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CASE REPORT

A CASE OF PROPOFOL INDUCED BRISK SEIZURE

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ABSTRACT: Propofol a known anaesthetic agent is associated with rare complications like seizure-like phenomenon (SLPs). There is no known predisposing factor for this condition. We report here a case of generalised tonic-clonic seizure with propofol during induction of general anaesthesia.
KEYWORDS: Propofol, Seizure, Anaesthesia.

INTRODUCTION: Propofol (2, 6- diisopropylphenol) has been widely in use for induction and maintenance of general anaesthesia. Its added role is seen in Intensive Care Units (ICU) for sedation and for treating intractable status epilepticus. Though propofol has antiepileptic effect and is being used for treatment of status epilepticus, a series of seizure-like phenomenon (SLP) has been associated with propofol.[1-6] This SLP ranges from involuntary movements, increased tone with twitching and rhythmic movements, opisthotonus to focal motor seizures, generalized tonic-clonic seizures.

We report here a case of single episode of brisk tonic-clonic seizure with propofol.

CASE REPORT: A 33 years old male patient was posted for appendicectomy surgery. On pre-anaesthetic evaluation, patient was American Society of Anaesthesiologists physical status class I, weighing 80 kg. History was not suggestive of any other co-morbid illness including hypertension, diabetes, seizure disorder and tuberculosis. His pulse rate was 78/min and regular. Blood pressure was 120/75 mmHg in supine position.

Investigations including haemogram, liver and renal function tests, electrocardiogram and chest x-ray were normal. Patient was pre-medicated with oral diazepam 10 mg and ranitidine 150 mg on the night before and on the morning of surgery. In the operating room monitoring included ECG, pulse oximetry, non-invasive blood pressure and capnography. After securing intravenous access, 100 μg of fentanyl was slowly administered intravenously. Anaesthesia was induced intravenously with propofol 2 mg/kg body-weight over 30 seconds. Immediately, generalized tonic-clonic seizure was witnessed in the patient. The seizure was very vigorous and the patient had to be held to prevent falling from operating table. Patient was immediately given 2 mg of lorazepam intravenously. Patient was mask ventilated with 100% oxygen.

The seizure subsided completely. Thereafter airway was secured with 8.5 mm internal diameter endotracheal tube after achieving neuromuscular blockade with rocuronium 0.8mg/kg. The surgeon proceeded with surgery which was uneventful. Intra-operatively, blood sugar, serum electrolytes and arterial blood gas analysis was found to be normal. After completion of surgery reversal of neuromuscular blockade was done and patient was extubated once he was fully conscious well out of the effect of neuromuscular blocker. The patient was shifted to postoperative anaesthesia care unit (PACU) for monitoring. In PACU neurology consultation was taken which revealed no neurologic abnormality and no evidence of post-ictal phase. On the advice of neurologist,

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computerized tomography (CT) of head electroencephalogram (EEG) was done which revealed no abnormality. Patient had uneventful recovery.

DISCUSSION: Propofol was introduced commercially in the 1980s by Zeneca Pharmaceuticals.[7] Many benefits like rapid onset, fast recovery time and lack of accumulation, have made it very popular for induction and maintenance of anaesthesia, as well as for sedation. The commonest side effect is local pain on injection. This pain can be mitigated by pre-treatment with short acting opioid or lidocaine. Other more serious but rare side effects include myoclonus, seizures and other movement disorders.

In 2002, a review of neurological complications associated with propofol identified 516 reports of neurological movement disorder associated with administration of propofol.[2] These disorders which were described as seizure like phenomenon, occurred during induction, maintenance or emergence from anaesthesia but very rarely it also has a delayed onset. The presentation is diverse: generalized tonic-clonic seizures, focal motor seizures, increased tone, opisthotonus and involuntary movements like myoclonus.

The precise mechanism of SLP still not established but various theories have been proposed. These include imbalance between excitatory and inhibitory pathways in the brain.[8]

Propofol is metabolised in the liver, forming conjugates with glucoronides and sulphates, and these are excreted by the kidneys. There have been suggestions that neurological complications are due to these metabolites.[9]

Paradoxically, anticonvulsant action of propofol is being utilized clinically. This beneficial effect of propofol on epilepsy may be related to its depressant effect on the central nervous system, involving GABA, glutamate and aspartate mechanisms.[10]

There has been no specific predisposition associated with pro-epileptic effect of propofol. The sporadic cases regarding SLPs with propofol has been reported in all age groups, both sexes, and patients with no history of epilepsy. Some argue that the case reports associating propofol with epilepsy had on EEG assessment found to be myoclonus were incorrectly diagnosed as seizure. Thus controversy continues.

In our patient, the diagnosis of seizure caused by propofol was made by the exclusion of other possible causes. The normal blood chemistry, stable haemodynamics, no other causes made other causes very unlikely. The other drugs administered to patients were also reviewed. Fentanyl was the only associated drug with neurological complication.[11] But more cases of movement disorders have been associated with propofol than fentanyl. We did not repeat the dose of propofol after induction dose, the seizure did not recur during maintenance or emergence from anaesthesia or postoperatively.

The seizure like phenomenon is self-limiting thus treatment is mainly conservative and so far no mortality has been associated. Benzodiazepines are commonly used for these patients. If drugs are unable to control the situation then it usually resolves in some time frame. Though seizures during anaesthesia induction can result in dislodgement of intravenous lines, monitoring device, injury or even dislodgement of airway. Further, propofol is most commonly used as day care surgery agent thus association of seizure may delay patients discharge from PACU.

Thus we recommend further studies to determine patients more predisposed to this complication for its cautious use.

CONCLUSION: Propofol though one of the most common anaesthetic agent used for induction and maintenance of general anaesthesia needs a careful monitoring for occurrence of seizure like phenomenon during its administration. This SLP associated with propofol is self-limiting with no known morbidity and mortality.

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