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LETTER

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Implantation/explantation of sEEG electrodes and takotsubo syndrome: Plausible merits of some additions to the protocol

To the Editor,

I read with interest the paper by Sarkar et al,[1] about the 38-year-old woman who suffered an episode of takotsubo syndrome (TTS) 4 hours after an explantation of stereo-electroencephalogram (sEEG) electrodes, an occurrence which has not been reported previously. Since TTS is an underdiagnosed affliction, its pathophysiology continues to be elusive (although the role of a brain-heart connection appears to be certain), and there must be many atypical often asymptomatic TTS episodes which do not come to our attention, one wonders whether some additions to the existing protocols for implantation/explantation of sEEG electrodes might be of merit. Accordingly, this author proposes the following: (a) Continuous electrocardiogram (ECG) monitoring, employing routine limb and chest ECG electrode placements, to explore for ECG changes (ie, mainly tachycardia, ECG ST-segment elevations or depressions, flattening of T-waves, inverted T-waves, atrial or ventricular arrhythmias, and QTc interval prolongation), suggestive of the emergence of TTS; evaluation of the ECG monitoring data could be provided by a Coronary Care Unit (CCU) nurse, either on-site, or at the CCU monitoring station facility of the hospital where the sEEG procedures are implemented. (b) In addition, this ECG monitoring can provide a means for analysis/monitoring of chest high frequency (ie, 500-1000 Hz) signals, with currently available commercially technology,[2] which provides a surrogate of autonomic sympathetic activity of stellate ganglia, representing the autonomic neural input to the heart; enhancement of such activity is expected to be present at the onset of "autonomic sympathetic storm" associated with TTS. (c) If these 2 tests provide a hint that TTS may be at its onset, a cardiology consultation can be requested for full evaluation; it will be advisable at this juncture to obtain a venous blood specimen for assessment of catecholamine blood levels, known to be elevated in TTS.[3] These additions to the currently implemented protocol for implantation/explantation of sEEG electrodes will provide enhanced safety of patients undergoing these procedures, explore the prevalence of TTS associated with the procedures, and may help in the elucidation of the pathophysiology of TTS, by exploring development of TTS in connection with particular brain sites of sEEG implantation, stimulation, or explantation.

I confirm that I have read the journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

CONFLICT OF INTEREST

None of the authors has any conflict of interest to disclose. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

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