

CORRESPONDENCE

Awareness Under General Anesthesia

by Prof. Dr. med. Petra Bischoff, PD Dr. med. Ingrid Rundshagen
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Paradoxical Reaction in ADHD

In our outpatient clinic for adults with attention deficit hyperactivity disorder (ADHD), 10–20% of those affected repeatedly complained about abnormally extended (24 hours) or (more often) notably shortened or reduced effectiveness of local anesthesia injections for dental treatment. Some patients reported paradoxical reactions to postoperative administration of tranquilizers (including benzodiazepines). These drugs made them “even more awake”, much to their doctor’s surprise.

One female patient reported that she had followed the surgeons’ conversations during the initial 10 minutes of the operation under full anesthesia and complete muscle relaxation. The surgeons were surprised at the amount of details she remembered. In other patients, anesthetics worked for “too long” or had “too strong an effect.”

Many people with ADHD have next to no reaction or react paradoxically to caffeine (coffee/black tea/cola) and other stimulants (nicotine, “Red Bull,” amphetamines). One female patient also reported excessive awareness—and better cognition—when taking antihistamines (for example, “Fenistil” [dimethindene maleate]).

Such “idiosyncratic” reactions seem to be stable over time, which means that the different effects are predictable.

We therefore advise our ADHD patients to inform their anesthesiologist before an operation that they may react differently to caffeine, antihistamines/low-potency neuroleptics, benzodiazepines (and also central and peripheral anesthetic drugs).

Many mentally healthy people also react in a primarily unexpected way to caffeine, etc. It therefore may make sense to ask patients preoperatively about untypical reactions to this (not very long) list of different substances, in order to anticipate possible intraoperative and postoperative problems and to avoid these where possible.

Presumably such atypical reactions are genetically determined. Therefore “idiosyncrasies” in family members may as well provide a hint for an increased risk of abnormal reactions to anesthetics.

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Conflict of interest statement

Dr Langguth holds patents for cyclobenzaprine in the therapy of tinnitus and naltrexone in the therapy of tinnitus. He has received honoraria for acting as an adviser to Merz and Novartis. He has received a publication-related honorarium from Merz. He has received conference, travel, and hotel expenses, as well as honoraria for speaking at continuing medical educational events from ANM, AstraZeneca, Pfizer, Servier, Merz and Medtronic. Furthermore, he has received funding for research projects that he himself initiated, from the German Research Foundation (DFG), Tinnitus Research Initiative, the American Tinnitus Association and AstraZeneca.

Dr Bär declares that no conflict of interest exists.

Dr Wodarz has received honoraria for acting as an adviser and conference expenses from Essex Pharma. He has received travel expenses and hotel expenses as well as honoraria for speaking at continuing medical educational events from Janssen-Cilag and Essex Pharma. He has received honoraria from Lundbeck, Essex-Pharma, MSD, IFE Europe, and Novartis for conducting commissioned clinical studies.

Dr Wittmann has received honoraria for acting as an adviser from Bristol-Meyer-Squibb and conference, travel, and hotel expenses, as well as honoraria for continuing medical educational events, from Astra Zeneca, Lilly, Glaxo Smith, Wyeth, Janssen, Servier, Pfizer, and Bristol-Myers Squibb. He has received a publication-related honorarium from Servier.

Dr Laufkötter has received conference, travel, and hotel expenses from Janssen and AstraZeneca.

In Reply:

Our correspondents describe idiosyncratic reactions to several medications used in the context of anesthesia in ADHD patients. The complexity of possible pathophysiological models of explanation becomes clear from the clinical diversity of the described mechanisms of action. These range from paradoxical reactions to reduced reactions to hypersensitive reactions. The predictability of the desired mechanisms of action, especially of anesthetic drugs, is therefore hampered, made more difficult or even impossible, as the authors explain. On this background, it is easily understandable from an anesthesiological perspective that finding the right dosage for anesthetic drugs that is required to achieve an adequate level of anesthesia is problematic in ADHD patients, and that patients with ADHD should undoubtedly be counted among the risk groups for intraoperative awareness.

The authors recommend taking a preoperative history from ADHD patients to optimize anesthesiological therapy; this is already an integral part of routine anesthesiology.

In preparing for scheduled surgical interventions that require anesthesia, it is standard procedure to ask all patients about diagnoses, abnormalities, intolerances, and reactions to medications/anesthetic drugs that deviate from the normal range in the context of the so called premedication consultation. This evaluation includes family members so that usually, known diagnoses or earlier abnormal events are captured and documented. No firm conclusion can be drawn about whether this helps to reduce the frequency of the awareness phenomenon in ADHD patients because data are lacking. However, it may be assumed that particular attention,

targeted patient information all contribute to optimizing anesthetic procedures for all patients, including those with ADHD.

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