Title: **Stellate ganglion blockade for the management of electrical storm: a case report**

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Objective: To present our experience regarding the use of a stellate ganglion block (SGB) during the intensive care management of a patient with electrical storm (ES) that was refractory to optimal antiarrhythmic medications and was associated with a severe acute heart failure. SGB was used as a bridging therapy before a curative ablative treatment.

Background: Electrical storm (ES) is a medical emergency marked by three or more sustained ventricular tachycardia (VT) within 24 hours, often requiring intervention due to hemodynamic instability.[1] SGB targeting the sympathetic nervous system offers a bedside treatment option for ES, providing a bridge to more definitive therapies such as VT catheter ablation (VTCA), surgical cryoablation, implantation of a defibrillator pacemaker or, when associated with heart failure, heart transplantation.[1,2]

Case history: With the patient's consent, we present the case of a 55-year-old male admitted to the emergency department for a decline in his general condition. He had an idiopathic dilated cardiomyopathy with preserved coronary arteries. Despite maximal antiarrhythmic therapy, the patient experienced frequent VT episodes requiring multiple electrical cardioversions (EC). Due to high clinical instability, he received ventilatory assistance and venous-arterial extracorporeal membrane oxygenation (ECMO) to compensate for the associated acute heart failure. Following unsuccessful EC attempts, a bedside right SGB was performed using 15 mL of Ropivacaine 0.75%. SGB restored sinus rhythm and improved hemodynamic stability. Subsequent VTCA was followed by another VT episode after the SGB effects wore off, necessitating a second SGB, which promptly restored sinus rhythm and bridged to a bilateral sympathectomy through surgical cryoablation. The patient was successfully weaned off ECMO and a defibrillator pacemaker was implanted a few days later. He was discharged after three weeks, with a final diagnosis of acute myocarditis-associated heart failure.

Discussion and Conclusion: This case report suggests that critically ill patients with ES could benefit from SGB as a non-definitive treatment option. The SGB is a deep and non-compressible block, which requires strict management of therapeutic anticoagulation, especially in patients with ECMO. Additionally, this technique may be associated with dyspnea due to a temporary paralysis of the phrenic or recurrent laryngeal nerves. These complications must be considered when managing these particularly fragile patients. Repeated SGB can be a useful therapeutic tool in patients with ES refractory to medical treatment, while awaiting definitive therapeutic measures such as surgical ablation or heart transplantation.

Declaration of interests: MC has received interview and speaker's honoraria from GE Healthcare, Baxter and Aguettant. VB has received funds and research support from Orion Pharma as well as honoraria from Medtronic. He has financial relationships with Grünenthal. He is Deputy Editor-in-Chief of the Acta Anaesthesiologica Belgica, and has a consultancy contract with Edwards Medical.

References:

1. Douglas P. Zipes, A. John Camm, Martin Borggrefe, et al. ACC/AHA/ESC 2006 guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. EP Europace, 2006 Sept;8(9):746–837. Doi: 10.1093/europace/eul108

2. Vaseghi M, Barwad P, Malavassi Corrales FJ, et al. Cardiac Sympathetic Denervation for Refractory Ventricular Arrhythmias. J Am Coll Cardiol. 2017 Jun 27;69(25):3070-3080. doi: 10.1016/j.jacc.2017.04.035

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