

# Implantable Cardioverter Defibrillator placement in a patient with potentially reversible causes of Long QT Syndrome

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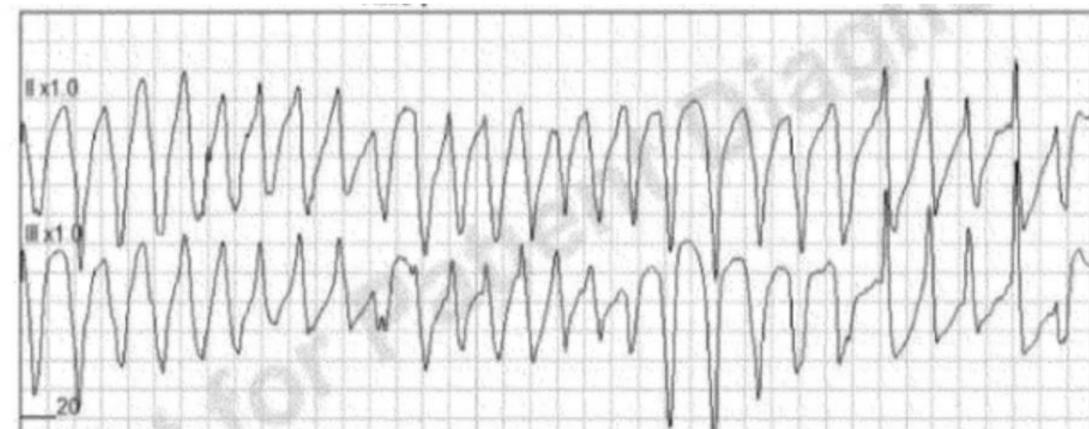
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## INTRODUCTION

We present a patient with acquired Long QT syndrome who presented with torsades de pointes and underwent ICD implantation. Our case poses the question, “Was ICD placement indicated?”

## CASE PRESENTATION

A 57-year-old female with prior bariatric surgery presented for episodic dizziness for a day. Electrocardiogram (EKG) revealed torsades with QTc of 520 msec. Potassium and magnesium resulted low at 2.2 mmol/L and 1.1 mg/dL, respectively. She suffered ventricular fibrillation arrest, was cardioverted to sinus rhythm temporarily and then started on a lidocaine drip in the ED. She was then admitted to CCU and her home QT-prolonging medications were held. Her electrolytes were vigorously replaced. Her urine electrolytes were suggestive of Gitelman's syndrome and nephrology follow up was requested at discharge. Given, high Schwartz score, genetic testing was performed, and an ICD was placed prior to discharge. After discharge, her genetic testing for congenital LQTS resulted negative indicating her LQTS was purely acquired.



Telemetry strip obtained in the ambulance

**The indications for ICD use can be divided into two groups <sup>(1)</sup> :**

- **Secondary prevention of sudden cardiac death (SCD) in patients with prior sustained VT/VF, or resuscitated VT/VF, where a completely reversible cause for the arrhythmia can be excluded.**
- **Primary prevention of SCD in patients at increased risk of life-threatening VT/VF.**

## DISCUSSION

Our patient's acquired long QT syndrome was attributed to the many QT-prolonging drugs she was taking, including escitalopram, loperamide, ondansetron, hydroxyzine, her history of bariatric surgery, complicated with chronic diarrhea and malabsorption, suspected Gitelman's syndrome and chronic omeprazole use in the setting of bradycardia. Due to the multitude of predisposing factors behind our patient's prolonged QT, the clinical question we faced was whether an ICD should be placed in this patient.

ICD therapy is not indicated for the management of ventricular tachyarrhythmias due to electrolyte imbalances or drug use, which are reversible causes of QT prolongation. However, in our patient's case, it was deemed that her electrolyte imbalance could not be definitively managed given her chronic malabsorption and was more of a "permanent" rather than a reversible cause. Also, since genetic testing was pending at the time of discharge, congenital component of LQTS could not be ruled out. Hence, an ICD was ultimately placed.

## REFERENCES

- (1) Al-Khatib SM, Stevenson WG, Ackerman MJ, et al. 2017 AHA/ACC/HRS Guideline for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. J Am Coll Cardiol 2018; 72:e91.

## DISCLOSURE INFORMATION

Lead investigator and presenter have nothing to disclose.