CASE REPORT

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Thiopenthal for propofol related extrapyramidal movements: Case report

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ABSTRACT

Many drugs are used in outpatient anesthesia procedures. One of them, propofol, is used frequently because of its advantages like fast effect and short duration. Involuntary tonic-clonic movements similar to epilepsy are rarely seen when using propofol. A 41-year old male patient weighing 80 kg and admitted with acute appendicitis presented hemiballismus-like severe extrapyramidal movements in all his extremities when propofol was administered. In this article, we discuss how we treated these undesired propofol side effects.

Key Words: Propofol, extrapyramidal movements, thiopental

Introduction

Propofol is frequently used in outpatient anesthesia practice by anesthetists because it is fast-acting and wears off quickly with the patient regaining consciousness soon after usage, but also it has some side effects. One of them is tonic-clonic or involuntary jerking epilepsy. This can present itself as movements when propofol is used or for a period of time afterwards. This is a rarely seen side effect, but it can take time to get these movements under control. Treatment with benzodiazepines is recommended for these abrupt movements, but they may be ineffective in some cases. In our case, the extrapyramidal movements continued despite the use of midazolam and were stopped successfully using thiopental therapy.

Case Report

A 41-year-old male patient was taken to the operating theater for an acute appendectomy. The patient presented no significant features in the pre-operation examination and was evaluated as American Society of Anesthesiologists Classification 1 Emergent. The patient had no prior history of allergy to drugs or any neurological problems. During pre-medication, 3 mg midazolam was administered intravenously (IV). Standard anesthesia monitoring was applied in the operating theater. Non-invasive blood pressure was measured to be 120/70 mmHg. The heart rate was 65 beats/minute, while oxygen saturation (SpO_2) measured by pulse oximetry was 98% on room air. Ten litres/min 100% oxygen was administered for three minutes. We administered 150 mg iv propofol for anesthesia induction. Then jerking and hemiballismus-like involuntary movements were seen in all the patient's extremities. This situation was accepted as a propofol-related extrapyramidal reaction. Propofol infusion was stopped immediately and 4 mg midazolam was administered intravenously for treatment. However, the extrapyramidal movements could not be stopped and so thiopental sodium 5 mg/kg was administered intravenously after which the involuntary movements in the extremities ceased. One hundred micrograms of intravenous fentanyl and 50 mg of intravenous rocuronium were administered for tracheal intubation and anesthesia was continued using sevoflurane at 1 MAC and 50% air in oxygen. The tidal volume was set at 7 ml/kg at a breathing rate of 12/min and positive-end expiratory pressure: 5 cmH_2O. The patient was extubated after the operation was over. After extubation, the patient was conscious, lucid and cooperative. When asked whether he remembered anything, he said that he has been running. In his physical examination, his breathing sounds were normal, and his chest X-ray was normal. His SpO_2 value measured by pulse oximetry was 86%. On being given oxygen and

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bronchodilator therapy, the patient's saturation improved. Presenting normal hemodynamic findings and a normal neurological examination, the patient was discharged the next day without a problem.

Discussion

It is known for a long time that patients' clinical responses to general anesthetics can and do vary. Propofol is used when administering general anesthesia and for sedation in outpatient anesthesia. Studies have shown that individual response differences to propofol may be influenced by environmental factors, ethnic origin, gender and body mass index properties. Subunit polymorphism of the gamma-aminobutyric acid receptor in the central nervous system reacting to propofol may be responsible for differences in sensitivity to propofol (1,2). Involuntary movements like epilepsy and myoclonus-like contractions, dystonic muscle contraction, or masseter muscle spasm have been reported during the administration of propofol or for a period of time afterwards (3). In our case, myoclonus like extrapyramidal contractions was seen when propofol was being administered via iv. Temporary extrapyramidal movements during the induction of propofol were reported as high as 8.5% by Arya and et al. (4). Involuntary epilepsy-like movements in patients similar to our case were reported by Tam (5). In this case, these movements ended one month later. In our patient, these kinds of movements were quickly brought to a halt using thiopental. In the study by Arya et al. (4) they did not give the bispectral index values seen when the involuntary movements were happening. Although the mechanisms for these kinds of movements are unknown, benzodiazepines, anticonvulsants, and anticholinergic drugs are used in the treatment of such reactions. However, in some cases, these agents are not enough to halt these movements. In our case, the jerking-like extrapyramidal movements could not be stopped with midazolam but they were halted quickly with an anesthetic dose of thiopental. Thiopental can be used at lower doses as an antiepileptic but it was used in an anesthetic dose because of the surgical procedure. The patient was then intubated. Another reported side-effect related to propofol is pulmonary edema (6). Pulmonary edema was not detected in our patient. However, a fall in SpO_2 values was seen after extubation. This problem was solved with oxygen therapy, bronchodilator therapy, and pulmonary rehabilitation.

Midazolam is recommended for the treatment of extrapyramidal movements that present during propofol usage. Thiopental should be considered as an alternative choice to halt propofol-related involuntary movements that do not respond to midazolam therapy. In addition, requirements such as an endotracheal tube or supraglottic instruments should be on hand in order to establish and maintain an airway.

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