

[NM-152] Sevoflurane as a Cause of Torsade de Pointes in a Patient with the Long QT Syndrome (LQTS). Case Report.

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Introduction

Long QT syndrome (LQTS) is a rare condition that in certain circumstances can lead to Torsade de Pointes (TdP). This rhythm disturbance, if not treated can potentially lead to cardiac arrest and death.

Case Presentation

We present the case of 14 year old Caucasian female with the diagnosis of LQTS, 2nd degree AV block who presented for an elective pacemaker generator replacement, atrial lead placement and right and left heart catheterization. Physical exam of the patient in the preop area was unremarkable; patient was assigned ASA 2 class. Atenolol, her only medication, was given on the morning of surgery. The ECG showed a paced rhythm of 60 bpm with QTc of 540 ms. Patient was counseled about the possible risk of going into a tachyarrhythmia with inhalational induction. Patient was fearful of needles and refused preop IV placement. Anesthetic plan was an inhalational induction followed by IV start, endotracheal intubation and maintenance of GA with propofol infusion. No premedication was given. In cardiac cath suite monitors were placed, 8% sevoflurane in 25% O₂/75% N₂O was administered. After establishing a satisfactory plane of anesthesia, an IV was placed. During IV placement, the patient went into TdP. Sevoflurane was turned off, patient was mask ventilated with 100% O₂. The TdP episode was short lived, lasting only 3 seconds and resolved spontaneously. Patient was given fentanyl, vecuronium and propofol and was intubated uneventfully. Propofol infusion was used for rest of the case. The patient had uneventful course of the procedure and recovery.

Discussion

Inhalational anesthetics are among many medications known to prolong the QT interval and potentially predispose the patient to the occurrence of TdP. Although studies have shown that sevoflurane should be safe for healthy patients [1, 2], the situation is not clear in the case of patients with LQTS [3]. Because LQTS is rare, there are only a few case reports of sevoflurane causing TdP, mostly in the presence of other predisposing factors such as old age, slow heart rhythm, hypokalemia, hypomagnesemia, hypocalcemia, use of other QT prolonging medications. In our patient, the stimulation caused by sevoflurane inhalational induction resulted in TdP. Based on this case, we advocate caution with the use of sevoflurane in patients with LQTS. Many important steps were followed in the care of this patient. Baseline ECG was obtained and β -blocker therapy was continued. General anesthesia was chosen and defibrillator was readily available. Retrospectively, the patient should have been offered the premedication and IV should have been started before anesthesia induction. If all those conditions are met, patients with LQTS are more likely to have an uneventful anesthetic course [3].

Reference

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 2. Scuderi PE. Sevoflurane and QTc prolongation: an interesting observation, or a clinically significant finding? *Anesthesiology*. 2010;113(4):772-5.
 3. Kies S, Pabelick C, Hurley H, White R, Ackerman M. Anesthesia for patients with congenital long QT syndrome. *Anesthesiology*. 2005; 102(1):204-10.
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