Histamine-2 Receptor Antagonist Induced Malignant Arrhythmia in Long QT Syndrome Patient

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Introduction: Long QT syndrome (LQTS) is a cardiac disorder caused by abnormally prolonged ventricular repolarization due to defects in cardiac sodium and potassium channels. It is characterized by prolongation of the QT interval in an electrocardiogram (ECG), and has the propensity to develop torsades de pointes (TdP) or ventricular tachycardia (VT) which frequently leads to syncope or cardiac arrest.

Methods: A 30 year old woman was referred to our emergency department after having two short-lasting episodes of unconsciousness and apnea which were witnessed by family member. Local clinic ECG recording showed a non-sustained polymorphic VT. She claimed to have experienced these complaints after ingesting ranitidine syrup the previous day. On arrival, she was awake but pale and had several episodes of non-sustained polymorphic VT. Intravenous magnesium sulfate was administrated and non-sustained polymorphic VT was stopped. ECG showed prolonged corrected QT interval with 653 msec after conversion to sinus. The diagnosis was established by using Schwartz score which showed high probability of LQTS. Laboratory investigation showed normal electrolyte levels except for a slight hypocalcemia which was corrected. Genetic laboratory test could not be done because it was not covered by the governmental insurance. She had a prior family history of sudden cardiac death. Propranolol 20 mg three times daily was given at the time of her discharge from the hospital. After a 2 month outpatient clinic follow up, her ECG showed shortening of corrected QT interval. Since then, she has been well with no subsequent recurrence of the problem.

Conclusion: Analyzing the ECG and calculating corrected QT interval still remain relevant as one of the mainstay diagnostic tool. Acute treatment with intravenous magnesium sulfate in patient with recurrent non-sustained polymorphic VT successfully converted the rhythm into sinus. Several histamine-2 receptor antagonist has been linked to cause arrhythmia, however to our knowledge, there has been no previous report about ranitidine inducing arrhythmia in LQTS. Beta blocker (propranolol) is effective in shortening QT interval for this patient.