



Clinical Utility of Electrocochleography in the Diagnosis and Management of Meniere's Disease: AOS and ANS Membership Survey



Data

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ABSTRACT

Objective: Evaluate the clinical utility of electrocochleography (ECoG) for diagnosis/treatment of Meniere's disease among members of the American Otological Society (AOS) and American Neurotology Society (ANS).

Subjects: Clinically active members of the AOS/ANS.

Main Outcome Measure: Survey responses.

Results: A total of 143 responses were received from 344 possible respondents (41.6%). In suspected cases of Meniere's disease, 45.5% of respondents did not use ECoG at all, 17.5% used ECoG routinely, and 37.1% used it only in questionable cases. ECoG users differed widely in electrode approach and stimulus modality used, with extratympanic approach and click stimuli used most frequently. A majority of respondents (73.2%) believed that ECoG is a test of indeterminate value. Only 3.6% required an abnormal ECoG to diagnose endolymphatic hydrops. An abnormal test was a requirement to proceed with ablative therapy for just 8.6% of respondents. Still, 77.9% believe that ECoG findings do fluctuate with activity of the disorder, but only 18.0% agree that when the ECoG reverts to normal, one can predict remission of symptoms. Almost half of respondents (46.7%) reported that they have now stopped ordering ECoG due to variability in results and lack of correlation with their patients' symptoms.

Conclusion: Among AOS/ANS members, there is low clinical utility of ECoG in diagnosis/management of Meniere's disease. For approximately half of respondents, ECoG has no role in their clinical practice. ECoG was used routinely by only one in six respondents. Those who used ECoG differed widely in electrode placement and type of stimuli paradigm used.

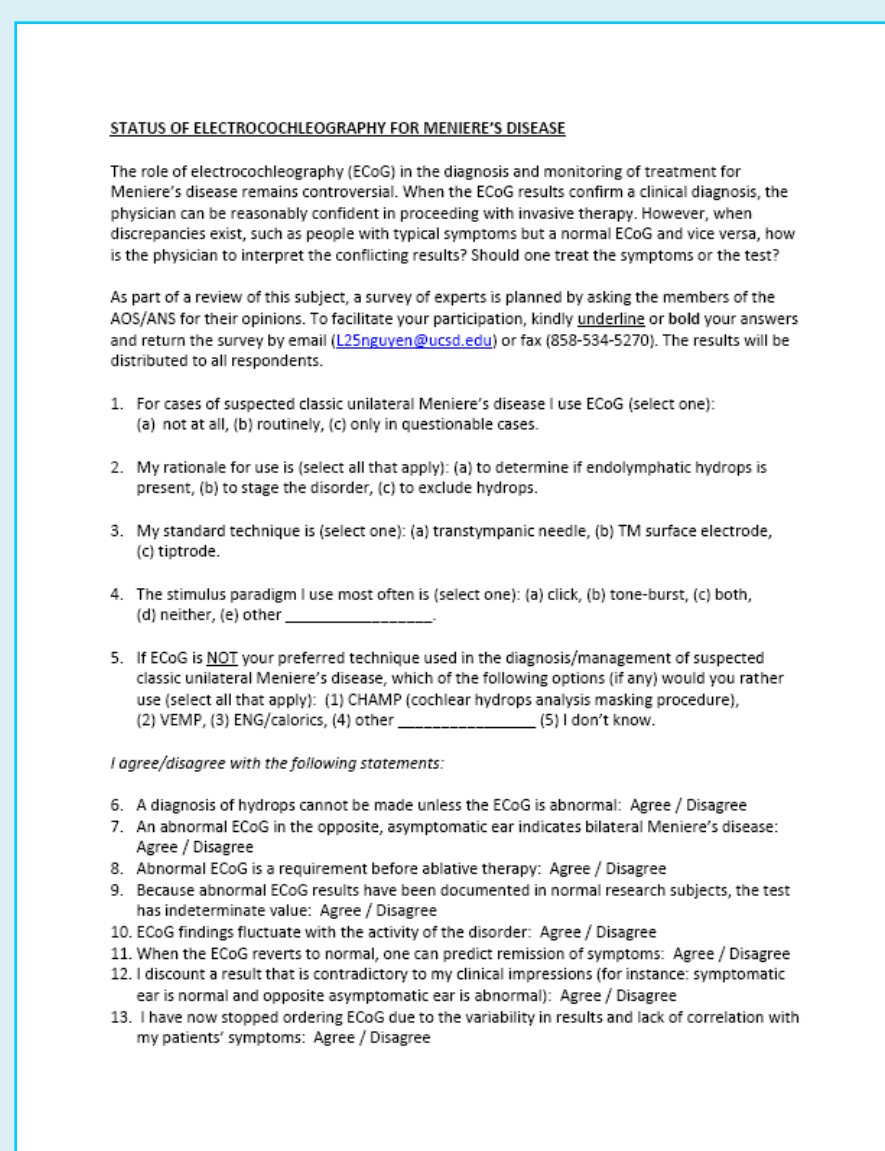
INTRODUCTION

Meniere's disease is an idiopathic disorder defined by the clinical quadrad of fluctuating hearing loss, tinnitus, aural pressure, and episodic vertigo. Definitive diagnosis of Meniere's disease is difficult due to the wide and varied spectrum of symptom presentation and fluctuating nature of the disease, making objective diagnostic tests especially attractive to clinicians.

Based upon histopathological studies, it is commonly suggested that endolymphatic hydrops is the underlying pathology of Meniere's disease. If this is correct, electrocochleography (ECoG), widely studied as a promising objective tool in the diagnosis of endolymphatic hydrops, would seem to be an appropriate test for the diagnosis of Meniere's disease.

Although there is a large body of literature on the role of ECoG in the diagnosis and management of Meniere's disease, there is little on which authors agree. There are many studies that either support or refute its clinical utility, some that advocate for the various approaches to electrode placement, and others which debate the most effective stimulus measurement. Thus, we designed the present study to assess the role of ECoG in the diagnosis and management of Meniere's disease among experts in the field, as determined by membership in the American Otological Society (AOS) or American Neurotology Society (ANS).

METHODS



An exemption was provided for this study after review by the University of California, San Diego institutional review board. A 13-item survey was constructed after an extensive review of the literature (Figure 1). The survey was emailed or faxed to clinically active members of the AOS and ANS (n= 344) in January 2009. Responses were accepted until March 31, 2009. The mailing list for the ANS was manually cross-checked to avoid sending repeat surveys to those already included in the AOS group. Surveys were returned by email or fax. Non-respondents were emailed or faxed two additional times.

Figure 1. Survey sent to AOS/ANS members.

RESULTS

344 surveys were sent out to clinically active members of the AOS and ANS. 143 surveys were returned (41.6%) after three rounds of email or fax correspondences. The survey results are summarized in Figures 2-5 and Table 1.

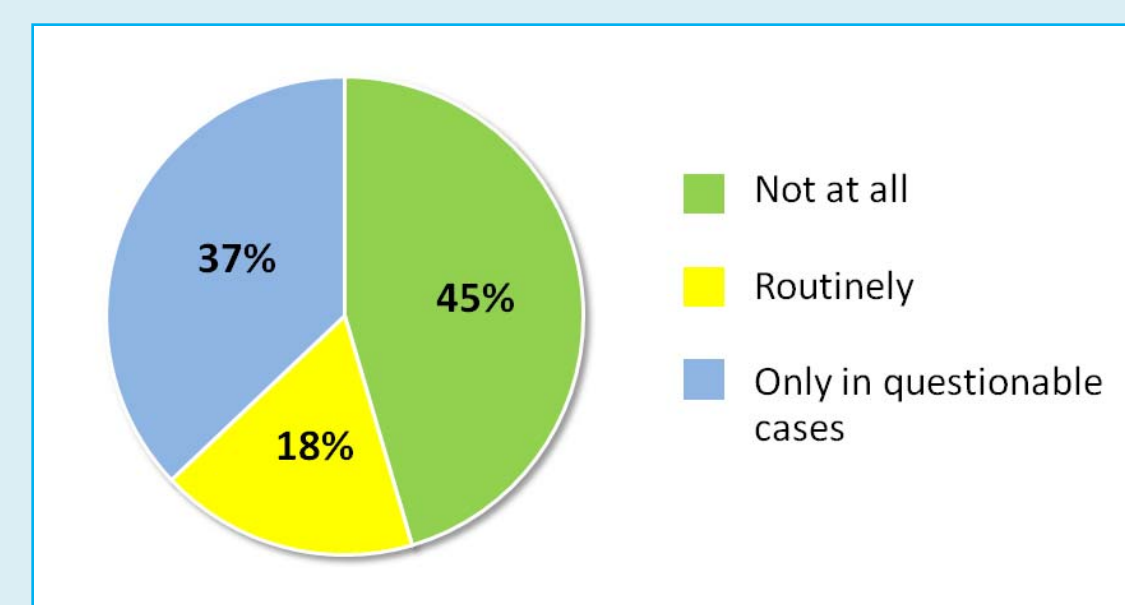


Figure 2. Use of ECoG by ANS/AOS members in suspected cases of Meniere's disease.

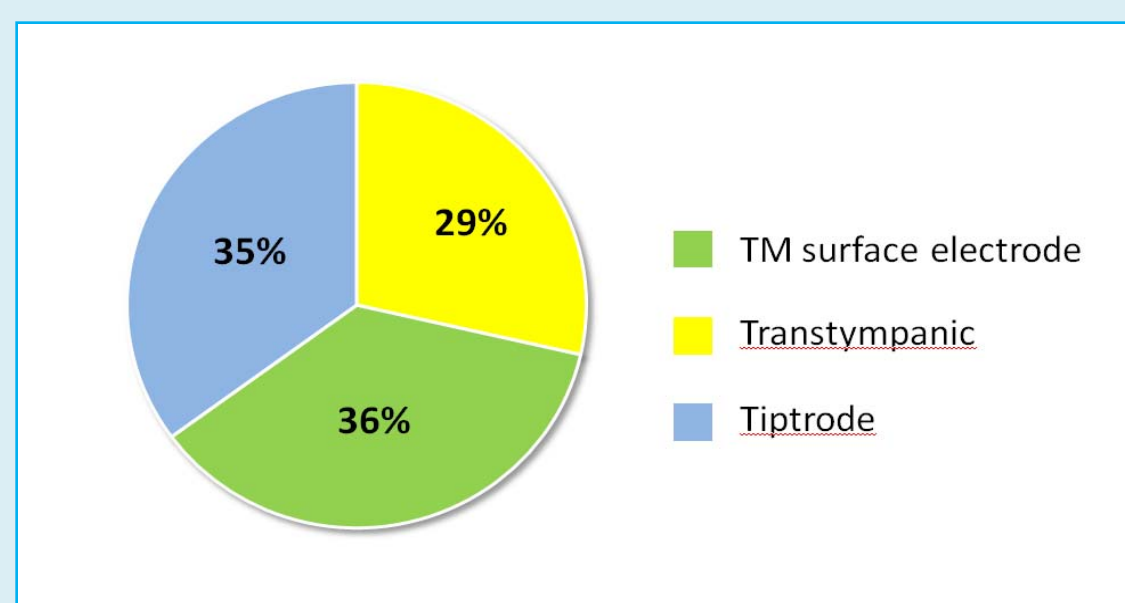


Figure 3. Preferred electrode placement among ECoG users.

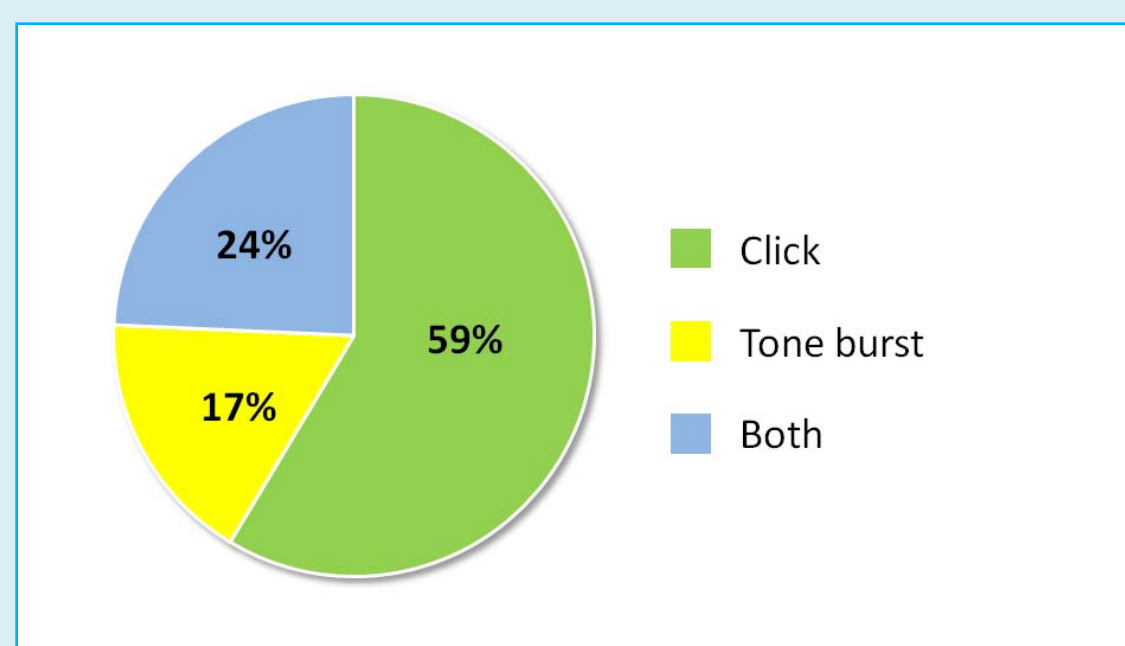


Figure 4. Preferred stimulus paradigm among ECoG users.

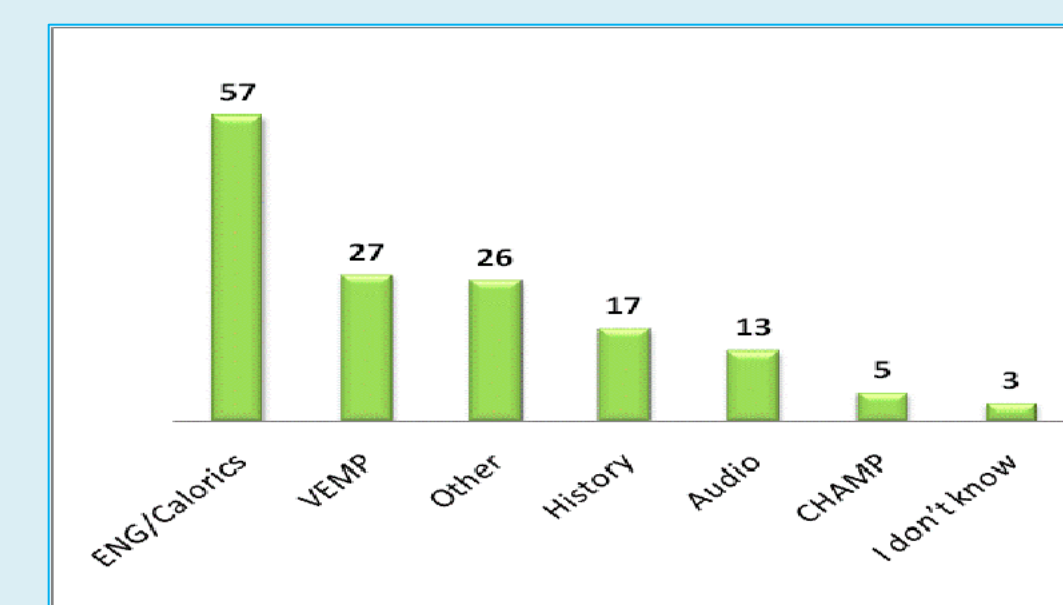


Figure 5. Diagnostic tests preferred over ECoG.

	Agree	Disagree
A diagnosis of hydrops cannot be made unless the ECoG is abnormal.	3.6%	96.4%
An abnormal ECoG in the opposite, asymptomatic ear indicates bilateral Meniere's disease.	23.9%	76.1%
Abnormal ECoG is a requirement before ablative therapy.	8.6%	91.4%
Because abnormal ECoG results have been documented in normal research subjects, the test has indeterminate value.	73.2%	26.8%
ECoG findings fluctuate with the activity of the disorder.	77.9%	22.1%
When the ECoG reverts to normal, one can predict remission of symptoms.	18.0%	82.0%
I discount a result that is contradictory to my clinical impressions (for instance: symptomatic ear is normal and opposite asymptomatic ear is abnormal).	82.6%	17.4%
I have now stopped ordering ECoG due to the variability in results and lack of correlation with my patients' symptoms.	46.7%	53.3%

Table 1. Results of agree/disagree items.

DISCUSSION

The present study demonstrates that for about half of AOS/ANS members, ECoG, an objective test, has no role in how they diagnose or treat Meniere's disease. The overwhelming majority of respondents expressed very little confidence in the test.

As voiced by many survey participants, Meniere's disease is a clinical diagnosis for which tests such as ECoG should only be adjunct to the history and physical exam. As such, almost half of the respondents to our survey have completely excluded ECoG from their practice. However, it is paradoxical that slightly more than half of respondents continue to use ECoG even when the overwhelming majority perceives it to be a faulty and imperfect test.

CONCLUSION

Though a variety of tests exists to aid clinicians in the diagnosis and management of Meniere's disease, the mainstay of treatment remains anchored in clinical history, symptoms, and audiogram. In the present study, we find that among AOS and ANS members, ECoG is perceived to have low clinical utility and reliability in the diagnosis and management of Meniere's disease. However, slightly more than half of respondents continue to use the test to various degrees. Among those who used ECoG, there was little consensus on the technique and stimuli modalities employed.

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