Volume 5 No.2
Spring 2010

the Trumpeteer

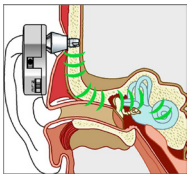
An Ear- Responsible Publication of Central Carolina ENT, PA

BAHA - Changing Lives Then and Now

Julian Bastarrechea's life changed dramatically eight years ago when he received his first bone anchored hearing aid (BAHA) from Central Carolina ENT. The device (anchored on the right side) finally allowed Julian to hear almost normally at age thirty. He no longer had to struggle to hear and quickly worked his way to a mid level management position with Biogen Idec, a drug company in the Research Triangle. He lives in Fuquay-Varina with his wife, Melissa, and four children: Aliyah (11), Maddy (9), JD (7), and Gabe (6). Read his interview on life eight years after his first BAHA on page 2.

Julian was born with Atresia, a birth defect that can cause abnormalities of both the middle ear bones in various degrees, as well as the external ear. In Julian's case, his outer ears (pinna) and ear canals never formed properly. His middle ear (conduction portion of the ear) and inner ear (cochlea) developed normally. The problem was that no sound could get into the inner ear. He had surgery on his left ear at a very young age to try and open up the canal and let sound in. But he still struggled to hear and had to wear bone conduction hearing aids to conduct sounds to his inner ear. He finally contacted our office in 2002 and Dr William C. Leliever performed surgery in August of that year. Two months later, Julian's world changed dramatically when he connected his Compact BAHA unit to the implanted abutment. He called it a miracle as he finally could hear like never before.

What is Baha?



The Baha® system utilizes your body's natural ability to conduct sound. Bone, like air, can conduct sound vibrations. For people with hearing loss, this provides another pathway to perceive sound.

Typical hearing aids rely on air conduction and a functioning middle ear. In cases where the middle ear function may be blocked, damaged or occluded, the Baha system may be a better option as it bypasses the middle ear altogether. Instead, sound is sent around the damaged or problematic area, naturally stimulating the cochlea through bone conduction. Once the cochlea receives these sound vibrations, the organ 'hears' in the same manner as through air conduction; the sound is converted into neural signals and is transferred to the brain, allowing a Baha recipient to hear.

New Digital BAHA Units

Julian Bastarrechea is currently helping Central Carolina ENT evaluate two new digital BAHA units. All previous BAHA units were analog in nature and had no programmability. Oticon Medical, Somerset, NJ, has introduced the **Ponto Pro** and **Ponto** digital units. We are evaluating the Pont Pro which has a 10 channel frequency response shaping, multiband adaptive directionality, tri-state noise reduction, and 4 program capability. Cochlear Americas, Centennial Co., has the **BP100** BAHA as their newest digital product. It features 12 channel sound analysis, 3 user-defined programs, automatic directional microphone system, active feedback cancellation, and more. All BAHA units (whether digital or analog) are designed to meet the needs of patients with conductive or mixedhearing loss, and single sided sensorineural deafness.

Julian Bastarrechea - Life Eight Years After BAHA

Interviewed by: JP Miller, MS, CCC-A, Audiologist and Trumpeteer Editor

37 year old Julian Bastarrechea
Employed by Biogen Idec
Research Triangle, NC

Q. Julian, it has been eight years since you got your first BAHa unit. Bring us up to date on your life since that historic moment.

A. As far as eight years, I can't express the difference in my life, for my family with my four children, my wife, my whole life is beyond normal. I couldn't believe I did this the first thirty years of my life. I can only imagine what life would have been had I had this (BAHA) at ten years old as far as going through school and college. I think it would have been a major difference in my life.

But I regrouped at thirty, took it (received first BAHA unit), continue to soar as I would say and continue to lead a very productive life.

Q. Tell us about your work at Biogen Idec.

A. I work for Biogen Idec out in the RTP. It is a biological plant. We make vaccines for MS (multiple Sclerosis) patients. I am involved in all sorts of validations, commissionings, and the manufacturing of vaccines. I started this when I was 28 years old, that was before my BAHA was implanted. And I'd have to admit, I struggled at work. After my surgery the sky was the limit for me at work. Anything I wanted to put forth, I took the challenge and became a supervisor. Whatever I wanted, that's how comfortable I was with my BAHA device.

Q. As far as your work career is concerned, realistically it would have been difficult to achieve any of your goals without the BAHA, correct?

A. Yes, my personality would have probably fought through it if I didn't have the BAHA, but it would have been a difficult road for me to overcome.

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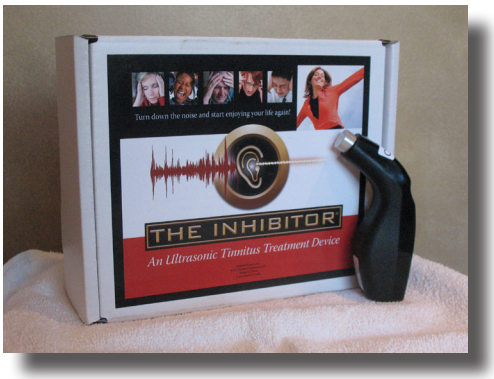
The Inhibitor™ - Tinnitus Help?

Central Carolina ENT is evaluating a new product called the Inhibitor™ which reportedly can provide patients with temporary relief of tinnitus. This device received FDA approval in 2007 and is distributed by Melmedtronics, Inc of Hurst,Texas. The Inhibitor™ is a hand-held device that emits a 60-second ultrasonic 52KHZ signal that provides temporary relief from Tinnitus. 70-75% of patients treated with the device have noticed either a total or partial reduction in the loudness of their Tinnitus. The benefit of the relief ranges from minutes to hours to days, and in some cases weeks!

According to David Holmes, Ph.D., principal investigator, 50% of patients received total relief which ranged from a few minutes to as long as several weeks. The majority of relief occurred in the lower range (minutes to hours). 25% only obtained partial relief. Some patients reported that their tinnitus changed in frequency. 25% reported no relief. And finally less than 1% reported that their tinnitus became louder after treatment.

Dr Holmes has proposed a working hypothesis that perhaps the ultra high-frequency stimulation is generating some harmonics that are putting the frequency of the Tinnitus 180 degrees out of phase. After a period of time, the Tinnitus becomes asynchronous again, and the perception of the Tinnitus goes back to its pre-treatment levels. But for patients with severe distress from tinnitus, the temporary window of relief may be a welcome benefit.

Patients who are interested in receiving an evaluation with the Inhibitor™, will first be scheduled for a comprehensive audiological examination and a medical evaluation from one of our three, board certified otolargyngologists. Then the patient will be referred for a tinnitus evaluation with one of our audiologists if they receive medical clearance from the doctor. The patient would also be required to review and sign a form that lists conditions that would prevent the use of the Inhibitor™. Once the patient receives treatments with the Inhibitor™, follow up appointments can be scheduled.



the Inhibitor™

Patient receiving a treatment

Understanding Tinnitus

By: David W. Holmes, Ph.D.
www.tinnitustreatment.com

Tinnitus is a disorder that affects nearly 50 million people in the United States alone. It is characterized by patient's as sometimes sounding like the ocean, a chirping cricket, a sea shell, a high pitched tone, or a pulsing sensation. Most of the patients experiencing this disorder, report that it is only annoying when their environment is very quiet. Approximately 80% of these patients find that they have learned to just ignore their tinnitus. However, this leaves nearly 20% of the population, who suffer from tinnitus, as being nearly completely debilitated by its effect. They find it difficult to go to sleep at night, concentrate, and often report that it interferes with their hearing.

There are approximately 200 known causes of this disorder and probably more that are not yet known. Certain medications can cause the "ringing." Other possible causes might include: high blood pressure, cardiovascular disease, TMJ, musculoskeletal problems, tumors, noise exposure and many other medical conditions. While most of the time we just don't know the cause, we do know it is not a sign of old age. Tinnitus affects people of all cultures and ages – including children. It is a perplexing disorder, because it is one that cannot be visualized or accurately measured other than through the perception of the patient. Objective tinnitus is rare. Today there had been very few effective treatments for this disorder. Many attempts have been made, but few have been successful, and none for the majority of the patient's.

A number of years ago, a theory was postulated (Jastreboff, 1996) that tinnitus may be stored in the brain as a memory. The analogy used was similar to that of Phantom Limb syndrome. In Phantom Limb syndrome, patients who have been amputated often still perceive a sensation that the limb still is attached, and even some patients perceive pain even though the limb is no longer present. The theory proposed by Jastreboff (1996), postulates that the perception of tinnitus is transferred and stored in the brain even after the generator source no longer exists. His theory was very logical and related well to other sensory systems. However, until recently there was no hard data to substantiate up his hypothesis.

More recently, Lockwood and Salvi, et. al. (1999), utilizing PET scans, found that an area of the limbic system was more active in patients suffering from tinnitus than in patients who did not experience the disorder.

There is no known cure for tinnitus. Organizations like the American Tinnitus Association (www.ata.org) are continually conducting research in hopes of finding possible cures. Until then, tinnitus can be managed by treating the underlying cause or by altering the reactions to it.

References:

Lockwood AH, Salvi RJ, Burkard RF, Galantowicz PJ, Coad ML, Wack DS. Scand Audiol Suppl. 1999;51:47-52.

Jastreboff, P.J., Gray, W.C., Gold, L.S. Neurophysiologic approach to tinnitus patients. American Journal of Otology. 17:236-240, 1996.