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Autonomic denervation of neuromodulator for the treatment of ventricular tachyarrhythmias

Mary Niu

University of Oklahoma, USA

It is known that hyperactivity of the sympathetic nervous activity plays a critical role in the initiation and maintenance of ventricular tachyarrhythmias in diseases such as long-QT syndrome, catecholaminergic polymorphic ventricular tachycardia (CPVT) as well as electrical storms resulting from any etiology. On the contrary, vagal activity is widely considered to be anti-arrhythmic and anti-inflammatory as well. It has been proposed that therapies aimed at reducing the sympathetic tone and enhancing the vagal tone should provide clinical benefits. However, recent clinical trials of spinal cord stimulation, baroreceptor activation therapy and cervical vagal stimulation, designed to test this hypothesis, have produced conflicting results in patients with heart failure. Low-level transcutaneous vagal stimulation is another promising autonomic neuromodulation showing strong anti-arrhythmic effects on both atrial and ventricular tachyarrhythmias in preclinical studies. Clinical studies are underway to investigate its effects on patients with a propensity for ventricular tachyarrhythmias. The left stellate ganglion (LSG) is viewed as the gateway of the sympathetic innervation to the heart. Various interventions targeting the LSG have been developed, including video-assisted resection of the LSG, epidural anesthesia of the C7-T3 level, and application of local anesthetics to block the LSG. Recent clinical studies demonstrate that sympathetic denervation targeting the LSG is capable of improving the survival in patients with long QT syndrome, reducing the ventricular tachyarrhythmia in CPVT patients and alleviating the arrhythmia burden during electrical storms.

Biography

Mary Niu is a Doctor and has 13 years of experience working at Oklahoma City. Her expertise include Pediatrics. Currently, she is working at the OU Medical Center-Everett Tower, Oklahoma. Till now she published many of the articles in the reputed journals.

mary-niu@ouhsc.edu

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