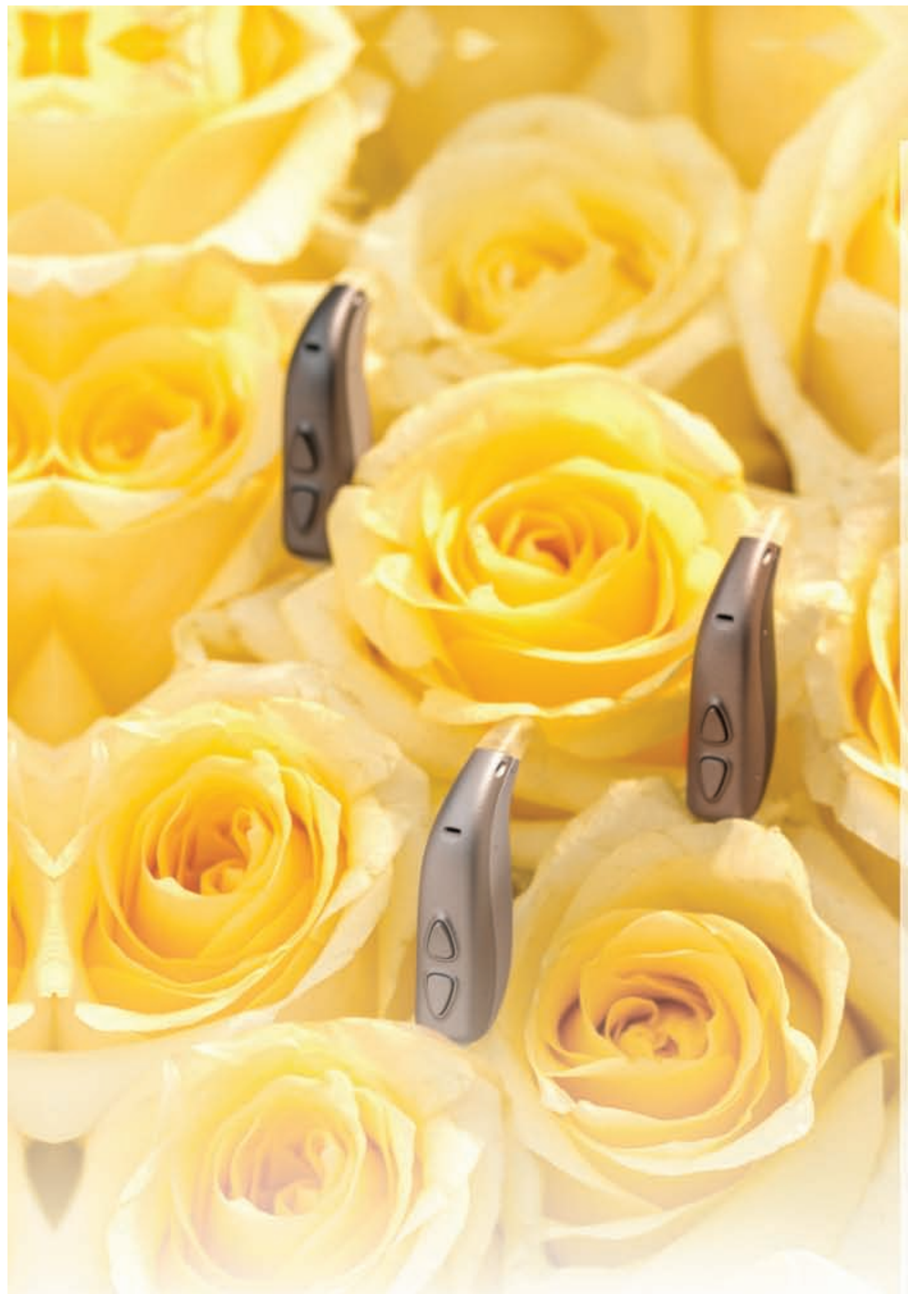

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Vol-1 May 2017

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WELCOME TO THE WORLD OF BERNAFON

DEAR PATRONS,

It's been a memorable journey of 12 years with Bernafon in India. We are now looking forward to take our relation to a whole new world. We are extremely happy to launch our bi-monthly newsletter BEAT (Bernafon ENT & Audiology Trends) that will be window for all of us to have a look at the new developments in the field of ENT and Audiology. It is our endeavor to thank all of you for your unwavering support for all these 12 years and to motivate ourselves to keep you serving to the best of our abilities.

Wishing you all a very happy future.

Cheers!

Amit Dhir,
Managing Director
Hearing Aid Centre
(Country Channel Partner for Bernafon)

CLINICAL AND AUDIOLOGICAL FINDING IN CHILDREN WITH AUDITORY NEUROPATHY

Hearing loss is a common problem in newborns. Some cases are due to auditory neuropathy spectrum disorder (ANSD), a problem in the transmission of sound from the ear's innermost part (the inner ear) to the brain.The causes of ANSD are unknown several factors have been linked to auditory neuropathy in children. However, a clear cause and effect relationship has not been proven. Some children who have been diagnosed with auditory neuropathy experienced certain health problems as newborns, or during or shortly before birth. These problems include jaundice, premature birth, low birth weight, and an inadequate supply of oxygen to the unborn baby.The impact of ANSD on a child's hearing ability varies amongst individuals. It is not possible to predict either a degree of hearing loss or a prognosis for speech and language development and communication ability based on the diagnosis of ANSD. Hearing loss may vary from mild to profound. More so ever, available information on the prevalence rate of auditory neuropathy is poor & limited. Prevalence rate vary from researcher to researcher as per the availability of cases and data.

Hence, the current study was taken up to explore ANSD, its related etiologies, prevelance rate, clinical & audiological profile. 730 SNHL children were participated in the study. . Out of 730 children (49%, n=359) were male and (50.8%, n=371) were female. Mean age of study group was 2.9 yrs and SD (standard deviation) age was 2.24yrs.

Objectives & Hypothesis of the study are as follows:

Objectives:

1. To determine prevalence rate of auditory neuropathy.
2. To determine the related etiologies
3. To determine the audiological profile of children with auditory neuropathy.

Hypothesis:

1. Prevalence of auditory neuropathy spectrum disorder:
2. There will be no significant prevalence rate of auditory neuropathy spectrum disorder.
3. Related etiologies of children with ANSD.
4. There will be not much etiologies associated with auditory neuropathy.
5. For comparison of audiological findings of children with ANSD:

5.1. There will be no significant difference in between the audiological profile of children with ANSD and children with SNHL.

5.2. There will be no significant sex difference in between the audiological profile of children with ANSD and children with SNHL.

5.3. There will be no significant difference in between the audiological profile of male children with ANSD and SNHL.

5.4. There will be no significant difference in between the audiological profile of female children with ANSD and SNHL. For the purpose of the study, complete case history & audiological data of each patient was taken. Comparison of each data was done by using the descriptive statistics, Pearson test correlation and t-test. Test calculated PTA threshold at each frequency, PTA average, DPOAE values, SAT thresholds, SDS score, Impedance values and BERA values, prevalence rate & retaled etiololgies.

6. The following were the findings of current research study:

6.1. There is a statistically significant/high prevalence rate of ANSD. Present study showed approximately (5%, n= 39) of prevalence rate out of 730 SNHL children.

6.2. Present study showed out of 39 ANSD children. 84.6 %,(n=33) showed related medical etiologies.

6.3. In present study almost all the 39 children statistically showed audiological characteristics of ANSD

i. Several independent sample t-tests were performed to find out the differences between children with ANSD and children with SNHL in their audiological characterstics. The obtained results for PTA showed that, for right ear, children with ANSD did not obtained significantly higher scores than children with SNHL on PTAR_AVG. Additionally, more detailed analyses revealed that, children with ANSD obtained significantly lower scores than children with SNHL on PTAR_250HZ,PTAR_500HZ, PTAR_4KHZ. Furthermore, for left ear, children with ANSD obtained significantly lower scores than children with SNHL on PTAL_AVG. Additionally; more detailed analyses revealed that, chil'dren with ANSD obtained significantly lower scores than children with SNHL on PTAL_250HZ, PTAL_500HZ, PTAL_1KHZ, PTAL_2KHZ, PTAL_4KHZ. Furthermore, the obtained results for DOAPE, for both ears, children with ANSD obtained significant scores than children with SNHL on all frequencies of distortion product, noise floor, and signal to noise. Based on obtained results; i.e. there is significant difference between the audiological profile of children with ANSD and children with SNHL

ii. There will be no significant sex difference in between the audiological profile of children with ANSD and children with SNHL.

iii. There was a statistically significant difference in between the audiological profile of male children with ANSD and SNHL. Several independent sample t-tests were performed to find out the differences between male children with ANSD and children with SNHL. The detailed analyses were showed that, on PTAL_AVG, children with SNHL were scored higher scores than children with ANSD. Similarly, on all frequencies of distortion product, noise floor, and signal to noise ratio for both the ears children with ANSD obtained significantly higher scores than children with SNHL.

iv. There was a statistically significant difference in between the audiological profile of female children with ANSD and SNHL. To test thisseveral independent sample t-tests were performed to find out the differences between female children with ANSD and SNHL. PTA results of both the ears; and partially rejected for DOAPE results for both ears. The overall results for DOAPE, for both ears, on all frequencies of distortion product, noise floor, and signal to noise showed that children with ANSD obtained significantly higher scores than children with SNHL.

7 Points to be considered:

7.1. Both ABR and behavioral thresholds are poor predictors of speech discrimination ability.

7.2. Behavioral thresholds may improve over the first 1-2 years of life.

7.3. Absent or elevated stapedial reflexes (SRs) Behavioral thresholds anywhere in the range from normal to profound, and any configuration.

7.4. In some cases, the behavioral thresholds may appear to be satisfactory, with age appropriate speech development, but the child may exhibit features consistent with auditory processing difficulties. There should be a local protocol for the ongoing monitoring of such cases.

7.5. OAEs which are present at initial assessment may disappear over time in some of the cases. May find variable responses from one test session to another, but generally reliable within a single session.

7.6. Speech discrimination poorer than the behavioral audiogram would suggest.

7.7. Hearing aids may be of less benefit than the behavioral audiogram would suggest.

7.8. Greater difficulties hearing in competing noise than expected from the behavioral audiogram, and other features indicative of auditory processing difficulties.

7.9. As thresholds usually bear little relationship to speech discrimination ability, management decisions for these children should be guided much more by functional communication development rather than behavioral or ABR thresholds.

7.10. Children with any clinical/medical/hereditary history. Complete Audiological battery should administered on such patient.

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Dean (Bhavnagar Medical College)
Professor & Head, Department of ENT,
Head & Neck Surgery, Bhavnagar, Gujarat

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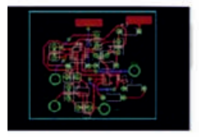
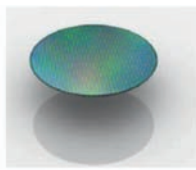
Consultant Audiologist & Speech Pathologist
ASCOMS (College/Hospital)
Jammu, J&K

INSIDE A HEARING AID

Silicon Engine design stimulate and build the microprocessors used in every hearing instrument. Also delivers antennas and protocols for wireless communications and audio streaming.





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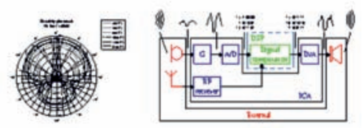
Audiology and Embedded Solutions brings new innovative audiological concepts from stimulations to sounds studios, through end user validation and finally into the micro processors. Clinical and field trials with prototypes and finished systems.



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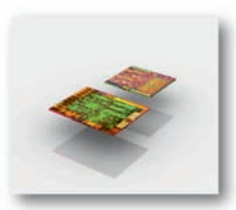
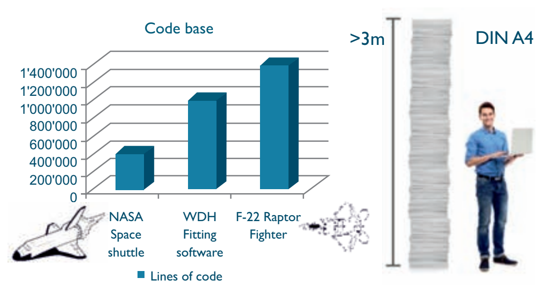


Fitting Software is Not Rocket Science...

But a lot more complex than what you might think



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DEVICE	POWER CONSUMPTION
Hearing Instrument	1-2 mW
Laser pointer	5 mW
Mobile/Smart Phone	1000mW- 5000mW
Desktop PC	100000 mW

EFFECT OF LANGUAGE ON HEARING AID SETTINGS

This article originally appeared in the April 2013 edition of The Hearing Review (www.hearingreview.com) and appears here with permission. Original citation: Chasin M, Hockley, N. S. An automated system to improve hearing aid settings for non-English speakers. Hearing Review. 2013; 20(4) 28 – 32.

The new Language Specific Targets implemented by **Bernafon's Oasis fitting software** are designed to address -- the subtle linguistic differences between many of the world's languages that are not taken into account by the language-specific SII or the LTASS

The new Language Specific Targets implemented by **Bernafon's Oasis fitting software** is designed to make the speech a that differentiate many of the world's languages accessible to non-English speaking or multilingual individuals.

There has been some recent published work suggesting that there may in fact be some linguistic aspects of a language that need to be taken into account in the prescription process.1 – 7 One example is the modification for tonal languages (e.g., Chinese) used by the NAL NL2 fitting rationale, where different meanings can be gathered from pitch changes in the low-frequency vowels.

Hearing instrument fittings are mostly based on the Long Term Average Speech Spectrum (LTASS). The LTASS is the representation of the level and frequency components of the speech.

An examination of the LTASS of 12 languages and several dialects by Byrne et al.12 revealed - A "universal" LTASS is suggested as being applicable, across languages, for many purposes, including use in hearing aid prescription procedures.…

This is not surprising because all languages around the world are uttered by humans who all have similar vocal tract dimensions with similar acoustic outputs. However, this is not the parameter that needs to be examined when determining frequency response and compression changes from English.

Language-specific changes have been previously described by Chasin,1,3 – 6 and can be summarized using the following three categories:

1) Languages with tonal, morae-timed, or low-frequency nasals/ vowels. Languages that are tonal (e.g., Chinese), are morae-timed (e.g., Japanese), or have a proliferation of low-frequency nasals and vowels (e.g., Portuguese) require more low-frequency gain than for English. These frequency response changes also can be seen in Semitic languages (e.g., Arabic and Hebrew).

2) Languages with a rigid morphological structure requiring consonant-vowel-consonant (CVC) alterations. Languages like Japanese and, to a lesser degree, Vietnamese require a more rapid release time for the compression circuitry than a person speaking English with a similar audiometric configuration.

3) Languages that have a Subject-Object-Verb (SOV) word order. Languages such as Hindi/ Urdu, Iranian (Farsi), Turkish, Japanese, Somali, and Korean, for example, require more gain for soft-level inputs than for English.

Making it Simple.

Keeping this information about language differences straight within a busy clinic can be a daunting task. To help with this issue, Bernafon has incorporated Language Specific Targets into the Oasis fitting software. These changes to the gain and compression are based on the detailed linguistic (phonetic, phonemic, morphologic, and syntactic) analyses discussed earlier. The application of gain adjustments to generate the Language Specific Targets in the fitting process is designed to make the cues of speech that are not usually addressed by the LTASS, audible. An example is Korean, where more gain is applied to the 50 dB and 65 dB input targets between 2000 Hz and 8000 Hz to increase the audibility of soft high-frequency consonants that occur near the end of sentences.

The Language Specific Targets are designed to reduce the need for multiple fine-tuning steps that may have been previously necessary to ensure that speech is understandable to the non-English speaker. The full range of modifications to the fitting targets is only applied to the BernaFit Comfort and BernaFit NL proprietary fitting rationales, which are based on NAL NL1.18

UPCOMING ENT EVENTS/SEMINARS/WORKSHOPS/CONFERENCES

1. **Sleep Surgery Live 2017**

   Date - 20-May-2017 to 21-May-2017

   Organized By - St. Stephens Hospital, Tees Hazari, Delhi

   Venue-St.Stephens Hospital, Tees Hazari, Delhi

   Details- Dr. Susan K Sebastian, (Head, Dept. of ENT)
   St. Stephen's hospital, Delhi

   Contact : drsusanks@gmail.com PH#968399105, 9868399260

2. **7th Basics Fest**

   Date - 29-Jul-2017 to 30-Jul-2017

   Organized By - Madhumani Nursing Home in association with AOI A.P. Branch

   Venue - Madhumani Nursing Home, Nandyal - 518501 A.P.

   Details - madhumaninursinghome.co

To contribute an article and for any further information, Contact:

Shahabuddin Khan
E-mail: skhan.bernafon@gmail.com
Mob: +91-9313007363

2015	70 YEARS	Bernafon is proud to complete 70 years of dedicated service to the cause of the hearing impared and continuous innovation
2012		Almost invisible when worn, the Chronos Nano RITE fits comfortably behind the ear and is compatible with Bernafon's ergonomic remote control and SoundGate, the Bluetooth compatible compatible communication device.
2009		Verite, with wireless technology for binaural coordination and wireless connectivity to Bluetooth compatible communication devices via SoundGate.
2008		Brite, the trend-setting and award winning lifestyle hearing system with receiver in the ear (RITE) TECHNOLOGY
2006		With its Lifestyle Profile in our Oasis fitting software, Icos is the first hearing system in the market incorporating clients 'needs and preferences into the fitting.
2005		Swissear and the innovative Spire Flex sound tube system mark the beginning of cosmetic and fashionable hearing solutions
2002		Symbio, the world's first Channel Free digital hearing system providing natural sound experiences.
1999		Smile a fully digital hearing system equipped for the first time with multi- microphone technology
1996		Audioflex, the first remote- controlled hearing system
1988		Hearing instruments could for the first time be programmed digitally with PHOX
1986		Charisma Bernafon's first in the ear instrument
1963		First behind the ear instruments (H-Series)
1946		A1. 2 pack the first serialized portable hearing instrument