Cardioneuroablation as an alternative for a pacemaker in a young patient suffering several syncopes due to functional sinus arrest and complete atrioventricular block

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Introduction: Several clinical conditions comprise the balance between the sympathetic and parasympathetic tone. An imbalance in the autonomic nervous system with an increase of the vagal tone and a decrease of the sympathetic tone might result in cardioinhibition, sinus bradycardia, or transient atrioventricular block. The most common examples are the neurocardiogenic syncope (cardioinhibitory or mixed), functional transient AVB, or carotid sinus syndrome in patients without significant cardiopathy. These patients can be extremely symptomatic. Even with studies demonstrating that the implant of a pacemaker might not solve the problem, the indication of the latter might be necessary. As an alternative, in the nineties, a method to modulate the parasympathetic tone, called “Cardioneuroablation” removing or attenuating the cardioinhibitory response, was specifically developed to treat those patients 1–4.

Methods: Here, we report a case of a patient with recurrent severe cardioinhibitory syncope, where the Cardioneuroablation was performed with successes.

Result: A 55-years-old woman, with a history of depression and syncopes, started 8 years ago, being treated as a neurological cause since then. Among the exams performed were echocardiogram without structural disease and preserved function, 24h Holter showing rare supraventricular extrasystoles without bradycardia, pauses or complex arrhythmias. A positive tilt test for neurocardiogenic syncope with a cardioinhibitory response with a 60-second of pause, convulsion and sphincter release (Figure 1). On 03/09/18, she underwent Cardioneuroablation with extracardiac vagal stimulation to validate the vagal denervation during the procedure (Figure 2) indicating the endpoint of the proposed treatment. The patient followed without symptoms in the immediate postoperative period, only with expected mild sinus tachycardia, controlled with a beta blocker.

Conclusion: Nine months later, she is asymptomatic, with normal life. A new tilt test was performed, with a negative result for neurocardiogenic syncope and presented a steady heart rate response throughout the examination (Figure 3).