A CASE REPORT

OPISTHOTONUS AND MYOCLONIC MOVEMENTS FOLLOWING PROPOFOL

A 44 yrs old man with ASA Risk I was posted for urethral dilatation. Total intravenous anaesthesia was planned for the surgery and the patient was premedicated with I.V. Pethidine and Glycopyrrolate. Then the patient was induced immediately with injection Propofol 100mg after connecting all essential monitors (NIBP, SPO2, ECG). Two minutes after the induction of anaesthesia patient developed dystonia with opisthotonus which lasted for 60 seconds and then the patient developed myoclonic movements on both upper limbs. These myoclonic movements persisted for 5 minutes. During the dystonia and myoclonic movements, airway was maintained and 100% Oxygen administered through Magill’s circuit with face mask. Patient was haemodynamically stable during that period and SaO2 was 98-100%. Patient recovered consciousness completely once myoclonic movements ceased. There was no neurological deficit. On enquiring the patient retrospectively, he had no previous history of seizures or head injury. In the above case, since Pethidine, Glycopyrrolate and Propofol are the drugs used, the occurrence of opisthotonus and myoclonic movements can be attributed only to Propofol. Reviewing the literature the same side effects are reported with Propofol with incidence rate less than 1%.

Discussion
Propofol is the most frequently used intravenous anaesthetic drug today. Propofol is used for induction and maintenance of anaesthesia, as well as for sedation in and outside the operating room.

**Side Effect:**

These less frequent events are derived from experience in over 8 million patients (derived from publications and marketing experience).

**Incidence**

I. Greater than 1% - Probably Causally Related

II. Less than 1%

A) - Probably Causally Related

B) - Probably Causal Relationship unknown
<table>
<thead>
<tr>
<th>Incidence less than 1% - Causal Relationship Unknown</th>
<th>Anesthesia/MAC Sedation</th>
<th>ICU Sedation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body as a Whole:</strong></td>
<td>Asthenia, Awareness, Chest Pain, Extremities Pain, Fever, Increased Drug Effect, Neck Rigidity/Stiffness, Trunk Pain</td>
<td>Fever, Sepsis, Trunk Pain, Whole Body Weakness</td>
</tr>
<tr>
<td><strong>Cardiovascular:</strong></td>
<td>Arrhythmia, Atrial Fibrillation, Atrioventricular Heart Block, Bigeminy, Bleeding, Bundle Branch Block, Cardiac Arrest, ECG Abnormal, Edema, Extrasystole, Heart Block, Hypertension, Myocardial Infarction, Myocardial Ischemia, Premature Ventricular Contractions, <strong>ST Segment Depression</strong>, Supraventricular Tachycardia, Tachycardia, Ventricular Fibrillation</td>
<td>Arrhythmia, Atrial Fibrillation, Bigeminy, Cardiac Arrest, Extrasystole, Right Heart Failure, Ventricular Tachycardia</td>
</tr>
<tr>
<td><strong>Central Nervous System:</strong></td>
<td>Abnormal Dreams, Agitation, Amorous Behavior, Anxiety, Bucking/Jerking/Thrashing, Chills/Shivering, Clonic/Myoclonic Movement, Combativeness, Confusion, Delirium, Depression, Dizziness, Emotional Lability, Euphoria, Fatigue, Hallucinations, Headache, Hypotonia, Hysteria, Insomnia, Moaning, Neuropathy, Opisthotonos, Rigidity, Seizures, Somnolence, Tremor, Twitching</td>
<td>Chills/Shivering, Intracranial Hypertension, Seizures, Somnolence, Thinking Abnormal</td>
</tr>
<tr>
<td><strong>Digestive:</strong></td>
<td>Cramping, Diarrhea, Dry Mouth, Enlarged Parotid, Nausea, Swallowing, Vomiting</td>
<td>Ileus, Liver Function Abnormal</td>
</tr>
<tr>
<td><strong>Hematologic/Lymphatic:</strong></td>
<td>Coagulation Disorder, Leukocytosis</td>
<td>.</td>
</tr>
<tr>
<td><strong>Injection Site:</strong></td>
<td>Hives/Itching, Phlebitis, Redness/Discoloration</td>
<td></td>
</tr>
<tr>
<td><strong>Metabolic/Nutritional:</strong></td>
<td>Hyperkalemia, Hyperlipemia Increased</td>
<td>BUN Increased, Creatinine, Dehydration, Hyperglycemia, Metabolic Acidosis, Osmolality Increased</td>
</tr>
<tr>
<td><strong>Respiratory:</strong></td>
<td>Bronchospasm, Burning in</td>
<td>Hypoxia</td>
</tr>
</tbody>
</table>
Pathophysiology of CNS Effect:

**Hypnotic Action:** Mediated by potentiating gamma amino butyric acid induced chloride current through binding to beta subunit of GABA.

**Seductive Effect:** GABA A receptor on hippocampus and prefrontal contents.
- Alpha2 adrenoreceptor indirect role.
- NMDA receptor modulation.

**Spinal cord:** Depressive action on neurons of spinal cord
- Acts on GABA and glycine receptors of spinal dorsal horn neurons.

**Anti emetic action:** Decreases serotonin in Area Postrema.

**Well being state:** Increase Dopamine concentration in Nucleus – Accumbens (a phenomenon noted in drug abuse and pleasure seeking behaviour).

Although the etiology of convulsions by Propofol is controversial, the convulsion occurred in the above case seems to be related to Glycinergic as well as Glutamate receptors.

**Other Related Incidents and Case Reports:**

1. **Myoclonic seizure during Propofol-Alfentanil anesthesia**
   
   
   We report a case of seizure-like movements during Propofol-Alfentanil anaesthesia for an elective craniotomy. These seizure-like movements can be related to the use of either anaesthetic agent. A synergistic effect of Propofol and Alfentanil in the generation of seizure-like movements cannot be excluded. Propofol's pro- or anticonvulsive action is unclear.

2. **Convulsion, ataxia and hallucinations following Propofol.**
   
   Department of Anaesthesiology, Vejle Hospital, Denmark.
   
   A 6-year old fit girl experienced convulsions 44 h after an otherwise uneventful anaesthesia with Propofol, Alfentanil and Nitrous oxide. Child was kept sedated for 6.5 h for further investigation with infusion of Propofol amounting in total to 1600mg. After having regained consciousness, she was strikingly ataxic and remained so for 5 days with two episodes of hallucinations lasting for 2 h.

3. **Case of convulsion induced by Propofol.**
   
   Department of Anaesthesia, Yokosuka Municipal Hospital.
   
   A 71-year-old man was scheduled for laryngomicrosurgery under total intravenous anaesthesia. Anaesthesia was induced and maintained with
Propofol. Seven to eight minutes after induction of anaesthesia, convulsion was observed first on his lower limbs and then on his all limbs and the head which lasted for 25 minutes. Later neurological examination revealed normal functions.

Conclusion:

The etiology of convulsions due to Propofol is controversial. Reviewing the literature the convulsion occurred in the above case may be related to Glycinergic as well as Glutamate receptors stimulation.

The above case is reported to highlight the rare side effects of Propofol so that we won’t be bewildered when we encounter similar situation in future.

References:


8. PubMed Medline PMID – 9689285


10. The internet drug index

Dr. J. Edward Johnson MD
Asst. Professor, Department of Anesthesiology
Kanyakumari Government Medical College Hospital
Nagercoil — 629001.