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What predicts the inefficiency of stellate ganglion block in the treatment of electrical storm?

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Introduction: Electrical storm (ES) is an emergent condition which requires a sofisticated approach. Massive sympathetic surge almost always connected with ES precipitates recurrent ventricular arrhythmias. Performing stellate ganglion block (SGB) to alleviate the sympathetic activity on myocardium is becoming a standard of care in many centers. However, there is no clear data to predict in which patients the SGB will be ineffective.

Purpose: To identify predictors of SGB failure in patients with ES.

Methods: We analyzed our case series of SGB – the procedure was performed in 31 patients with ES in our center from March 2017 to December 2018.

Results: Mean left ventricular ejection fraction was 27% (±9%), 74% of patients had ischaemic cardiomyopathy. The most frequent type of arrhythmia was monomorphic ventricular tachycardia (VT), occurring in 71% of patients, followed by polymorphic VT in 13% of cases. After SGB, the burden of ventricular arrhythmias failed to decrease by at least 50% in 10% of cases - these patients were marked as non-responders. Slow monomorphic VT (under 160/min) was observed in all of these patients. On the other hand, fast monomorphic VT or polymorphic VT seemed to respond very well to SGB. We also observed, that patients with ES after acute coronary syndromes were good responders as well. The effect of SGB was not related to age, gender, EF LK or the etiology of cardiomyopathy.

Conclusions: According to our experience, the failure of SGB in the treatment of ES is not frequent. It typically occurs in patients with slow monomorphic VT. It is probable that such arrhythmias are sustained primarily due to the extensive myocardial substrate, and not because of the sympathetic surge. The situation is quite the opposite in patients with fast VT and acute ischemia.