Stable Sustained Ventricular Tachycardia on Inhalation Induction in a 7 year old with Idioventricular Rhythm Should We Proceed with the Surgery?
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BACKGROUND

Idioventricular rhythm is a ventricular rhythm consisting of three or more consecutive monomorphic beats, with gradual onset and gradual termination (1). It may manifest in patients with normal hearts or with structural heart disease, but is usually a benign and well-tolerated and do not require treatment (2). However, if such arrhythmias is sustained or causes syncope, the risk of sudden death is higher and should be treated.

CASE PRESENTATION

This is a 7 yo 40 kg male w/ h/o idioventricular rhythm scheduled for T/A. He had a sleep study prior to the surgery, which revealed the incidental finding of frequent PVCs. On further work up – he had a normal echocardiogram and baseline bigemny with approximately 30 PVCs per minute. 24-hour Holter monitor demonstrated ventricular ectopy with intermittent idioventricular rhythm at a rate 100-115/min that would spontaneously resolve with physical activity. Mother denied syncopal episodes, chest pain, shortness of breath /cardiac arrest. The pediatric cardiologist diagnosed him with a benign idioventricular rhythm with no activity restrictions/medical management.

After standard monitors (frequent unifocal PVC’s noted) he had an inhalation induction with sevo. At this time he developed VT with a blood pressure of 95/50 mmHg. Two boluses of IV lidocaine were administered but the VT was sustained (120-130/min) with stable blood pressure. Inhalation agents were turned off and the VT resolved over the next five minutes to a sinus rhythm (SR) with frequent unifocal PVC's. He was emerged stable Sustained Ventricular Tachycardia on Inhalation Induction in a 7 year old with Idioventricular Rhythm Should We Proceed with the Surgery?

ANESTHETICS DISCUSSION

Idioventricular rhythm is a rarely encountered disorder however; it is closely related to commonly used anesthetics. Sevoflurane is considered a slow induction agent for inhalation induction due to its low incidence of laryngospasm and airway irritability and rapid onset. This case is a unique presentation of idioventricular rhythm from sevoflurane induction. Case reports of idioventricular rhythm have been described with use of halothane induction (3), rapid induction with desflurane (4), cocaine, and digitalis. Electrolytes imbalance is often a common cause for idioventricular rhythm in ICU and peri-operative settings (5). Specifically, hypomagnesemia, hypocalcemia, and hypokalemia should be considered and evaluated with appropriate laboratory tests. Cardiac toxicity, a commonly known association with local anesthetic toxicity, can be manifested as idioventricular rhythms as well.

Surgical procedures may be continued with a stable idioventricular rhythm, but should be postponed if unstable. If the stable VT becomes unstable intra-operatively due to hemodynamic shifts and blood loss can become life threatening. Emphasis should be placed on obtaining a perfusing rhythm, so it may be reasonable to tolerate the idioventricular rhythm if hemodynamically stable. In our case we used glycopyrrolate to avoid bradycardia. Others also propose magnesium, isoproterenol, and overdrive pacing to accelerate one’s intrinsic A V pathway. Anti-arrhythmics such as lidocaine, procainamide, amiodarone, and a defibrillator/external pacemaker should be readily available perioperatively.

REFERENCES