

Ultrasound-guided stellate ganglion block for resistant ventricular tachycardia

Sir,

Electrical storm (ES) characterized by the occurrence of three or more distinct episodes of ventricular tachycardia (VT) or ventricular fibrillation in 24 h is a challenging entity to manage.^[1] The various treatment options include correction of the causative factors, antiarrhythmic therapy, use of implantable cardioverter-defibrillator (ICD), and cardiac sympathetic denervation. Here, we describe a case of chronic kidney disease (CKD) who presented with ES and was managed successfully by ultrasound (USG)-guided left stellate ganglion block (LSGB).

A 65-year-old female known case of CKD was admitted to our hospital for maintenance dialysis. She also gave a history of diabetes mellitus type 2, hypertension, hypothyroidism, coronary artery bypass graft 2 years back for triple vessel disease and was on medications for the same. Recent blood investigations revealed blood urea - 214, serum creatinine - 6.9. The present echo report showed – normal left ventricular (LV) systolic function, impaired LV relaxation, LV ejection fraction - 62%. On admission, she suddenly developed pulseless VT and became unconscious. The patient was immediately resuscitated (cardiopulmonary resuscitation and defibrillation 200 J). She was intubated, ventilatory support given and amiodarone infusion started. Arterial blood gas (ABG) showed respiratory and metabolic acidosis which was corrected by ventilatory management and sodium bicarbonate infusion. Once the hemodynamics was stable, she was taken up for dialysis. During the procedure, she developed VT again. She was cardioverted following which sinus rhythm ensued. This episode repeated 3 times again. ABG and blood investigations revealed normal pH and electrolytes. The patient was planned for LSGB. The patient was placed supine, and neck was extended. A high-frequency linear probe was used to visualize the anatomy. The needle was inserted in plane and 5 ml of 0.25% bupivacaine was injected visualizing distention of the longus colli compartmental space under the pretracheal fascia [Figure 1]. Thereafter the patient was stable on amiodarone infusion and was arrhythmia free for the next 16 h.

ES is a challenging entity with a high mortality rate. The various predisposing factors include recent myocardial infarction, heart failure, hypokalemia, hypomagnesemia, arrhythmogenic drug therapy, hyperthyroidism, acidosis, infection, and fever.^[2] Correction of the causative factors, antiarrhythmic therapy, use of ICD, and cardiac sympathetic denervation (LSGB,

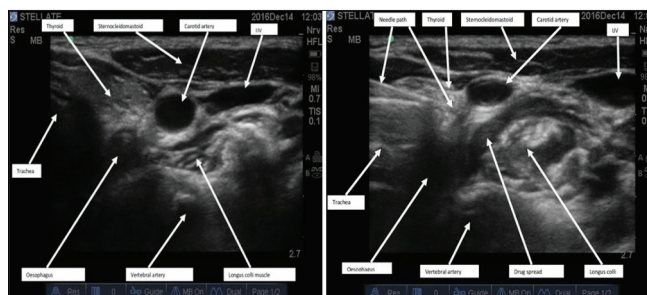


Figure 1: Ultrasound guided stellate ganglion block

thoracic epidural anesthesia, and surgical sympathectomy) are the various treatment options available.^[3]

Stellate ganglion, formed by inferior cervical and first thoracic ganglia provides sympathetic innervation to the upper extremities, head, neck, and heart. Blockade of the ganglion is indicated as a diagnostic and therapeutic procedure for pain syndromes and for vascular insufficiency in the upper extremities. In addition, this procedure has been used to treat long QT syndrome.

LSGB was initially performed blindly or fluoroscopy-guided using local anesthetic volume as high as 20 ml. This volume is of concern in high-risk patients due to increased toxicity as stated by Wulf *et al.*^[4] USG guidance has made this procedure simple, accurate and hazard free due to real-time visualization of the various structures. Furthermore, the volume required is only 5 ml. The success rate of the blockade technique is enhanced by visualizing distention of the longus colli compartmental space under the pretracheal fascia, directly under the USG imaging.^[5]

Although the safety and use of this procedure over the conventional techniques need to be established using randomized controlled trials, this technique can prove to be safe, handy, and simple in case of ESs.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Proietti R, Sagone A. Electrical storm: Incidence, prognosis and therapy. *Indian Pacing Electrophysiol J* 2011;11:34-42.
2. Eifling M, Razavi M, Massumi A. The evaluation and management of electrical storm. *Tex Heart Inst J* 2011;38:111-21.
3. Nademanee K, Taylor R, Bailey WE, Rieders DE, Kosar EM. Treating electrical storm: Sympathetic blockade versus advanced cardiac life support-guided therapy. *Circulation* 2000;102:742-7.
4. Wulf H, Maier C, Schele HA, Wabbel W. Plasma concentration of bupivacaine after stellate ganglion blockade. *Anesth Analg* 1991;72:546-8.
5. Gadhinglajkar S, Sreedhar R, Unnikrishnan M, Namboodiri N. Electrical storm: Role of stellate ganglion blockade and anesthetic implications of left cardiac sympathetic denervation. *Indian J Anaesth* 2013;57:397-400.

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