea and vomiting in the emergency department.¹ However, the FDA issued a warning in 2011 that Ondansetron can lead to changes in the normal electrical rhythm of the heart, most commonly causing QT interval prolongation, which can lead to potential fatal cardiac arrhythmia such as Torsade de pointes.² This was followed up by another update in 2012, that QT prolongation occurs in a dose-dependent manner and a single intravenous dose of 32 mg has the greatest effect on the electrical rhythm and should be avoided at all costs.³

In 2023, a systemic review published by Kamal Deep Singh et al. compared the occurrence of QT prolongation with Ondansetron use in paediatric, adult and elderly age groups. This study provided evidence that IV administration of Ondansetron is associated with QT prolongation in patients older than 18 years of age.⁴ The risk of QT prolongation and consequent development of arrhythmia is exceptionally high in patients with prior congenital long QT syndrome, underlying cardiac abnormalities, bradyarrhythmias, electrolyte imbalances (eg hypokalaemia or hypomagnesemia) and in patients using other medications that are known to cause QT prolongation.⁵

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Ondansetron is frequently administered in the emergency departments to patients coming with nausea and vomiting without taking into consideration the patient's prior medical history. It is recommended that a baseline EKG and electrolyte screening should be considered prior to administering ondansetron in patients with known risk factors like a family or personal history of long QT syndrome, congestive heart failure, bradyarrhythmias, concomitant use of other medications that prolong QT intervals, patients using diuretics and patients with underlying renal diseases. Individuals receiving a single dose without the above mentioned risk factors should not be screened.⁵

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