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Neurologic Examination for Anesthesiologists: Reply

In Reply:

Professor Drummond makes a good point that apnea induced by propofol does not occur entirely through its actions at γ-aminobutyric acid–mediated synapses in the dorsal and ventral respiratory groups in the medulla and pons. However, he further writes, "I suggest that loss of consciousness mediated by suppression of the arousal centers, which is also considered by Reshef *et al.*,[1] to be a more likely cause of apnea in these circumstances. In conscious subjects, respiration is generally sustained not by chemosensor stimulation, but by consciousness itself…After a bolus of IV agent, loss of consciousness often causes apnea, because there is, for a short time, no alternative stimulus to provide respiratory drive." These statements do not offer any specific circuit mechanism as to how loss of consciousness "causes" apnea.

What is highly plausible is that bolus administration of propofol leads to a preponderance of γ-aminobutyric acid–mediated inhibition in the brainstem. As we have pointed out previously, the brainstem component of loss of consciousness following bolus administration of propofol, is due most likely to its actions at the γ-aminobutyric acid–mediated projections from the preoptic area of the hypothalamus on to the arousal centers.[2–4] In addition, there is extensive γ-aminobutyric acid–mediated circuitry in the brainstem such that when an agent like propofol is administered as a bolus, it acts indiscriminately at all of these circuits, offering a myriad of possibilities to inactivate the respiratory centers.[5–7] More work is needed to trace out precisely the relationship between brainstem inactivation due to γ-aminobutyric acid–mediated mechanisms and apnea. We agree that bolus administration of propofol leading to apnea is different from an inhalational induction in which the patient becomes unconscious but can continue to breath.

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Competing Interests

The author declares no competing interests.

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Operating Room Fires: Comment

To the Editor:

I read with interest the recent article by Jones *et al.* titled "Operating Room Fires."[1] As someone who has a long-standing interest in this subject, I was pleased to see the publication of this excellent review. However, I would like to clarify a couple of statements published in the article.

At the beginning of the article, the authors state that operating room fires occur at least 650 times annually. The reference for this is an article on the U.S. Food and Drug Administration website. However, careful analysis of this reference shows that the U.S. Food and Drug Administration (Silver Spring, Maryland) is citing a study from the Emergency Care Research Institute (Plymouth Meeting, Pennsylvania) published in 2009. This data is now 10 yr old. Currently, the Emergency Care Research Institute estimates that in 2012 there were 200 to 240 operating room fires, and in 2018, that number had decreased to 90 to 100 (personal verbal communication, June 2019, with Scott Lucas, Ph.D., P.E., director, Accident and Forensic Investigation, Emergency Care Research Institute). Similarly, in figure 1 the authors show an increasing incidence of fires between 2006 and 2016. Again, this is not consistent with current data. In 2018, the Pennsylvania Patient Safety Authority (Harrisburg, Pennsylvania) published a report that stated there has been "a statistically significant ($P < 0.001$) reduction in the patient risk of surgical fires of 71% since 2004."[2]

On page 492 under the heading of Oxidizer, the authors state, "When ignited, oxygen combines with a fuel source to produce heat, gas, and light." A casual reading of that sentence might lead one to conclude that oxygen can be ignited, *i.e.*, that it is a combustible gas. While oxygen supports combustion, it is not a combustible gas like hydrogen or methane.

Finally, reference 15 is incorrectly cited. The correct citation is: Ehrenwerth J: Electrical and Fire Safety. Chapter 5. In Clinical Anesthesia, edited by Barash PG, Cullen BF, Stoelting RK, Cahalan MK, Stock MC, Ortega R, Sharar SR, and Holt NF. 8th edition, Philadelphia, Wolters Kluwer, 2017.

Competing Interests

The author declares no competing interests.

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Operating Room Fires: Reply

In Reply:

We are honored to receive the comments by Dr. Jan Ehrenwerth, Professor Emeritus, Yale University School of Medicine (New Haven, Connecticut), and author of our main textbook reference. We appreciate the enthusiasm for the reduction in operating room fires as evidenced by the personal communication between the leadership at the Emergency Care Research Institute (Plymouth Meeting, Pennsylvania) and Dr. Ehrenwerth, as well as the 2018 Pennsylvania Patient Safety Authority (Harrisburg, Pennsylvania) report. Unfortunately, our review of the nationwide U.S. Food and Drug Administration (Silver Spring, Maryland) Manufacturer and User Device Experience suggests operating room fires are a persistent problem, as seen in figure 1 of the original article.[1] We also communicated with Emergency Care Research Institute leadership but were unable to review their data due to patient privacy concerns (personal written communication, September 29, 2015, with Mark E. Bruley, C.C.E., vice president, Accident and Forensic Investigation, Emergency Care Research Institute). We hope that the state of Pennsylvania reflects the reality of the rest of the United States, but we remain concerned that operating room fires are underreported and warrant continued focus and education to ensure patient and operating room team safety in every surgical and interventional procedure.

Competing Interests

The authors declare no competing interests.

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