

How Safe Is Anesthesia Management by Dentist Anesthesiologists? The Need for an International Collaborative Study on the Safety of Anesthesia Management by Dentist Anesthesiologists

In Japan and North America, specifically the United States and Canada, dentists are legally permitted to provide sedation and general anesthesia. Although the provision of general anesthesia by dentists was very popular in the United Kingdom, a very small number of poor patient outcomes led it being banned in 1991.¹ This contrast naturally raises concerns and questions of patient safety. Therefore, dentist anesthesiologists in countries where they are currently allowed to provide sedation and general anesthesia should strive to answer the question, “How safe is anesthesia management by dentist anesthesiologists?” with scientific evidence.

Although the Japanese Dental Society of Anesthesiology (JDSA) already has half a century’s worth of history, the safety and outcomes of anesthetic management performed by dentist anesthesiologists in Japan have not been assessed primarily due to a lack of systematic data collection efforts. Therefore, there is no evidence to scientifically evaluate the safety of dental anesthesia in Japan.

In 2022, the JDSA conducted a retrospective survey to answer this question by gathering data on life-threatening events over 5 years (2014–2018) during dental anesthesia management at 32 JDSA-accredited training facilities. Patient safety and outcomes data from a total of 219 343 cases of anesthesia management were reported (Table).² The overall incidence of life-threatening events occurring during dental anesthesia was 2.14/10,000 cases, and the incidence of anesthesia-related events (life-threatening events directly attributed to anesthesia management) was 0.96/10,000 cases (Table).² The safety of anesthesia management by dentist anesthesiologists in Japan demonstrated by this study is comparable to the safety of anesthesia management by physician anesthesiologists in Japan, China, or Portugal.^{3–5} The JDSA plans to continue this study in the future by establishing a system to collect more accurate data.

However, it is estimated that the number of dental anesthesia cases in North America is several times that in Japan, and data from Japan alone cannot demonstrate the safety of sedation and general anesthesia provided by dental anesthesiologists worldwide. The United States, Canada, and Japan should

work collaboratively to gather data and jointly present larger-scale scientific evidence to demonstrate how safe dentist anesthesiologists are to the world. If this international collaborative study can be conducted, it would enable direct comparisons of safety between each country or region and hopefully help identify potential areas for improving patient safety. We believe the results of such a study would also help protect the legal rights of dentist anesthesiologists to practice sedation and general anesthesia.

Undertaking such a large study would be challenging given the inherent differences in the clinical practices among dentist anesthesiologists in Japan, Canada, and the United States. To further complicate the picture of patient safety within these groups, most Japanese dentist anesthesiologists work in dental hospital anesthesia departments or in medical hospitals under the supervision of physician anesthesiologists (similar to certified registered nurse anesthetists in the United States) and often provide anesthesia services for very complex cases sometimes involving very ill patients. In contrast, most dentist anesthesiologists in the United States practice only anesthesia in dental offices mostly on only American Society of Anesthesiologists Physical Status class 1, 2, and the occasional “healthy” 3 patients, whereas in Canada, most dentist anesthesiologists are operator anesthetists and use a required registered nurse floater/helper/recorder and a dental assistant airway holder in addition to the chairside assistant. These stark differences in practice dynamics could complicate direct comparisons, and the safety data of one group could heavily influence the safety data of the others. Moreover, actually obtaining the required patient safety data might be quite difficult given that there is no data repository of this type that fully encompasses the specialty of dental anesthesiology in the United States or in Canada. It would be necessary to address these issues to conduct an international collaborative study on patient safety.

However, we believe the time has come to discuss taking steps toward the implementation of an international collaborative study on the safety of anesthesia management by dentist anesthesiologists at academic meetings such as the International Federation of Dental Anesthesiology Societies and the International Association for Dental Research.

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Table. Incidence of Life-Threatening Events^a During Dental Anesthesia in a 5-Year Survey by the JDSA²

	Total anesthetic management (N = 219 343)	General anesthesia (n = 80 138)	Sedation (n = 127 819)	Vital sign monitoring (n = 11 386)
Overall life-threatening events				
Incidence, No./10 000 cases	2.14	5.37	0.31	0
Incidence of death within 30 days after events, No./10 000 cases	0.05	0.12	0	0
Mortality rate after events, %	2.1	2.3	0	0
Anesthesia-related life-threatening events				
Incidence, No./10 000 cases	0.96	2.37	0	0
Incidence of death within 30 days after anesthesia-related events, No./10 000 cases	0	0	0	0
Mortality rate after anesthesia-related events, %	0	0	0	0

JDSA, the Japanese Dental Society of Anesthesiology.

^aLife-threatening events include cardiac arrest, severe hypotension, severe hypoxia, life-threatening arrhythmias, and others. (Reproduced with permission from Springer Nature.)

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