Critical Review The use of tympanic electrocochleography in the ide

Daly, 1998). The available literature for these techniques has thus far failed to establish a gold standard approach for maximizing sensitivity and specificity. Due to the lack of consensus within the research community, a critical review of the literature examining the sensitivity of one (or a combination) of these techniques is necessary for determining the best method for identifying MD/EH.

An additional source of debate within the literature relates to the electrode placement used for the recording. With transtympanic (TT) ECochG, a myringotomy is performed to allow the needle electrode to pass through the tympanic membrane and rest on the cochlear promontory (Ferraro & Durrant, 2006). With extratympanic (ET) recordings, the electrode is placed against the skin of external auditory meatus. Tympanic (TM) ECochG is an additional extratympanic recording approach where the electrode is placed directly against the tympanic membrane. The waveforms generated through TT ECochG typically have a larger magnitude and are more reproducible (require less signal averaging) than the ET approaches. However, TT ECochG is far more invasive and must be performed by a physician (Ferraro & Durrant). ET and TM ECochG are of particular relevance to the practice of audiology because they can be performed by audiologists. For the present discussion, the diagnostic utility of different ECochG approaches will be analyzed

reinforced many of the complexities of MD/EH that are not always acknowledged in the literature. However, some of the inferences made from the data may have been premature; the aforementioned complexities of MD/EH were ultimately over-simplified despite efforts to address them within the investigation. For example, the decision to evaluate analysis techniques by comparing the results between affected and unaffected ears does not acknowledge the fact that unilateral MD/EH can subsequently extend to the other ear, becoming bilateral over time. The absence of symptoms in the unaffected ear does not necessarily mean that MD/EH is not present. Also, the inclusion criteria were vague, allowing patients with "some" symptoms of MD/EH to be included in the analysis. In fact, 38% of the ears included in the "affected" group presented with zero or one symptoms of MD/EH. Moreover, the inclusion criteria allowed some potentially misleading symptoms. For example, while vertigo is a characteristic symptom of patients with MD/EH, the description of the symptom did not separate vertigo from other descriptions more characteristic of dizziness (e.g. lightheadedness). in addition, the acceptance of "hearing loss" as a symptom fails to acknowledge the characteristic fluctuating nature of the typical hearing loss seen in MD/EH, particularly during the earlier stages. Thus, the finding that only 28% of patients with the four main symptoms for MD/EH had abnormal TM ECochG should be considered with caution.

Levine, Margolis, and Daly (1998) were ambitious in their attempts to represent the intricacies of MD/EH. However, they failed to acknowledge the major weaknesses of their study, which ultimately reduces the overall validity of their prospective cohort study to a moderate level.

The investigation by Margolis, Rieks, Fournier, and Levine (1995) provided well-needed normative data and cutoff criteria for identifying MD/EH using TM ECochG. Unlike previously mentioned investigations where the size of the normal groups were insufficient (e.g., Levine, Margolis, Fournier, and Winzenburg, 1992), the large number of subjects for this investigation was sufficient to assess normality. The inclusion of 95th percentile ratings and critical difference values for three common analysis approaches across more than one stimulus level provided future researchers with flexibility in the analysis of their data. However, as with any case-series, the level of evidence that can be derived from these results alone is very low. All of the subjects tested were grouped together and no manipulations were introduced.

 Kim, Kumar, Battista, and Wiet (2005) aimed to differentiate definite from less-than-definite cases of MD/EH, as well as establish differences in the proportion of abnormal ECochG findings, depending on the patient's stage. The sensitivity of the measure was not statistically significantly different between the definite and less than definite MD/EH categories. However, as previously mentioned, the inclusion criteria used were strict enough that a large proportion

Ultimately, the existence of an efficient and usable
protocol that provides high levels of sensitivity and
specificity for the identification of MD/EH is an idea.07018(i)0.3545(v)-7(e)-2.64211(l)0.356603(s)2n70384()0-3560l2(u)-17(f)74970l37