

Reversal of Supraventricular Tachycardia with Aberration after Initiation of Pseudoanalgesia with Propofol: Case Report

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ABSTRACT

Supraventricular tachycardia (SVT) is a heterogeneous group of arrhythmias used to describe tachycardias involving cardiac tissue at or above the level of the bundle of His. They usually appear in subjects without structural heart disease. However, they can sometimes cause palpitations, dyspnea, sweating, angina, or vague chest discomfort, particularly in patients with underlying heart disease. We present the case of a patient with SVT reverted during pseudoanalgesia with propofol. This is a 48-year-old male patient who came for presenting a sensation of intense palpitations, an electrocardiogram was taken where the presence of wide QRS tachycardia was observed. It was decided to administer procedural sedation for synchronized electrical cardioversion, however, he presented cardioversion upon administration of propofol 50 mg (Fig 1B) after 5 minutes, improving the symptoms. Studies of propofol have described its influence on the cardiac conduction system and the ability to modify the phases of the action potential by acting on the ion channels of the myocyte membrane. Therefore, it would be interesting to see case series from large centers and electrophysiology studies that show the possible antiarrhythmic role of drugs such as propofol not described in the literature.

KEYWORDS: supraventricular tachycardia, propofol, cardiac arrhythmia

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INTRODUCTION

Supraventricular tachycardia (SVT) is a heterogeneous group of arrhythmias used to describe tachycardias that involve cardiac tissue at or above the level of the bundle of His¹. The three most common types are atrial tachycardias, nodal reentrant tachycardias, and accessory pathway-mediated tachycardias. It consists of a rapid and regular rhythm, usually between 140 and 220 beats/min, caused by a reentry mechanism dependent on a dual conduction pathway in the atrioventricular node. They usually appear in subjects without structural heart disease. However, they can sometimes cause palpitations, dyspnea, sweating, angina, or vague chest discomfort, particularly in patients with underlying heart disease. Serious sequelae, such as overt heart failure, myocardial infarction, and syncope, are rare². Its treatment can be pharmacological, but given the efficacy achieved by catheter ablation procedures, they are frequently used³.

Atrioventricular nodal reentrant tachycardia and atrioventricular reentrant tachycardia are reentrant tachycardias involving the atrioventricular node and are therefore highly sensitive to termination with vagal maneuvers and adenosine administration, thus treatment of the crisis It should always be started with vagal maneuvers (carotid sinus compression, valsalva manoeuvres), which usually reverses 50% of cases. If these measures are not effective, pharmacological treatment will be started, in which case the drug of choice is adenosine⁴. In hemodynamically unstable patients, the use of electrical cardioversion is recommended. However, there are isolated case reports of reversion to sinus rhythm of supraventricular tachyarrhythmias after propofol administration in adult patients. We present the case of a patient with SVT reverted during pseudoanalgesia with propofol.

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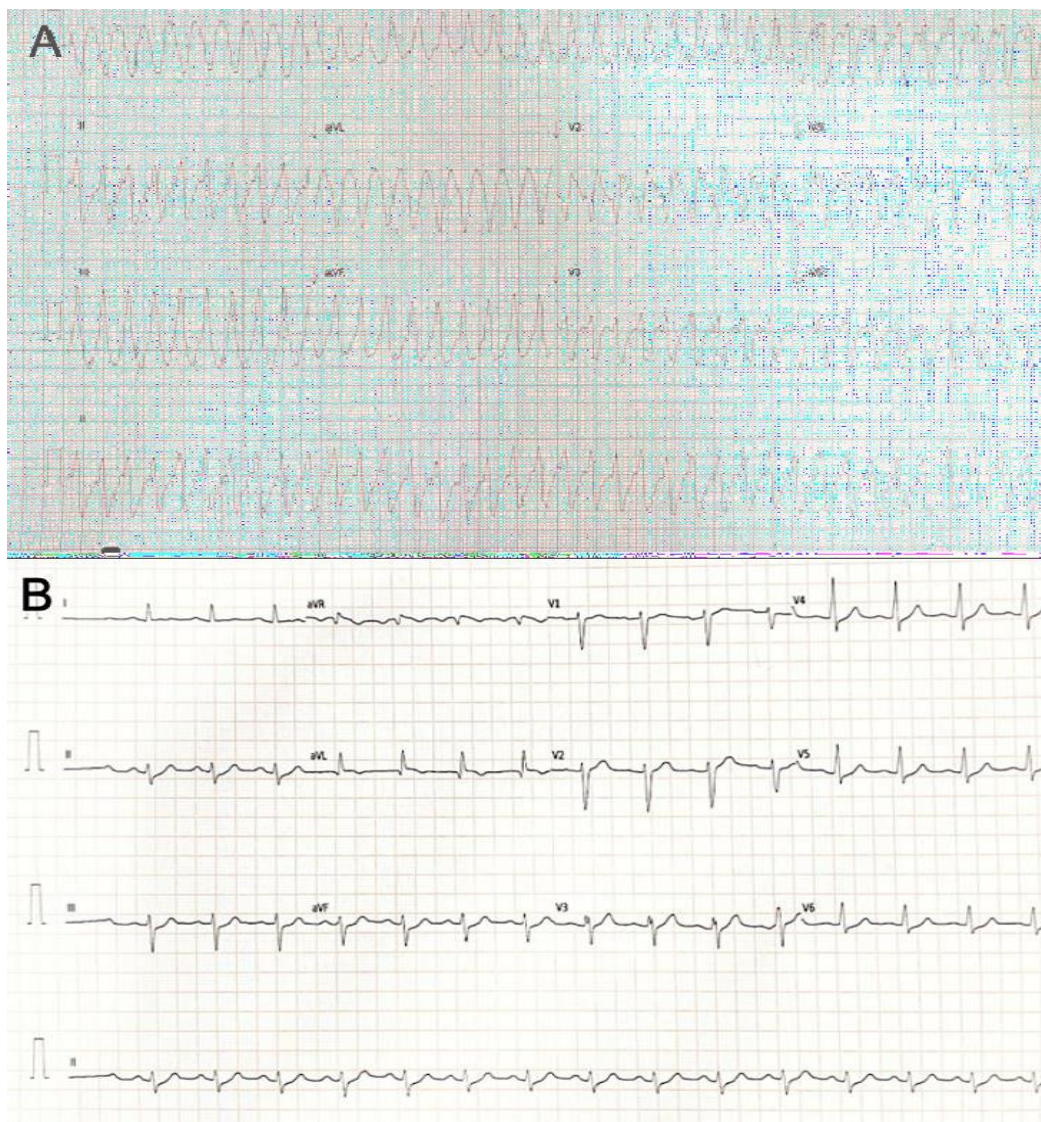


Figure 1. A) Non-sinus rhythm, heart rate 210 beats per minute, regular RR, QRS 220 ms, QRS +140, R with V2-V6 notch. Pattern of tachycardia due to atrioventricular reentry with aberration. B) Electrocardiogram at 15 minutes with sinus rhythm, heart rate of 86 bpm.

DISCUSSION

The treatment of choice in symptomatic cases of SVT is catheter ablation of the accessory pathway. The therapeutic approach in asymptomatic cases is a matter of scientific controversy. Instead, the European Society of Cardiology (ESC) recommends synchronized cardioversion for hemodynamically unstable patients (Class IB recommendation)⁵. However, studies of propofol have described its potential protective role in ischemia-reperfusion damage, its influence on the cardiac conduction system, and the ability to modify the phases of the action potential by acting on the myocyte membrane ion channels. These effects give the drug antiarrhythmic properties, although the evidence and clinical experience in this field are still scarce⁶. Propofol does not alter HR, it has a small effect on cardiac conduction and if there is a negative chronotropic effect, this will be the cause of reduced sympathetic tone and increased

parasympathetic sensitivity⁷.

CONCLUSION

SVT almost always presents with a benign evolution; however, the persistence of recurrences makes patients frequently visit the emergency room. The first step of management is focused on stopping the acute condition, where the use of drugs is still in development. It would be interesting to see case series from large centers and electrophysiology studies that show the possible antiarrhythmic role of drugs such as propofol, which has not been described in the literature. Helping the patient without being invasive will always be a goal as far as possible.

REFERENCES

1. Kotadia ID, Williams SE, O'Neill M. Supraventricular tachycardia: An overview of diagnosis and management, *Clinical Medicine* 2020 Vol 20, No 1: 43

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- II. Buttà C, Tuttolomondon A, Raimondo DD, Milio G, Miceli S, et al. The supraventricular tachycardias: Proposal of a diagnostic algorithm for the narrow complex tachycardias. *Journal of Cardiology* 61 (2013) 247–255
- III. Almendral J, Castellanos E, Ortiz M. Paroxysmal Supraventricular Tachycardias and Preexcitation Syndromes. Vol. 65. Issue 5. Pages 456-469
- IV. Medrano A, Moyab R, Escot I. Paroxysmal supraventricular tachycardia (presentation of two cases). *SEMERGEN* 2001; 27:594-596
- V. Brugada J, Katritsis DG, Arbelo E, Arribas F, Bax JJ, et al. 2019 ESC Guidelines for the management of patients with supraventricular tachycardia. *European Heart Journal* (2020) 41, 655720
- VI. Tinnirello JM, Magaldi M, Fontanals J, Masgoret P, Bravo JC. Sinus reversal of supraventricular tachyarrhythmias after propofol administration. A case series.
- VII. Lorentz MN, Vianna BSB. Arritmias Cardíacas y Anestesia. *Rev Bras Anesthesiol* 2011; 61: 6: 440-448