**Title:** A Change of Heart: The Actual Risk of QTc Prolongation with Antiemetics

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**Date:** 4/19/2023

**Learning Objectives:**

1. Describe the risk factors for Torsades de Pointes.
2. Identify which antiemetics have a high vs low risk of QT prolongation.
3. Recognize the QTc interval at which potentially QT-prolonging anti-emetics should be discontinued.

**Abstract:**

Nausea and vomiting are a common occurrence in hospitalized patients. Luckily, we have a variety of antiemetics to remedy this issue. Four classes of antiemetics that are frequently used in hospitalized patients are 5HT3 (serotonin receptor) antagonists, antidopaminergic agents, antihistamines, and neurokinase 1 inhibitors. The downside of the use of antiemetics is that many of these drugs prolong the QTc interval. Some antiemetics such as ondansetron, haloperidol, and droperidol have well-known risk of QTc prolongation while other antiemetics have an unknown effect on QTc due to lack of clinical studies. QTc interval prolongation is a benign side effect for most patients. However, it does put patients at increased risk for a rare but serious arrhythmia called Torsades de Pointes (TdP), a polymorphic ventricular tachycardia which can result in sudden cardiac death. Because TdP is such a serious complication, some healthcare professionals will try to avoid using antiemetics as much as possible in order to avoid this risk. Others claim that there is an overabundance of caution for this complication since the incidence of drug-induced TdP is so low and argue that the increase in QTc associated with antiemetics is not clinically significant. This dilemma has created a controversy over what the actual risk of QTc prolongation with antiemetics is and how cautious we should be with their use.

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**Audience Response Questions:**

1. Which of the following is NOT a known risk factor for TdP?
   1. Hypokalemia
   2. Heart Failure
   3. Treatment with Diuretics
   4. Hypochloremia
2. Which of the following would not target a receptor of the GI tract:
   1. Ondansetron
   2. Diphenhydramine
   3. Haloperidol
   4. Metoclopramide
3. All of the following are classified as low risk EXCEPT:
   1. Fosaprepitant
   2. Palonosetron
   3. Olanzapine
   4. Promethazine