Endodontists' Intravenous Sedation–related Attitudes and Professional Behavior: A National Survey

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Abstract

Introduction: Research shows that a high percentage of endodontic patients are interested in receiving intravenous (IV) sedation. The objectives of this study were to assess endodontists' IV sedation–related education, attitudes, and professional behavior and to explore whether providing versus not offering IV sedation procedures was associated with IV-related education and attitudes and whether background characteristics and education were related with IV sedation attitudes and behavior. **Methods:** Data were collected with an anonymous Web-based survey from 616 members of the American Association of Endodontists (response rate = 29%). **Results:** Only 10% of respondents agreed/strongly agreed that they had adequate training in IV sedation. However, 48% agreed/strongly agreed that there was a need for IV sedation in their practice. Although 69% did not offer IV sedation, 26% had another professional provide it, and 4% provided it themselves. These 3 groups of providers differed in the mean quality of their IV sedation–related education (scale from 1–5 with 5 = best education: 1.50 vs 1.62/2.37, $P < .001$) and the positivity of their attitudes toward IV sedation (2.90 vs 3.50/4.21, $P < .001$). Although the quality of IV sedation education was not correlated with the graduation year, the more recently respondents had graduated, the more positive they were toward providing education about IV sedation ($r = .16$, $P < .001$). **Conclusions:** Most endodontists did not evaluate their IV sedation–related graduate education positively. However, nearly half acknowledged the need for IV sedation in endodontics. The more recently they graduated, the more they agreed that IV sedation–related graduate education was needed but also that staff training and maintenance of equipment would be a problem. *(J Endod 2018;■:1–8)*

Key Words

Anesthesia, education, endodontics, intravenous, intravenous sedation, sedation

Significance

This article explores the role of IV sedation for endodontists' clinical practice. Additionally, it assesses endodontists' interest in increased educational efforts both in endodontic residency programs and CE courses.

In 2016, the House of Delegates of the American Dental Association adopted the "Guidelines for the Use of Sedation and General Anesthesia by Dentists," which state that the "administration of local anesthesia, sedation and general anesthesia is an integral part of dental practice" (1). In the specialty area of endodontics, the importance of these guidelines was supported by findings from research with endodontic patients. For example, Huh et al (2) showed in 2015 that over half of the patients in their study would have elected to receive intravenous (IV) sedation for their endodontic treatment if the option had been available. This finding is not surprising because research has shown that many patients perceived endodontic therapy to be painful (2–5) and even might avoid endodontic treatment because of fear (3, 5–7). In addition, the findings that endodontic therapy may be a relatively long procedure and was viewed by the general public as stressful (8, 9) make a strong argument for offering IV sedation to patients seeking endodontic care. IV sedation in endodontic practices can be especially beneficial for specific patient groups such as patients with dental phobias; patients with a history of bad dental experiences; and patients with special medical considerations, mental health conditions, developmental delays, or reflex difficulties (10, 11). Research showed that offering IV sedation to these patients during a consultation at an endodontic practice was likely to result in an increased acceptance of endodontic treatment (2, 5).

Unfortunately, research showed that predoctoral dental education was generally deficient in teaching and preparing future dental providers to offer and provide IV sedation to their patients in the United States (12, 13) as well as in other countries such as the United Kingdom and Ireland (14–16). A recent survey of program directors of endodontic residency programs in the United States found that the majority of the responding programs did not educate their residents about IV sedation (17). Therefore, objective 1 of this study was to explore how practicing endodontists in the United States evaluated their own IV sedation–related educational experiences and their thoughts concerning graduate education about IV sedation.

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In consideration of the multiple reasons for the need of IV sedation in endodontic practices described in the literature such as patients' anxiety (18), potential failure of local anesthesia (18–21), or patients' inability to cooperate with endodontists (21), it is interesting to explore practicing endodontists' attitudes towards IV sedation. Specifically, it seems important to gain a better understanding of the degree to which these clinicians see a need for IV sedation in endodontics. Understanding endodontists' attitudes concerning obstacles to providing IV sedation such as a need for staff training and the maintenance of IV sedation equipment would also be of interest. A second objective of this study focused on assessing these IV sedation–related attitudes.

Research in Canada (22), Ireland (23), Jordan (24), and Australia (25) explored general dentists' sedation-related professional behavior and found that sedation was generally underused. Research with specialists concerning their use of IV sedation found similar trends. Although IV sedation was found to be quite safe and effective when used during dental treatment for adult patients (21, 26–29), research showed that only 49.8% of periodontal specialty offices offered the procedure to their patients (30) and that less than 20% of pediatric dentists administered IV sedation for their pediatric patients (31). No such data are currently available for endodontic practices; therefore, a third objective of this research was to explore which percentages of endodontists in the United States did not offer IV sedation at all, or administered IV sedation themselves versus collaborated with another specialist who offered IV sedation to their patients.

A comparison of the IV sedation–related educational experiences and attitudes of these 3 groups of clinicians (ie, clinicians who offered IV sedation themselves, clinicians who collaborated with a specialist in offering it to their patients, and clinicians who did not offer IV sedation) might provide insight into the question which clinician characteristics could be related with IV sedation use. Therefore, a final objective focused on exploring the relationships between background characteristics, such as the respondents' year of graduation from their residency program or the professional behavior and their IV sedation-related professional attitudes and behavior.

In summary, the objectives were to assess endodontists' IV sedation–related educational experiences, attitudes, professional behavior; whether providing versus not offering IV sedation was associated with IV-related education and attitudes; and whether background characteristics and education-related responses were correlated with the endodontists' IV sedation attitudes and professional behavior.

Methods

This study had a correlational design and consisted of a survey of members of the American Association of Endodontists (AAE). The Health Sciences and Behavioral Sciences Institutional Review Board at the University of Michigan, Ann Arbor, MI, determined on June 24, 2016, that this research was exempt from institutional review board oversight because the survey responses were anonymous (#HUM00116078).

Respondents

Survey data were collected from endodontists in the United States who were members of the AAE. An a priori power analysis with the program package G*Power 3.1.2 (Uinversity of Duesseldorf, Duesseldorf, Germany) (http://www.psycho.uni-duesseldorf.de/abteilungen/aap/gpower3) was conducted to determine the sample size needed to have the power to test hypotheses about relationships between the constructs of interest. Alpha = 0.05, power = 0.80, and a small effect size of |rho| = .12 were assumed when using one-sided tests to test for the significance of correlations. The results showed that 425 respondents were required to have the power to test such a hypothesis. Assuming a response rate of less than 20%, postal surveys were mailed to 2173 AAE members. Fifty-one envelopes were returned because they could not be delivered due to address problems. Responses were obtained from 616 endodontists (response rate = 29%).

Procedure

A mailing list of active members of the AAE in the United States was purchased from the AAE. A total of 2173 address labels were randomly selected from a list of 3706 received labels, and a mailing was prepared. The surveys were mailed out between March 25, 2017, and April 30, 2017. The respondents received a large envelope that contained the survey; a cover letter; and a stamped, self-addressed return envelope. The cover letter was written by the program director of the Endodontic Graduate Program at the University of Michigan School of Dentistry. It explained the research and asked for the recipients' cooperation with responding to the mailed survey. The respondents returned the survey anonymously to the principal investigator (H.M.Y.) of the study in the provided stamped and self-addressed envelope. Because of financial constraints, only 1 mailing was possible.

Materials

The survey was developed based on a literature review of studies with dentists (12, 14, 15, 17, 19, 20, 22) and dental specialists (10, 18, 30, 31) concerning IV sedation. The draft survey was pilot tested with 6 endodontists in December 2016 to January 2017. Their feedback was considered, and a final version of the survey was then developed. The survey consisted of 4 parts. Part 1 included background questions about the respondents' sex, age, and educational background. Part 2 consisted of 12 questions asking about the respondents' IV sedation–related educational experiences. Part 3 contained 10 questions concerning the respondents' attitudes towards IV sedation. The educational and attitudinal items had a Likert scale format with 5-point answer scales ranging from 1 = "disagree strongly" to 5 = "agree strongly." Part 4 contained 14 questions related to the respondents' use of IV sedation.

Statistical Analysis

The returned survey responses were entered into SPSS (version 22.0 for Windows; IBM Corp, Armonk, NY). Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed to provide an overview of the responses. In order to be able to create indices, the responses to the educational and attitudinal items were factor analyzed (Extraction method: principal component analysis and rotation method: Varimax rotation with Kaiser normalization). The factor analysis resulted in 4 factors. Eight educational items loaded on a factor "quality of IV sedation–related educational experiences," (Cronbach α = 0.905). Four attitudinal items loaded on a factor described as "positive attitudes toward IV sedation–related education" (Cronbach α = 0.821); 4 attitudinal items loaded on the factor "patient-related attitudes toward IV sedation" (Cronbach α = 0.774) and 2 items on the factor "IV-sedation related obstacles" (Cronbach α = 0.856). Cronbach alpha coefficients were used to determine if the indices computed based on these results had sufficient interitem consistency reliability. The indices were computed by averaging the responses of the items loading on each factor. Inferential statistics, specifically univariate analyses of variance, were used to compare the average responses of the 3 groups of endodontists who either provided IV sedation themselves or had a specialist come to their office to provide it or did not provide it. Chi-square tests were used to compare the categoric responses of these 3 groups of respondents.