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Emergence Delirium after Propofol Anaesthesia

Letter to the Editor – Case Report

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Short title: Propofol-induced Delirium

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Case report:

Propofol is a commonly used anaesthetic agent. Recent findings suggest that low-dose propofol sedation reduce the risk of delirium in elderly (1). In children, emergence agitation was reported (2), even with convulsions, ataxia and hallucinations (3). Besides the rare complication of a propofol infusion syndrome, sexual hallucinations (4, 5), epileptic seizures and seizure-like phenomena (6, 7) were reported. We report a severe delirious and aggressive state during emergence after propofol anaesthesia.

The 20 year old female patient (175 cm, 75 kg) was passed on a gastroenterological service for nausea and vomiting. She suffered from Morbus Crohn (Enterocolitis regionalis), continuously treated with prednisolone 5 mg and azathioprine 150 mg since three years, adalimumab (TNF-alpha-antagonist) since three months and pantoprazole and tropisetron since two weeks. The past medical history was negative for drug abuse, alcohol or nicotine abuse, metabolic diseases, allergic reactions or treatment with psychiatric drugs. EEG was normal and there was no history of epilepsy or neurological disorder in the patient or among her relatives. Cranial and abdominal MRI was regular. She already had undergone two gastroscopies in propofol anaesthesia without adverse effects.

Anaesthesia was prepared with propofol (1%, 100 mg bolus, 180 mg continuously over 15 minutes). Sedation was delayed with minimal restlessness. Continuous monitoring showed no relevant hypotonia or hypoxia. During waking up, restlessness increased but the patient was not responsive, eyes were closed. She did not recognize her mother, being present during gastroscopy, and refused body contact by beating, scratching, biting and crying not to touch her. Agitation increased and bed rails had to be attached. The patient received prednisolone 125 mg for coughing fit and midazolam 2 mg for sedation without improvement. An epileptic seizure was deemed unlikely due to the intentioned and coordinated movement pattern and the lacking response to midazolam. Finally, after 25 minutes she received haloperidol 5 mg, causing a decline of agitation and aggression within

a few minutes, followed by one hour of sleep. After waking up, she was fully orientated and reported dreamless sleeping for the period of anaesthesia and complete amnesia for the delirious state. Muscle or bone pain or muscle rigidity did not appear. The patient was observed on normal ward until the following day.

Reports of severe or prolonged agitation are sparse (8); other findings represent the adverse effects of sexual hallucinations or seizure-like phenomena (SLP). The latter is characterized by uncoordinated and tonic-clonic muscle movements (6, 7), opisthotonus and athetoid neck and limb movements (9). Signs for SLP or grand-mal epilepsy did not occur in our patient, but she showed intentional, coordinated movements, purposeful defence reaction and anxious affect whereas being unresponsive. Complete amnesia and a dreamless sleep suggest the absence of sexual hallucinations (4, 5) despite there probably were delusions and anxiety. The sudden decline of all symptoms after Haloperidol medication supports the diagnosis of a delirium.

It has to be discussed whether the new medication was responsible for the incident. Adalimumab may cause mood changes including depression, anxiety and insomnia (10), but delirium or aggressive behaviour has not been reported yet. Tropisetron is frequently used in combination with propofol and showed favourable results on nausea and vomiting in this combination (11), due to the similar binding profile at the 5-HT₃ receptor (12). Adverse effects of this combination are unknown. Pantoprazole may cause depression, hallucinations and disorientation in "predisposed" patients (13), but the patient had no risk factors of neurological or psychiatric disorders. However, the combination of several drugs may have caused this severe adverse effect, but surprisingly after two interventions without side effect, contrarily to the delirium after first time use of propofol (8). In summary adverse effects may occur even if former propofol anaesthesia has been well tolerated.

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