



Dr. Louis Siegelman
advancing the art of dentistry

Produced to improve communication on issues relating to anesthesia in dentistry

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About Our Office

We are dedicated to providing general dental care to phobic and special needs patients. Our patients include those with needle phobia, difficulty in achieving adequate local anesthesia, sensitive gag reflex, panic and anxiety disorder, Alzheimer's, chronic pain, medical compromise, or related issues. We provide office-based and hospital-based general dental care under local anesthesia, oral or intravenous sedation, or general anesthesia. We are always available to:

- Consult with dentists who have questions regarding local anesthesia or sedation;
- Provide intravenous anesthesia for dentists in their own offices for their patients;
- Receive referrals for patients to be treated in our offices or in the hospital for individual procedures or for comprehensive care.

Qualifications

Dr. Siegelman completed his residency in Dental Anesthesiology in 1983, and has devoted himself to the dental profession and patients who need his unique private general dental practice. Dr. Siegelman is certified by NYS to provide general anesthesia.

Clinical Pearls For Achieving Local Anesthesia In Difficult Situations

Patients often don't achieve profound local anesthesia for anatomical, biochemical, or emotional issues. If the area of infiltration is acidic because of surgical trauma, repeated injection of acidified local anesthetics, or infection, local anesthesia may be difficult. It's important to have options for these situations.

- Switch agents: If lidocaine with epinephrine hasn't worked after two carpules, switch to plain mepivacaine. It will work better in an area acidified by the lidocaine itself and the tissues damaged by repeated injection or infection⁽¹⁾.
- For mandibular blocks, pay attention to the direction of the needle bevel which will direct the tip away from your anatomical target. Call us for a illustrative pdf.
- In regions of dense maxillary cortical bone, or failed mandibular blocks consider the intra-osseous approach to deposit the local in the cancellous bone immediately distal to the operative area.
- The STA: Single tooth anesthesia machine can provide an alternative for LA either as a sole technique or to supplement a block.
- Consider other anatomical approaches such as intra-ligamentary, palatal, and lingual. Gow Gates or closed mouth blocks may be alternatives to the inferior alveolar nerve block. The closed mouth approach can be particularly helpful for patients with sensitive gag reflex.
- Pharmacologic options for pain relief include nitrous oxide, an NMDA receptor antagonist (2), and potent analgesic and/or opiates such as hydrocodone or oxycodone in doses commonly prescribed for pain post-surgically.
- Anxiety is best addressed with benzodiazepines such as Xanax (alprazolam) or triazolam. Combining agents with nitrous oxide may require NYS certification for enteral sedation.
- Advanced techniques for oral, IV sedation, or general anesthesia can be required for the most difficult cases. While we all seek to practice our craft to perfection, we most always operate within the scope of our practice and training.

1) Handbook of Local Anesthesia: (Sept. 7, 2004) by Stanley F. Malamed DDS

2) Neuropharmacology, Volume 52, Issue 3, March 2007, Pages 716-723

Dealing With Alzheimer's Disease

Currently 5.3 million Americans are afflicted, often leaving family members to make sure that their health and welfare are maintained. It's very important not to underestimate the severe toll this disease leaves on close relatives and loved ones. Despite recent advances in confirming an Alzheimer's diagnosis, definitive treatments are still years away. Only five drugs are currently in late stage clinical trials according to Dr. Paul S. Aisen, director of the Alzheimer's Disease Cooperative Study and professor of Neuroscience at UC San Diego. Many companies have targeted this disease however. Eli Lilly alone, has a pipeline of seventy molecules in some stage of development.

As health care providers dentists face special challenges because of continuously diminishing patient cooperation in the chair, decreased efforts at home care, difficulty in communicating pain and sensitivity, or informed consent issues.

Navigating these issues requires a big picture approach. In fact our entire model of care may need re-evaluation. Dentists typically practice under the "surgical" model; meaning that if something needs repair, we fix it. The medical care model involves disease management. Under the "medical" model, the benefits of invasive dental procedures need to be weighed against risks of sedation or general anesthesia which are necessitated because patients' dementia renders them incapable of cooperation otherwise. If patients are eating well, have no pain or swelling; leaving dental disease that would otherwise be considered treatable may be the best medical decision. For this not to be considered neglect, consultations with treating physicians and family must be obtained along with documentation explaining the treatment rationale. Medical management may include preventive care, palliative treatments, and education for home or institutional care givers. This medical management can include fluoride varnish, high fluoride toothpaste, casein phosphopeptide (CPP) and amorphous calcium phosphate (ACP) application, frequent hygiene visits, glass ionomer restorations, and eugenol based temporaries. A dedicated, supportive dental team is integral for successful hygiene appointments, and nutritional education of caregivers.

When intervention is necessary, and traditional topical and local anesthetics are insufficient means for restorations, or extractions; some form of sedation may be necessary. My experience has been that very small dosages of sedatives can be extremely efficacious in the geriatric population because of generally reduced anesthetic requirements. Small dosages of oral midazolam (.1mg/kg) or triazolam (.125mg for a 70kg adult) in combination with nitrous oxide is all that is required in most cases for limited procedures. Determining a reasonable treatment plan is the key to success.



Helpful Suggestions For Improved Scavenging Of Nitrous Oxide

Nitrous oxide has been among the mainstays for patient relaxation in dentistry for decades. It is an excellent tool for distraction during procedures, especially in pediatrics. Nitrous oxide is an NMDA receptor antagonist. As such it's actually a better analgesic than an anxiolytic. Benzodiazepines, effecting GABA receptors, have been the most effective medications for anxiety relief since the introduction of diazepam in 1963. Despite this, many dentists will reach for the readily available gas that doesn't take significant time to reach an effective level and has no long acting metabolites. Among the major reasons limiting dentists from using nitrous oxide more frequently are concerns about waste gases that may effect the reproductive health of the dental team.

Good scavenging technique and proper procedures can be extremely effective in reducing levels in the dental operatory below the NIOSH guideline of 25 ppm. Below are some helpful suggestions.

- Rule number one, is to utilize a scavenging system every time nitrous oxide is used. Check your equipment for loose fittings and cracked rubber goods. Be suspicious of leaks or abuse if tanks seem to empty faster than ordinarily.
- Provide high turnover of room air in the operatory and the office as a whole. The concept is that good ventilation will scavenge the entire office. A good exhaust fan is helpful.
- Nasal decongestants enable patients to breath better through their nose and avoids mouth breathing. Non-drip formulas work better if the patient is reclining significantly.



- Some gas will inevitably be exhaled orally and should be evacuated with a saliva ejector. The hygroformic ejectors are especially helpful because the multiple holes make sure suction is not obstructed by soft tissue. Minimize gases expelled orally by use of rubber dam, or Isolite, and keeping speaking to a minimum.
- Don't use excess gas flow, that will be expelled into the room air. Watch the reservoir bag, not to over or under fill. Patients will need higher flows initially if they are hyperventilating.
- Attend continuing education with clinical team members so everyone is on board with appropriate procedures.
- The nasal masks should fit the patient's face to improve scavenging, and concentrations of nitrous oxide in the alveoli.
- Gas monitoring services are available commercially to see how effective our efforts have been.
- Studies show the Safe Sedate or the Porter-Brown Mask have the best scavenging ability.

These nine suggestions should significantly decrease ambient concentrations of nitrous oxide. They should be reviewed with the entire team so they can be universally applied for all nitrous patients.

Journal Watch

Occurrence Of Parasthesia After Dental Local Anesthetic Administration In The United States

Garisto et al. JADA, Vol. 141 No. 7, July 2010.

The likelihood of parasthesia after a local anesthetic may depend on the local anesthetic used. Two hundred and forty eight cases of parasthesia after dental cases from 1997 to 2008 were examined. Most cases (94.5 percent) involved the mandibular nerve. The lingual nerve was frequently involved as well (89 percent). Cases involving prilocaine or articaine (both are 4 percent solutions) were 7.3 and 3.6 times (respectively) more likely than would otherwise be expected. Dentists should consider the risks and benefits before using these 4 percent local anesthetic solutions for mandibular blocks.

office information

Louis Siegelman, DDS
Dr. Louis Siegelman
119 W 57th Street, Suite 815
New York, NY 10019-2401

Office Hours
Mon-Fri 8:40 am – 5:00 pm

Contact Information
Office (212) 974-8737
Email sleptooth@aol.com
Web site www.dentalphobia.com

Office Staff
Kelly BarhoumiBusiness Administrator
Sara Helms.....Business Administrator
Melissa McEnerney..... Hygiene
Andrea Lindeman..... Dental Assistant
Eileen Mackesy Dental Assistant
Paddy Beston..... Dental Assistant



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Controversial Issues In Treating The Dental Patient With Autism

Rada et al. JADA, Vol 141, No. 8, August 2010.

A literature review was conducted by the author to identify areas of concern to parents of children on the autistic spectrum, who are receiving dental care. Parents of autistic children may view the use of mercury, fluoride, nitrous oxide, antibiotics and acetaminophen, as controversial treatments according to Rada. The author's findings indicate that patients with autism often have allergies, immune system problems, gastrointestinal disturbances and seizures (Rada, JADA vol 141). Thus, it becomes important for dental health care workers to understand these conditions and be able to relate to parents' concerns about these issues.

Alternative medical literature suggests that patients on the autistic spectrum are genetically predisposed to an inability to clear the body of heavy metal contaminants such as aluminum or mercury. An unreplicated 2007 study showed an excess of mercury in the dental pulps of primary teeth in autistic children. Some children with autism have low levels of glutathione, important

in the bodies detox system. Certain treatments can substitute the material used, such as the use of resin based composites and resin-reinforced glass ionomers in place of mercury.

The alternative medical literature suggests that fluoride inhibits antioxidant enzymes, and is linked to excitotoxic reactions in the brain. High percentages of autistic children are at risk for xerostomia as a consequence of anti-seizure and psychotropic medications. Occupational therapy may be of some benefit for children who have difficulty accepting toothbrushing.

Gluten-free, casein-free diets have become popular. The alternative medical literature supports the belief that antibiotic overuse case increase autistic symptoms because of GI dysbiosis.

Sulfation is the primary metabolic pathway for acetaminophen. There may be a sulfating deficit in autistic children leading to accumulation of a toxic metabolite. Ibuprofen can be an alternative if there is a concern.

This is an excellent article worthy of reading in full length for more complete explanations.

Journal Watch

Nitrous oxide: Evaluation Of Two Nitrous Oxide Scavenging Systems Using Infrared Thermography To Visualize And Control Emissions.

Radmaker et al. JADA, Vol 140, February 2009. Pages 190-199.

Infrared thermography consistently indicated greater nitrous oxide emissions with the Porter system (Porter Instruments, Hatfield, Pa) than the Safe Sedate system (Airgas, Radnor, Pa). Good work practices were found to be essential in achieving the best results from scavenging efforts with either system. Nitrous oxide levels as low as 50 ppm can result in bone marrow depression, parasthesias, difficulty concentrating, equilibrium disturbance, and visual effects.

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