

# Volatile Anesthetic for Management of Super-refractory Status Epilepticus

Sir,

Malignant status epilepticus (SE) is a life-threatening state of persisting seizure activity defined as SE that continues up to or beyond 24 h after the start of anesthetic medications, and this includes those cases where SE recurs on the reduction or withdrawal of anesthetic medications.<sup>[1]</sup> Around 15% of all the cases of SE admitted to hospital progress to become super-refractory status epilepticus (SRSE).<sup>[2]</sup> Treatment of such condition is still unknown or little explored on the basis of available evidence from medicine literature.

A 32-year-old male patient presented to hospital with history of moderate grade fever 2 months back followed by seizure episodes. Seizures were continuous, generalized tonic-clonic in nature, not controlled with multiple anticonvulsant medications. Magnetic resonance imaging revealed bilateral temporal and insular hyperintensity highly suggestive of herpes simplex virus encephalitis. His treatment regimen included administration of acyclovir and dexamethasone for two weeks. Despite targeted treatment, he was still not seizure free and continued to have partial seizure episodes along with positive electroencephalographic (EEG) activity. Apart from the above-mentioned medications, he was also receiving phenytoin, midazolam, sodium valproate, topiramate, levetiracetam, thiopentone, and ketamine infusion for 24 h but without any attenuation of seizure episodes. Finally, a volatile inhalational anesthetic agent (isoflurane) was added to the treatment. Isoflurane was started in 1% volume percentage at flow rate of 2 L/min through a closed circuit. Following 15 min of administration of inhaled anesthetic agent, cessation of seizure activity along with isoelectric EEG was observed. We continued with this treatment modality for next 72 h as a part of rescue management. After 24 h, the patient remained seizure free and asymptomatic. With 12 h interval, we further tapered isoflurane volume percentage to 0.7%, 0.5%, and 0.3%, respectively, and switched off gradually to ameliorate seizure episodes. Furthermore, the patient was weaned off from ventilator and having better recovery profile.

General anesthesia with volatile anesthetic agent is considered to be the last reserved resort in the management of SRSE.<sup>[3]</sup> Isoflurane has minimal reported adverse effects as it is rapidly titratable, having low solubility and theoretically organ-free metabolism (<0.2%) in contrast to other volatile anesthetics. Isoflurane has reported to be given up to 26 days for controlling seizures.<sup>[4]</sup> Through our case, we reiterate here the importance of

inhaled anesthetic agent (isoflurane) and neuroanesthesiologist in intensive care management of malignant or SRSE as good recovery can be ensured even after prolonged and severe SE.

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## Conflicts of interest

There are no conflicts of interest.

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