

## Re: Botox – an interesting post!

**Source:** <http://sci.tech–archive.net/Archive/sci.med.dentistry/2004–06/0484.html>

---

**From:** Alexander Vasserman DDS., BS. (*purple543210\_at\_yahoo.ca*)

**Date:** 06/08/04

Date: 8 Jun 2004 11:25:46 -0700

"Joel M. Eichen, D.D.S."

Botox may be the answer for patients who have muscle splinting and parafunction resulting from nuerological origin.

Very interesting.

Are there any classes available on the use of botox with intramuscular injections?

<joeleichen@yahoo.com> wrote in message news:<iof8c0tucto2nkq0rlqt4vv5tav15ec6tp@4ax.com>...

> *This message is not flagged. [ Flag Message – Mark as Unread ]*

>

> *From: webmaster@dentaltown.com Add to Address Book*

> *To: joeleichen@yahoo.com*

> *Subject: RE: Has anyone taken this course – Botox for Dentistry*

> *Date: Sun, 6 Jun 2004 17:55:02 –0700*

>

>

> *On June 6, 2004 at 5:54:59 PM 'howard' posted....*

>

>

> *Howard,*

>

> *I am unable to send this article to your site (your site will not*

> *accept it). Please can you post it with my permission?*

>

> *Regards*

>

> *Howard Katz DDS*

>

>

>

>

> *CAN BOTULINUM TOXIN A (BOTOX) SAVE YOUR TEETH AND ENHANCE YOUR SMILE?*

>

>

>

> *By Howard Katz DDS*

- >
- >
- >
- > *Modern dentistry has trained the general public to demand and accept*
- > *innovative treatments from their neighborhood dentist. There was a*
- > *time when you had a toothache you would go to a dentist to pull your*
- > *tooth out – that is all they were trained to do. Dentists have not*
- > *always performed the specialized, sophisticated treatments that they*
- > *do today like restore and replace teeth with implants, root canal*
- > *treatments, crowns and cosmetic dentistry, straightening teeth with*
- > *invisible braces. As successful treatments became more predictable*
- > *and acceptable more and more general dentists performed them.*
- >
- >
- >
- >
- >
- > *Dental disease is caused by two predominate causes. Treatments have*
- > *been designed to combat the effects of these:*
- >
- > *A) micro–organisms that destroy*
- > *dental hard tissue and provoke the immune system to destroy gums and*
- > *bone*
- >
- > *B) Excessive muscle forces that*
- > *predispose to wear and breakdown of the teeth, gums, bone and the*
- > *tissues of the TMJ.1 In this article the methods of using Botulinum*
- > *Neurotoxin A as an adjunctive treatment used to control muscle*
- > *function that cause and contribute to disease are discussed.*
- >
- >
- >
- > *The damage caused by excessive biting forces and dental trauma is*
- > *being treated with intra– oral appliances, occlusal adjustments,*
- > *sophisticated dental restorations and/or surgery. These are all*
- > *excellent treatment options but they are not for every patient. While*
- > *occlusion used to be regarded as the main cause of disease affecting*
- > *the masticatory system, muscular and psychological factors are as*
- > *important. Precise differentiation of the individual causal*
- > *etiological factors is generally not possible. The term Temporo*
- > *Mandibular Dysfunction is used to cover every disease affecting the*
- > *normal masticatory function. Unfortunately there is no common*
- > *treatment for every cause of TMD because it encompasses too many*
- > *different disease entities. These separate diseases have to be*
- > *isolated and then treated.*
- >
- > *The dental profession has always prided itself in that the focus of*
- > *oral healthcare has been based on prevention. The focus of treatment*
- > *should be in the prevention and reduction of these destructive habits*
- > *Extra–capsular TMD is often transient and the least invasive treatment*
- > *options are usually best used to begin treatment. Orthognathic*

- > *surgery, orthodontics and a neuromuscular rehabilitation of the*
- > *occlusion are invasive, irreversible and expensive for the majority of*
- > *patients. There is no guarantee to the patient that these major*
- > *treatments will be effective. Sophisticated restorations are not only*
- > *very technique sensitive; they involve the removal of additional*
- > *healthy tooth material. The most esthetic, conservative restorations*
- > *may not withstand the forces applied to them. There is also a*
- > *reluctance to have perfectly healthy teeth prepared for ceramic or*
- > *gold restorations when the teeth are esthetically pleasing and*
- > *asymptomatic.*
- >
- >
- >
- > *Intra–oral splints can be very effective in preventing excessive wear*
- > *and enabling the jaw to function in the most relaxed posture. Yet*
- > *there is a very low compliance with intra–oral splints and other*
- > *protective removable appliances worn over the teeth even when they are*
- > *effective. Patients do not like to have appliances in their mouths*
- > *impeding normal function like eating and speaking. Less than one in*
- > *five patients will wear a prescribed appliance as prescribed by their*
- > *treating dentist.*
- >
- > *Many dentists have bleach trays and comfortable intra–oral devices for*
- > *their own mouths that they do not use as often as they should. Why*
- > *should our patients be any different?*
- >
- >
- >
- > *The continued use of analgesics, narcotics, steroids and*
- > *anti–inflammatories for associated dento–facial symptoms is not ideal,*
- > *nor conducive to health. There are many unwarranted side–effects.*
- > *Certain patients like airline pilots, air–traffic control personnel,*
- > *surgeons, military personnel and anyone else operating heavy machine*
- > *equipment should not be taking narcotics. Yet patients will opt for*
- > *this despite the inherent risks and danger because of their ease of*
- > *use.*
- >
- >
- >
- >
- >
- >
- >
- >
- >
- > *An extremely effective way to prevent damage and to enhance treatment*
- > *to dental hard tissue and restorations would be to de–program the*
- > *muscles responsible for excessive destructive forces and other*
- > *gnathologically related diseases.*
- >
- >
- > **THE NEW PARADIGM:**
- > *There is clearly a pronounced need to improve the options available*

sci.med.dentistry: Re: Botox – an interesting post!

> *for preventive treatment of muscle generated dental disease, which*  
> *requires effective, safe agents that have minimal side effects, are*  
> *well-tolerated for long-term use, and that eliminate or reduce the*  
> *need to use other irreversible treatments or medications.*  
> *Intramuscular injections of Botulinum toxin type A (BTX-A) have been*  
> *increasingly used throughout the US as a novel approach to preventive*  
> *treatment that may provide effective, safe, and well-tolerated*  
> *long-term relief of intractable symptoms in patients who have failed*  
> *conventional approaches to treatment. The public does not yet*  
> *associate Botulinum neurotoxin A with their dentist but they very soon*  
> *and enthusiastically will. Dentists are skilled in the anatomy of the*  
> *lower facial anatomy and chewing apparatus. They are also prolific*  
> *injectors. Dentists have the advanced training in recognizing and*  
> *treating force related dental problems. This reduces the risk of*  
> *side-effects associated with unskilled injectors and injection*  
> *technique.*

>  
>  
>  
>  
>  
>

> *Background*

> *Botulinum neurotoxins*

> *There are seven botulinum neurotoxin serotypes (A, B, C, D, E, F, and*  
> *G), produced by Clostridium botulinum, all of which inhibit*  
> *acetylcholine release, though their intracellular target proteins, the*  
> *characteristics of their actions, and their potencies vary*  
> *substantially.<sup>2</sup> At the neuromuscular junction, the inhibition of*  
> *acetylcholine release by BTX-A blocks or reduces contraction of*  
> *muscles, an effect which has been used therapeutically in disorders*  
> *characterized by overactive muscle activity such as cervical dystonia*  
> *(CD), blepharospasm,<sup>3,4</sup> and spasticity.<sup>5</sup>*

>  
>  
>  
>  
>  
>  
>  
>  
>  
>  
>  
>

> *Botulinum toxin A (Botox) is the muscle relaxant that has been*  
> *popularized in the elimination of facial lines.<sup>6</sup>*

> *Botulinum toxin type A (BOTOX®; Allergan, Inc.; Irvine, CA) is*  
> *currently approved for the treatment of blepharospasm, strabismus, and*  
> *CD.<sup>7</sup> Binder and colleagues, treating patients for facial lines, noted*  
> *improvement of migraine symptoms after BTX-A injections.<sup>8</sup> This*  
> *discovery led to further investigation in clinical trials of BTX-A*  
> *preventive treatment of migraine and other dento-facial diseases*  
> *including TMD.*

>

- > *Btx A has been proven to successfully eliminate or reduce excessive*
- > *clenching by de-sensitizing spindle cells within tense muscles, the*
- > *main cause of force related dental disease, when injected into the*
- > *chewing muscles. Parafunctional clenching to the extent that it*
- > *affects oral function causes damage to oral tissues is usually*
- > *transient. For this reason aggressive irreversible treatments should*
- > *be avoided. Particularly where compliance is a problem, Botulinum*
- > *toxin A (Botox) offers this option.*
- >
- >
- >
- > *Preventative control of biting parafunctions and excessive forces on*
- > *the chewing apparatus will be the most significant paradigm in dental*
- > *treatment since local anesthetic and the dental drill. Dentists will*
- > *have the ability to reduce the need for major aggressive treatments*
- > *that involve surgery or drilling many teeth. "Surgical procedures that*
- > *alter anatomic relationships without addressing factors contributing*
- > *to pathogenesis may be more prone to failure and recurrence of [TMD]*
- > *symptoms. It is clear that excessive loading on articular tissues is*
- > *one of the causative factors that must be identified and addressed by*
- > *all clinicians treating patients with TMJ pathology? 2*
- >
- > *The public does not yet associate Botulinum neurotoxin A with their*
- > *dentist but they very soon and enthusiastically will. Dentists are*
- > *skilled in the anatomy of the lower facial anatomy and chewing*
- > *apparatus. They are also prolific injectors. Dentists have the*
- > *advanced training in recognizing and treating force related dental*
- > *problems. They are also very familiar with facial anatomy. It will be*
- > *possible to teach dentists fairly easily how to treat their patients*
- > *with BTX A and how to avoid the major side-effects. These are caused*
- > *predominately by incorrect injection technique. This reduces the risk*
- > *of side-effects associated with unskilled injectors.*
- >
- >
- >
- > **ADMINISTERING BTX-A FOR PREVENTIVE DENTALLY RELATED CONDITIONS**
- > *Patient selection: BTX-A therapy is appropriate for patients for whom*
- > *other preventive treatments and medications are poorly tolerated or*
- > *contraindicated, for those refractory to other treatments, for those*
- > *in special patient populations, as well as for those who simply prefer*
- > *this treatment. Contraindications to the use of BTX-A include*
- > *sensitivity to toxin or neuromuscular disorders such as myasthenia*
- > *gravis or Eaton-Lambert syndrome.*
- >
- > *Pretreatment Procedures*
- > *Informed consent*
- > *Once an appropriate patient is selected for BTX-A treatment, the*
- > *dentist should set reasonable treatment goals. Patients should first*
- > *be told that the use of BTX-A as preventive treatment is off-label*
- > *use; that while there is clinical evidence to support its use as a*
- > *preventive agent, investigation is ongoing. Patients should also be*

- > told that the optimal effects of BTX–A treatment may not be
- > experienced for at least 1 week and will begin to wear off after
- > approximately 3 months, and that multiple treatment cycles may be
- > needed to achieve an optimal therapeutic effect.22, 23 Galvez–Jimenez
- > N, Lampuri C, Patino–Piccirilo R, Hargreave M. Dystonia and headaches:
- > the response to botulinum toxin therapy. [Abstract] Cephalalgia. 2003;
- > 23:760.
- >
- > Blumenfeld A. Botulinum toxin type A as an effective prophylactic
- > treatment in primary headache disorders. Headache. 2003; 43:853–860.
- >
- > The known side effects of BTX–A treatment should also be made clear;
- > these include possible injection–site pain, headache, rash, bruising,
- > or ptosis. Informed consent should be obtained.
- > Identifying injection sites: Once treatment is ready to commence,
- > patients should indicate the anatomical locations of the head most
- > frequently affected by pain or muscles tender to touch. The treating
- > dentist should be able to identify the anatomical areas of tenderness
- > and sites that produce pain on palpation (including the frontalis,
- > temporalis, masseter, pterygoids, posterolateral neck and shoulder
- > regions) and examine the face and neck to assess symmetry.
- > Preparation of BTX for Injection
- > One neurotoxin type A (BOTOX®) and one type B (MYOBLOC®; Elan
- > Pharmaceuticals) are available in the United States. The majority of
- > the evidence has been based on using the type A toxin. Lyophilized
- > BTX–A, available in vials containing 100 U, should be diluted with 2
- > or 4 mL of preservative–free 0.9% saline, which yields a preparation
- > of 5.0 or 2.5 U per 0.1 mL, respectively. BTX Injection Sites
- > The injection sites commonly used for BTX–A treatment of dental
- > related conditions are the glabellar and frontal regions, the
- > temporalis muscle, the masseter, the depressor anguli oris, the
- > pterygoid muscles, and the cervical paraspinal region. Blumenfeld AM,
- > Binder W, Silberstein SD, Blitzer A. Procedures for administering
- > botulinum toxin type A for migraine and tension–type headache.
- > Headache. 2003; 43:884–891 Patients should be placed in a sitting or
- > supine position for injection of the frontal and temporal regions, and
- > a sitting position for injection of the posterior neck region and
- > trapezius. It appears most of the adverse events associated with BTX–A
- > injections are related to the technique and skill of the injector.
- > Correct injection technique helps minimize adverse events and optimize
- > treatment outcomes. The precise anatomical location, optimal choice of
- > injection site within a particular muscle, dosages, and volumes used
- > should all be considered carefully. Bilateral injections are advisable
- > in the case of unilateral headache or TMD pain as unilateral injection
- > can lead to the development of symptoms on the other side of the face.
- >
- > Safety and Tolerability of BTX–A
- > BTX–A has an excellent safety and tolerability profile. There are
- > generally no systemic effects from treatment. The reported effects,
- > which are usually minimal and transient, include blepharoptosis
- > (droopy upper eyelid) and muscle weakness at injection sites.16 Evers

sci.med.dentistry: Re: Botox – an interesting post!

- > *S, Rahmann A, Vollmer–Haase J, Husstedt I–W. Treatment of headache with botulinum toxin A – a review according to evidence–based medicine criteria. Cephalalgia. 2002; 22(9):699–710.*
- >
- > *22,31 Silberstein S, Mathew N, Saper J, Jenkins S, for the BOTOX Migraine Clinical Research Group. Botulinum toxin type A as a migraine preventive treatment. Headache. 2000; 40:445–450.*
- >
- > *Proper injection techniques can minimize adverse effects such as ptosis.*
- > *29 Durham PL, Dacy R, Cady R. Regulation of calcitonin gene–related peptide secretion from trigeminal nerve cells by botulinum toxin type A: implications for migraine therapy. Headache. 2004;44:35–43.*
- >
- >
- >
- > *Post injection Procedures*
- > *Instructions to patients*
- > *Patients should be informed that wheals or blebs at the injection sites will disappear within approximately 2 hours. They should not massage these wheals especially in the forehead as this may cause ptosis. BTX–A?induced relief of headache and TMD symptoms may take several weeks to reach its maximal benefit and the response to injection may change over time. Patients should be informed that they may achieve a greater therapeutic effect with repeated treatments.*
- > *Blumenfeld A. Botulinum toxin type A as an effective prophylactic treatment in primary headache disorders. Headache. 2003; 43:853–860.*
- > *Troost BT. Botulinum toxin type A (BOTOX®) in the treatment of migraine and other headaches. Exp Rev Neurotherapeutics. 2004; 4:27–31.*
- >
- > *The effects of BTX–A injections wear off typically by 3 to 4 months and repeat injections will be necessary.*
- >
- > *Approaching insurers*
- > *BTX–A use for dental disease treatment is off–label. Discussion should take place with insurers regarding reimbursement. An example of the types of patients typically deemed appropriate for BTX–A preventive treatment by insurers is given in the list below. To build a case that a specific patient is suitable for BTX–A preventive treatment, a letter explaining the need of specific patient to receive BTX–A together with published clinical data will need to be sent to the insurer.*
- >
- >
- >
- > *Patients Typically Deemed Appropriate by Insurers for BTX–A Preventive Treatment of Headache*
- >
- > *Intractable migraine headaches and /or TMD at least twice a month*
- > *Chronic daily headaches of 15 headache days per month*

Re: Botox – an interesting post!

- > *Headache causing disability lasting three or more days*
- > *3 or more failed trials of at least 3 preventive pharmacological*
- > *therapies and other dental treatments with or without concomitant*
- > *behavioral and physical therapies*
- > *Abortive medications are required more than twice a week.*
- > *Abortive medications and treatment are contraindicated due to*
- > *coexisting medical conditions*
- > *The occupation or physical health of the patient contra-indicates*
- > *conventional treatment*

>  
>  
>  
>

> *POTENTIAL DENTAL USES*

- > *The following are dental conditions that may be successfully treated*
- > *using Botulinum toxin A (Botox): Teeth, gum, cartilage and bone do*
- > *not regenerate, and, a full complement of teeth is essential for*
- > *overall health. Damage to these tissues can be prevented and the*
- > *success of reparative dental therapies can be predictably enhanced*
- > *using Botulinum toxin A (Botox)*

>  
>  
>  
>  
>  
>  
>

- > *Patients suffer from facial pain 4 caused by muscle spasm when the*
- > *relaxed posture of the mandible does not match the occlusion. This is*
- > *one of the many causes of Temporomandibular Disorder TMD. This pain*
- > *is exacerbated with parafunctional clenching (when the patient forces*
- > *their teeth for long periods of time for no apparent reason.) When*
- > *Botulinum toxin A (Botox) is injected into the muscles of mastication*
- > *and forehead, this clenching reflex (theoretically initiated by*
- > *sympathetically innervated spindle cells) is often eliminated.5, 6*
- > *This allows the muscles to relax appropriately and the pain dissipates*
- > *as the freeway space re-appears. The forces created by excessive*
- > *grinding and clenching of the teeth without food in the mouth are many*
- > *times greater those the forces required to masticate food. These*
- > *excessive forces damage the teeth, bone, joints and gums 7 Because a*
- > *very small percentage of available force is required to masticate*
- > *food, muscle function is not weakened sufficiently to have any effect*
- > *on chewing and swallowing.*

>  
>  
>

- > *Tooth decay is more prevalent in clenchers because excessive forces*
- > *cause micro-fractures and abfracturing of enamel especially around*
- > *existing restorations. This may be followed by accelerated decay and*
- > *gingival recession.8*

>



- > *diagnosis has been made. This will also convince patients that their*
- > *toothache is muscular and not pulpal in origin. This should be done*
- > *before rushing into a major irreversible treatment "At best, we are*
- > *only managing signs and symptoms to the best of our ability within the*
- > *framework of the patient's ability to cope with the disorder? 12 The*
- > *best thing we can do for our clenching patients, then, is to help them*
- > *control parafunctional habits and thereby minimize the chances of*
- > *temporomandibular and dental complications.*
- >
- >
- >
- > *Long-term temporization or a functional oral orthotic is used before*
- > *occlusal reconstruction to ensure that the treating dentist has*
- > *positioned the mandible comfortably reset the occlusion correctly and*
- > *that vertical dimension is maintained. Often the ideal position varies*
- > *vastly from the desired position in all three dimensions. These*
- > *protheses will be better tolerated and the patient will be more*
- > *compliant with the use of Botulinum toxin A (Botox).*
- >
- >
- >
- > *Orthodontic treatments on patients that are clencher, have a deep*
- > *bite or crossed bite are prolonged if the vertical component of*
- > *muscular force is greater than the force of the fixed or removable*
- > *appliance. 13These cases often require the use of removable functional*
- > *retainers in combination with regular fixed braces in an attempt to*
- > *control the component of vertical force. Orthodontic treatment time*
- > *will be reduced and the patients will be far more comfortable and*
- > *functional (eating, speaking, swallowing) with the use of Botulinum*
- > *toxin A (Botox) especially if clenching is reduced.*
- >
- >
- >
- > *An overactive genioglossus muscles protrudes the tongue between the*
- > *teeth while swallowing, referred to as a tongue thrust. The force of*
- > *the tongue prevents the front teeth from erupting into occlusion or*
- > *separates the teeth so that they don't meet when the jaw closes. Low*
- > *doses of Botulinum toxin A (Botox) into these muscles will prevent a*
- > *tongue thrust and allow the teeth to erupt into occlusion. 14*
- >
- >
- >
- >
- >
- >
- >
- > *Gummy smiles may be caused by over-contraction of the upper lip*
- > *muscles, obicularis oris and levator anguli oris. This cannot always*
- > *be corrected with osseous and gingival re-contouring. The upper lip*
- > *muscles can be proportionately weakened with Botulinum toxin A (Botox)*
- > *so as not to expose the upper gums when smiling. 15*
- >
- >

- >
- > *Overactive depressor anguli oris muscles tend to give individuals a*
- > *sad or annoyed \_expression weakening these muscles allows these*
- > *individuals to appear to have a happier disposition.*
- >
- >
- >
- > *The depressor muscles of the lips together with an over closed*
- > *vertical dimension of the bite pulls the outer corners of the mouth*
- > *downwards and creates a deep skin fold or crease. Patients with*
- > *vitamin deficiencies and those that drool into these creases develop*
- > *angular cheilitis. Botulinum toxin A (Botox) can be used to weaken the*
- > *depressor muscles allowing the deep skin fold to disappear. The*
- > *elimination of this skin fold prevents saliva pooling and allows the*
- > *saliva to rapidly evaporate. This allows the skin to dry eliminating*
- > *the angular cheilitis caused by the prolonged moisture.*
- >
- >
- >
- >
- >
- > *The jaw closing muscles are much stronger than the jaw opening*
- > *muscles. When the closing muscles remain semi–contracted or in spasm,*
- > *mouth opening is limited.<sup>17</sup>*
- >
- >
- >
- > *This limits:*
- >
- > *Oral hygiene: neither the patient, dentist or hygienist is able to*
- > *perform necessary hygiene to prevent oral disease*
- >
- > *Dental treatment: necessary dental treatment including x–rays cannot*
- > *be done*
- >
- > *Eating: the teeth cannot be separated sufficiently to bite an apple or*
- > *a sandwich*
- >
- > *Kissing: passionate kissing is associated with a wide open mouth.*
- >
- > *Shouting out loud: is difficult with limited opening*
- >
- > *The mouth can usually open much wider when Botulinum toxin A (Botox)*
- > *is given into jaw closing muscles.*
- >
- >
- >
- >
- >
- >
- >
- >
- >
- >

> *Patients who are chronic jaw clenchers present with masticatory muscle  
> hypertrophy. Overworked masseters tend to overdevelop causing the  
> cheeks to swell out. When Botulinum toxin A (Botox) is given into  
> these muscles, clenching is reduced and the enlarged masseters shrink.  
> 18*

>

>

>

>

>

> *Habitual clenchers are more prone to snoring and sleep apnea. When  
> Botulinum toxin A (Botox) is given into the masticatory muscles that  
> hold the jaw in a retruded position it enables the patients jaw to  
> move forward slightly during sleep. This will open the airway  
> sufficiently to reduce snoring.*

>

>

>

> *There are probably many other indications that will develop over time.*

>

>

>

>

>

>

>

>

>

>

>

>

>

>

> *THE MARKET POTENTIAL FOR THE DENTAL OFFICE*

>

>

>

> *The use of Botulinum toxin A (Botox) in the dental office offers a  
> reversible alternative to the more aggressive procedures like full  
> mouth reconstruction, orthodontics and orthognathic surgery. It also  
> may offer an alternative to wearing an oral splint.<sup>22</sup>*

>

>

>

> *Regular bi–annual visits had already fostered a trust between patients  
> and their dentist. With this trust relationship already in place,  
> patients will accept Botulinum toxin A (Botox) as they do accept their  
> bonding, braces and bleaching in the dental office. Many conditions  
> that contribute to TMD are successfully treated with Botulinum toxin A  
> (Botox) injections into the muscles of the forehead and masticatory*

sci.med.dentistry: Re: Botox – an interesting post!

- > muscles.<sup>19</sup> Dentists will be able to inject their patients with limited
- > additional training compared to their medical colleagues. Their
- > treatment time with the patient will be very productive because the
- > injections take a matter of minutes to perform. Dentists who elect to
- > use Botulinum toxin can schedule many patients requiring this form of
- > treatment on the same day. This eliminates wasting any expensive
- > unused Botulinum toxin A (Botox).
- >
- >
- >
- > The Dental Boards of the majority of states will allow the use of
- > Botulinum toxin A (Botox) provided its usage (treatment of a dentally
- > related disease or condition) is covered by the their Dental Practice
- > Act. 20
- >
- >
- >
- > When the dentist feels confident in the administration of Botulinum
- > toxin A (Botox) then the use of Botulinum toxin A (Botox) in the
- > dental office will surpass all other medical and cosmetic offices.
- > 220 million Americans are already visiting their dental office
- > annually. We are living in the Age of Anxiety where 70% of the entire
- > population suffers from stress and grind their teeth, 75 % of the
- > entire population suffers from gum disease, 55% of the population
- > snores, 65% of the population requires braces, 15% of the population
- > require implants, the entire population wants their teeth to last a
- > lifetime and look younger.
- >
- >
- >
- > As we enter the 21st century, the care of a rapidly aging population
- > may be the greatest challenge the dental profession will face in the
- > coming years, says the American Dental Association. More than 50,000
- > Americans per day are reaching the age of 50 years. By 2020, the
- > segment of the U.S. population aged 65 to 74 years is expected to grow
- > 74 percent. The aging baby-boomers want to be functional, look good
- > and feel good.<sup>21</sup> Many of these dental patients are already having
- > Botox cosmetic treatments elsewhere. It is important to space Botox
- > treatments at least 4 months apart for it to work effectively.
- > Headache, TMD, dental and cosmetic treatments involve injecting into
- > similar areas and therefore should be done for multiple benefits at
- > the same visit.
- >
- > As a result the ability to make patients look younger will have
- > tremendous implications for the future of oral care. The dental
- > professional's traditional role once centered around the eradication
- > of disease ... now finds itself on the threshold of enhancement of
- > appearance. This includes cavity reduction, educating the public about
- > the importance of good oral hygiene and the strides made toward
- > reducing the number of teeth lost to gum disease. In the mid 1990's
- > dentistry changed from a needs based profession to a desired based



- >
- > 4. Naumann M, Yakovleff A, Durif F, BOTOX CD Prospective Study  
> Group. A randomized, double-masked, crossover comparison of the  
> efficacy and safety of botulinum toxin type A produced from the  
> original bulk toxin source and current bulk toxin source for the  
> treatment of CD. *J Neurol.* 2002; 249:57–63.
- >
- > 5. Brashear A, Gordon MF, Elovic E, et al, for the Botox  
> Post-Stroke Spasticity Study Group. Intramuscular injection of  
> botulinum toxin for the treatment of wrist and finger spasticity after  
> a stroke. *N Engl J Med.* 2002;347:395–400.
- >
- > *Temporomandibular Disorders* (pp. 40–49). Philadelphia: Saunders.  
> (Israel, H. A., Diamond, B., Saed-Nejad, F., & Ratcliffe, A. (1999).  
> *The relationship between parafunctional masticatory activity and*  
> *arthroscopically diagnosed temporomandibular joint pathology.* *Journal*  
> *of Oral and Maxillofacial Surgery*, 57 (9), 1034–9.
- >
- > 7. Goadsby PJ, Lipton RB, Ferrari MD. *Migraine?current*  
> *understanding and treatment.*  
> *N Engl J Med.* 2002; 346:257–270.
- >
- > 8, *Aesthetic Botulinum A Toxin in the Mid and Lower Face and Neck*  
> .Jean Carruthers MD, Alastair Carruthers MD
- >
- > Glaros, A. G. Tabacchi, K. N., & Glass, E. G. (1998). *Effect of*  
> *parafunctional clenching on TMD pain.* *Journal of Orofacial Pain*, 12,  
> 145–152.
- >
- > *and hearing loss* Bubon, M. S. (1995). *Documented instance of restored*  
> *conductive hearing loss.* *Functional Orthodontist*, 12, 26–9.
- >
- > 5. Freund B, Schwartz M, Symington JM: *The use of botulinum*  
> *toxin for the treatment of temporomandibular disorders: preliminary*  
> *findings.* *J Oral Maxillofacial Surgery* 1999 Aug; 57(8): 916–20;  
> *discussion* 920–1
- >
- > 6. Freund B, Schwartz M, Symington JM: *Botulinum toxin: new*  
> *treatment for temporomandibular disorders.* *Br J Oral Maxillofacial*  
> *Surgery* 2000 Oct; 38(5): 466–471.
- >
- > 7. Christensen, G. J. (1999). *Destruction of human teeth.*  
> *Journal of the American Dental Association*, 130, 1229–30.
- >
- > 8. McGuire, M. K., & Nunn, M. E. (1996). *Prognosis versus*  
> *actual outcome: III. The effectiveness of clinical parameters in*  
> *accurately predicting tooth survival.* *Journal of Periodontology*, 67,  
> 666–674.
- >
- > 9. *Implants in the partially edentulous patient: restorative*  
> *considerations.* *CDA Journal*, 25, 867–871.

- >
- > 10. Perl, M. L. (1994). *Parafunctional habits, night guards, and*
- > *root form implants. Implant Dentistry, 3, 261–3.*
- >
- > 11. Rangert, B., et al. (1995). *Bending overload and implant*
- > *fracture. A retrospective clinical analysis. International Journal of*
- > *Oral Maxillofacial Implants, 10, 326–*
- >
- > 12. Pertes, Richard A. & Attanasio, Ronald (1992). *Internal*
- > *Derangements. In Kaplan, A. S. and Assael, L. A.*
- > *Temporomandibular Disorders. Philadelphia: Saunders, pp. 142–164.*
- >
- > 14. *Tongue Protrusion Dystonia: Treatment With Botulinum Toxin P.*
- > *DAVID CHARLES, MD, THOMAS L. DAVIS, MD, KATHLEEN M. SHANNON, MD,*
- > *MATTHEW A. HOOK, BS, and JOHN S. WARNER, MD, Nashville, Tenn.*
- >
- > 15. *Aesthetic Botulinum A Toxin in the Mid and Lower Face and*
- > *Neck*
- > *Jean Carruthers MD, Alastair Carruthers MD*
- >
- > 16. *Aesthetic Botulinum A Toxin in the Mid and Lower Face and Neck*
- > *Jean Carruthers MD, Alastair Carruthers MD*
- >
- > 17. *Freund B, Schwartz M, Symington JM.*
- >
- > *J Oral Maxillofacial Surgery. 1999 Aug; 57(8):916–20; discussion*
- > *920–1.*
- >
- >
- >
- > *The use of botulinum toxin for the treatment of temporomandibular*
- > *disorders: preliminary findings.*
- >
- > 18. *Mandel, L. & Tharakan, M. (1999). Treatment of unilateral*
- > *masseteric hypertrophy with botulinum toxin: case report. Journal of*
- > *Oral and Maxillofacial Surgery, 57, 1017–1019.*
- >
- > 19. *Freund B, Schwartz M, Symington JM: Botulinum toxin: new*
- > *treatment for temporomandibular disorders. Br J Oral Maxillofacial*
- > *Surgery 2000 Oct; 38(5): 466–471.*
- >
- > 20. *"dentistry" means the diagnosis or management of conditions*
- > *of the mouth of a person, the performance of any invasive or*
- > *irreversible procedure on the natural teeth or the parts of a person's*
- > *body associated with their natural teeth or the provision to a patient*
- > *or the insertion or intraoral adjustment of artificial teeth or dental*
- > *appliances for a patient;*
- >
- > 21. *David Demko: Age trends create emphasis on Cosmetic Dentistry.*
- > *Senior World, Age Venture News Service*
- >

- >
- >
- > 22. H .Gobel et al. *Botulinum Toxin A is effective in cases of*
- > *oromandibular dysfunction even if previous bite splint therapy has*
- > *proved unsuccessful. Cephalalgia 2001; 21(4):514–515 (1 Page).*
- >
- >
- >
- > *References*
- > 1. Lipton RB, Scher AI, Kolodner K, Liberman J, Steiner TJ,
- > Stewart WF. *Migraine in the United States: epidemiology and patterns*
- > *of health care use. Neurology. 2002; 58:885–894.*
- >
- > 2. Castillo J, Muñoz P, Guitera V, Pascual J. *Epidemiology of*
- > *chronic daily headache in the general population. Headache. 1999;*
- > *39:190–196.*
- >
- > 3. Ferrari MD. *The economic burden of migraine*
- >
- > 17. Kokoska MS, Glaser D, Burch CM, Hollenbeak CH. *Botulinum toxin*
- > *injections for the treatment of frontal tension headache. J Headache*
- > *Pain. 2004. In Press.*
- >
- > 18. Schmitt WJ, Slowey E, Fravi N, Weber S, Burgunder JM. *Effect of*
- > *botulinum toxin A injections in the treatment of chronic tension–type*
- > *headache: a double–blind, placebo–controlled trial. Headache. 2001;*
- > *41:658–664.*
- >
- > 19. Brin M, Brashear A, Mordaunt J. *Effect of botulinum toxin type A*
- > *(BTX–A) therapy on pain frequency and intensity in patients with*
- > *cranio–cervical dystonia. [Abstract] Cephalalgia. 2003; 23:743.*
- >
- > 20. Pascual J. *Influence of botulinum toxin treatment on previous*
- > *primary headaches in patients with craniocervical dystonia. [Abstract]*
- > *Cephalalgia. 2003; 23:705.*
- >
- > 21. Galvez–Jimenez N, Lampuri C, Patino–Piccirilo R, Hargreave M.
- > *Dystonia and headaches: the response to botulinum toxin therapy.*
- > *[Abstract] Cephalalgia. 2003; 23:760.*
- >
- > 22. Blumenfeld A. *Botulinum toxin type A as an effective prophylactic*
- > *treatment in primary headache disorders. Headache. 2003; 43:853–860.*
- >
- > 23. Troost BT. *Botulinum toxin type A (BOTOX®) in the treatment of*
- > *migraine and other headaches. Exp Rev Neurotherapeutics. 2004;*
- > *4:27–31.*
- >
- > 24. Cui M, Khanijou S, Rubino J, Aoki KR. *Subcutaneous administration*
- > *of botulinum toxin A reduces formalin–induced pain. Pain.*
- > *2004;107:125–133.*
- >

- > 25. Aoki KR. Evidence for antinociceptive activity of botulinum toxin  
> type A in pain management. *Headache*. 2003; 43(suppl 1):9–15.
- >
- > 26. Ishikawa H, Mitsui Y, Yoshitomi T, et al. Presynaptic effects of  
> botulinum toxin type A on the neuronally evoked response of albino and  
> pigmented rabbit iris sphincter and dilator muscles. *Jpn J Ophthalmol*.  
> 2000;44:106–109.
- >
- > 27. Welch MJ, Purkiss JR, Foster KA. Sensitivity of embryonic rat  
> dorsal root ganglia neurons to *Clostridium botulinum* neurotoxins.  
> *Toxicon*. 2000; 38:245–258.
- >
- > 28. Durham PL, Dacy R, Cady R. Regulation of calcitonin gene–related  
> peptide secretion from trigeminal nerve cells by botulinum toxin type  
> A: implications for migraine therapy. *Headache*. 2004;44:35–43.
- >
- > 29. Blumenfeld AM, Binder W, Silberstein SD, Blitzler A. Procedures  
> for administering botulinum toxin type A for migraine and tensio