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How the media reports dental tragedies

by Jennifer S. Sherry, RDH, MEd

Preventing or reducing the chance of death due to dental anesthesia remains on the minds of most practitioners. Of course, the public has to be educated and informed about possible risks and complications with children. True allergies to anesthetics are very rare. But, if a child is not monitored and the dental office is not trained in advanced life support techniques, this could turn into a life and death situation very quickly. In situations of local anesthetic overdose, with proper airway management and ventilation, a local anesthetic-induced seizure often ceases in less than one minute.¹

Facts for the dental professional

Dental anesthesia is commonly used in dental practices around the world. Local anesthesia is the temporary loss of sensation or pain in one part of the body produced by a topically applied or injected agent without depressing the level of consciousness.² Most of the dental anesthesia used on a daily basis is considered to be in the local anesthesia category.

Dentists and dental hygienists need to be familiar with the patient's health status and other conditions that may affect the child in a negative way. Most adverse drug reactions develop either during the injection or within five to 10 minutes.² Like most items in dentistry, the local anesthesia dose should be individualized for each patient, based primarily upon their weight (mg. drug/ kg. body weight) and physical status.³ For patients who are obese, dentists and dental hygienists should base dosage on ideal body weight rather than actual weight. Young children with low body weight are at special risk for receiving relatively large amounts of local anesthetic.⁴

Toxicity of local anesthetics can occur quickly. Overdose of local anesthetic can occur if blood pressure elevates and this, in turn, affects the central nervous system. The patient can even slip into unconsciousness or go into complete respiratory failure. Local anesthesia toxicity is extremely rare in infants and children; however, seizures, dysrhythmias, cardiovascular collapse, and transient neuropathic symptoms have been reported.⁵ Less than 1% of the adverse reactions caused by local anesthetics are attributed to true allergy.⁶ Part of the risk to children is the bone in their head and neck region is less dense than their adult counterparts.

Complications of local anesthetic administration include both local effects and systemic effects.⁷ Local effects may include spread of infection, hematoma, nerve damage or blocking of the facial nerve. Systemic effects can be infections, risk of heart bacterial infection, cardiovascular problems, liver disease, and other complications. It is important to monitor the patient and to give clear, concise postoperative instructions with dental anesthesia procedures.

Media coverage of deaths

Newspaper articles are referred to below to highlight several incidences where anesthesia was involved and resulted in several deaths of children from age 2 to 10 years. These case studies are based on newspaper articles in the United States and abroad.

While they are isolated occurrences, hearing or reading about them caused the general public to become alarmed. It is important for the dental professional to address these concerns and ensure the population at large that their safety is first and foremost. Many patients still may present with a pronounced fear of dentistry as a whole. These case studies, while unnerving at best, force the clinician to be on guard.

- **Case 1** — Diamond Brownridge was given a large dose of local anesthetic (2% lidocaine with 1:100,000 epinephrine), IV valium (Diazepam®), nitrous oxide, IV atropine (anticholinergic), IV talwin (analgesic/narcotic), and 1.3 ml. of midazolam (Versed®/benzodiazepine) within a 90-minute time frame.

Some of the articles mentioned generic information such as “myriad anesthesia” or “large dose of medication” that was administered to the child. Most of the articles did not mention an underlying medical condition that affected the child in a negative way. Most of the articles reported that Diamond was having caps and/or fillings placed on her teeth.

This is a routine procedure for most children. She was just five years old at her death. The death occurred in a general dentist's office, and he was given a suspension for his act in the death of this child. Nine of the articles did not mention a professional sanction for the dentist involved.

- **Case 2** — Darren Denholm died from general anesthesia. This was reported in 27 newspaper articles. Three articles were more specific about the type of anesthesia (halothane gas). One article did not mention what type of anesthesia caused his death. Most articles did not mention a medical condition that could have contributed to his death, but one article stated he may have been “slightly asthmatic.” Two articles stated he was perfectly healthy.

Most articles stated he was having extractions performed or a tooth operation or dental surgery. Darren was 10 years old at the time of his death. He was treated by a general dentist and an anesthetist. There were several professional sanctions listed for these individual professionals, but

most of the articles did not mention a specific one. Five of the articles stated that the anesthetist was charged with professional misconduct and one article stated he was banned from performing anesthesia.

- **Case 3** — Karla Selley died at age 5 due to general anesthesia during an extraction procedure. One article mentioned she had a heart abnormality, but three of the articles did not mention any underlying medical condition. A general dentist and anesthetist were performing these procedures on the child at the time of death. Most of the articles did not mention professional sanctions for the dentist or anesthetist, but one article said they were both guilty of serious professional misconduct.

- **Case 4** — Katie Dougal was 10 years old at her death from general anesthesia. No health conditions were mentioned in any of the articles about her death. She was being treated by a general dentist and anesthetist for broken front teeth that she fractured on the playground. The charges mentioned were for professional misconduct or manslaughter. Two of the articles did not mention any type of professional sanctions for the professionals involved in this case.

- **Case 5** — Bradley Legge, a 5-year-old boy, was under the care of a general dentist and anesthetist. He was having fillings and extractions done with use of general anesthesia. One article reported that he had an abscess. No medical conditions were listed in the three articles on this specific death. No specific professional sanctions for either professional were mentioned in the three articles on this child's death.

- **Case 6** — Suzanne Johnson's death had one reported article. This 10-year-old girl suffered from a physical and mental handicap which may have put her at a higher risk for complications. She was treated by a hospital dentist and he was performing extractions under general anesthesia. No professional sanction was mentioned in the article for the hospital or the dentist.

- **Case 7** — Yair Lupolianski's death also had one reported article. He was the only one mentioned in this group of 64 articles who was treated by a pediatric dentist. The dentist was replacing some severely decayed teeth with crowns and administering oral sedation as well as midazolam (Versed/benzodiazepine) and oxygen with laughing gas (nitrous oxide). Yair was age 2 at the time of his death, so he was the youngest child death reported in this group of newspaper articles. No professional sanction was mentioned for the pediatric dentist as a result of his death.

- **Case 8** — Dasia Washington, age 10, had some complications with asthma and birth defects when she was treated for an extraction. She was being anesthetized with nitrous oxide administered by a general dentist. The general dentist in this one article was suspended, but no time frame was noted.

Since dosage should be dependent upon age, weight, and other factors, dental professionals could make a chart of various body weights with a maximum number of cartridges, and post the chart in every operatory. Also, staying current in continuing education and specialized training is critical to the success of their practice and the health of their patients.

Another important point is that most of the deaths were in international locations. This may bring about an important point on training and regulations in locations abroad. They need to be re-evaluated and regulated more strictly to prevent such tragedies from occurring in the future.

Most of the deaths reported were due to overdose of potent medications. It is important to monitor patients' medical and dental histories. Vital signs and respiration for the child while they are in the dental chair have to be closely monitored. Also, the dental professionals need to require advanced

training for staff that monitors patients. In several instances, the dental assistant was not trained in proper monitoring of the patient and emergency medical protocol. It is imperative to have a knowledgeable staff that is prepared for dental and medical emergencies.

Now, more than ever, it is crucial for dental hygienists to be aware of the dosage for local anesthesia and nitrous oxide. It has become legal in several states for dental hygienists to administer local anesthesia as well as nitrous oxide for adult and child patients. As of August 2008, there are 43 states that allow dental hygienists to administer local anesthesia. As of November 2007, there are 26 states where dental hygienists can administer nitrous oxide.

Dental hygienists must stay abreast of their individual states' dental practice acts so they will be practicing within the legal realm. Also, dental hygienists must keep in mind their limitations when it comes to general supervision and providing care to their patients. For more information, please visit the American Dental Hygienists' Association Web site at www.adha.net. Then, find the link for Governmental Affairs. This will give dental hygienists pertinent information on practice issues and legal limitations.

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- There may have been more information published/posted with other news sources about the deaths referred to in this article. But, for the most part, deaths due to dental anesthesia were very rare in children.
 - The most prevalent cause of death was too much medication for the child's body weight or size.
 - Most of the children who died were being treated for routine dental procedures and not for emergency care.



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