



EXTREME TINNITUS PHENOTYPE IN MENIERE'S DISEASE



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INTRODUCTION

- Tinnitus is defined as the sensation of sound without external stimulation or as a phantom auditory perception.
- It affects 10-20% of the adult population. It is estimated that in 0.5-2% of the general population the condition severely affects their quality of life.
- Tinnitus Handicap Inventory (THI)** is the more widely used validated self-reported questionnaire to quantify tinnitus severity (Newman, 1996).
- Tinnitus is a symptom that can appear in many different etiological conditions and that varies widely in its perceptual characteristics among sufferers. This clinical heterogeneity makes it difficult not only to assess different treatment approaches, but also to investigate the underlying causes. So, **the delineation of tinnitus subtypes has been proposed as an imperative need in tinnitus research.**
- Meniere's disease (MD) is a well-defined disorder that can be used as a model to study the etiopathogenic mechanisms of tinnitus. MD, like other complex diseases, probably results from the interaction among genetic, epigenetic and environmental factors. All these factors give rise to a particular phenotype. A useful approach has been to select individuals with very characteristic, clinically relevant phenotypes.

AIM OF THE STUDY

To analyze the clinical characteristics of extreme tinnitus phenotype (ETP) in MD patients.

PATIENTS AND METHODS

- Patients with definite MD according to 1995 criteria of the AAO-HNS were prospectively recruited at 3 hospitals between December 2014 - March 2015.
- Pure-tone hearing** thresholds from **250 to 8000 Hz** were obtained in both ears, acufenometry was not performed as psychoacoustic measures do not relate with tinnitus distress.
- Patients filled out the **THI**, a 25-item self-report validated questionnaire used to quantify tinnitus severity.
- We defined **ETP** as those patients with a **THI score greater than 90th percentile**.
- Clinical features were compared between patients with and without ETP.
- The relationships among all variables were examined by use of regression analysis.

RESULTS

- 134 MD patients** were included (48 males, 86 females; mean age 57 ± 27 years).
- Mean age of onset of MD was 47 ± 13 years and mean duration was 11 ± 9 years.
- Medium THI score was 38.40 ± 26.63 and THI 90th percentile was 80, thus 14 patients were classified as ETP (**Figure 1**).
- We compared current age, sex, age of onset, uni/bilateral involvement, hearing stage, antecedent of headache, type of headache, existence of hypertension or history of autoimmunity between patients with and without ETP, but no differences were found.
- ETP was most commonly found in familial MD 6/45 (13%) vs sporadic cases 3/70 (4%),** although no statistical significance was found [OR=1.896 (0.69-4.831), $p=0.08$].
- THI score was related with hearing thresholds at all frequencies, with strong correlation at **500 Hz ($r=0.238$, $p=0.003$)** and **4000 KHz ($r=0.232$, $p=0.008$)** in the whole cohort. This effect was increased in patients without ETP at **250 Hz ($r=0.262$, $p=0.003$)** and **4000 Hz ($r=0.254$, $p=0.006$)**.
- Nevertheless, patients with MD and ETP did not show correlation with hearing threshold at any frequency in the audiogram ($p>0.5$).

CONCLUSIONS

- THI score in ETP is not related with hearing thresholds in MD patients, suggesting that the mechanism leading to chronic tinnitus perception is not related with the hearing threshold.
- Extreme tinnitus phenotype seems to be more common in familial MD.

REFERENCES

Newman CW, Jacobson GP, Spitzer JB. Development of the Tinnitus Handicap Inventory. Arch Otolaryngol Head Neck Surg. 1996 Feb;122(2):143-8.

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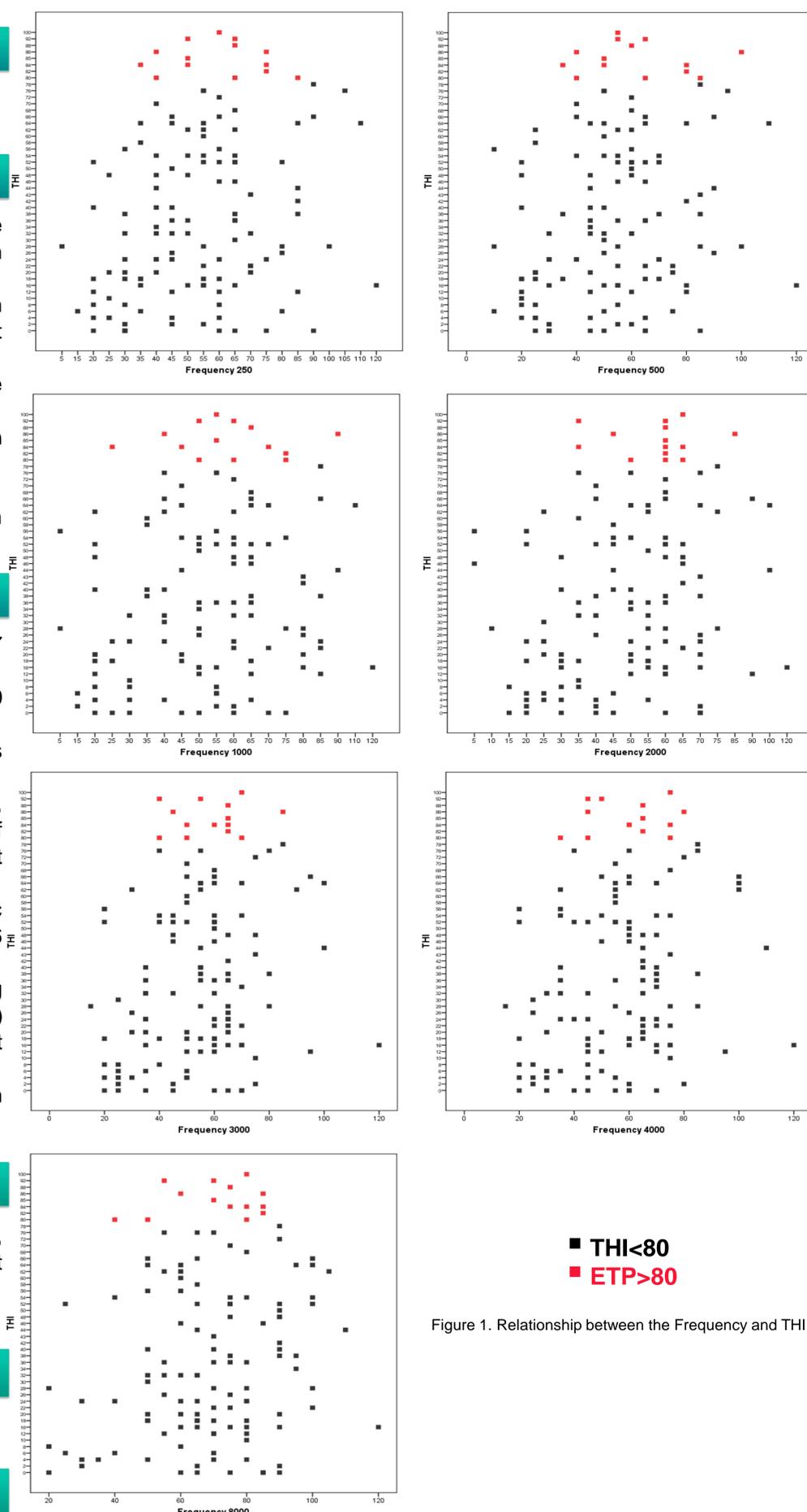


Figure 1. Relationship between the Frequency and THI.