Intratympanic Dexamethasone Injection in Meniere's disease

Thesis
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Introduction and Rationale

Meniere's disease (MD) is a chronic disorder affecting the inner ear, characterized by fluctuating sensorineural hearing loss (SNHL), episodes of vertigo lasting from minutes to hours, tinnitus and aural fullness **(Sajjadi et al., 2008)**. The incidence of Meniere's disease has been estimated to range from 0.5 to 7.5 per 1000 **(Minor et al., 2004).**

Endolymphatic hydrops is accepted as the most possible pathophysiologic mechanism of the disease; however, not all cases with hydrops become clinically apparent. Recently, it has been suggested that the hydrops is the result of dysfunction of the spiral ligament fibrocytes, which interfere with the recycling K+ ions and results in osmotic imbalanced expansion of the endolymphatic component. Dilatation of the utricle and saccule of the ear are a well known pathological finding in Meniere's disease **(Nin et al., 2008).**

Diagnosis of Meniere's disease is based on a combination of the right set of symptoms [according to diagnostic criteria proposed by committee of Hearing and Equilibrium (1995)], Audiological evaluation, Electrocochleography (ECOG), Vestibular work up that includes: vestibular evoked myogenic potential (VEMP) and Videonystagmography (VNG) test **(de Sousa et al., 2008).**

The ECochG appears to be sensitive to the presence of MD. With the ECochG method, the activity of the cochlea and VIIIth cranial nerve in response to acoustic stimuli can be monitored. Endolymphatic hydrops may change the ECochG waveforms by increasing the magnitude of the SP in response to clicks and tone bursts, creating an abnormally large potential **(Kimura et al., 2003).** An SP-to-AP ratio in response to a click stimulus with a value greater than 45% has been known to indicate the presence of endolymphatic hydrops. It assesses each ear independently; hence, it has the advantage of taking unilateral and bilateral MD into diagnostic consideration **(Chung et al., 2004).**

However, it is unlikely that a positive diagnosis will be made using ECochG test if administered in the early stage of MD and in ear with hearing threshold less than 60dBHL.The ECochG method has been also found to be more specific but not adequately sensitive (20–65%) for the diagnosis of MD if the diagnosis was made based on cutoff value. Furthermore, there are difficulties encountered during ECochG testing including specific electrodes type and technique of administration **(Al-Momani et al., 2009).**

On the other hand, vestibular evoked myogenic potentials (VEMPs) are highly correlated with the stages of Meniere's disease and may be used as an aid to assess the stage of the disease **(Young et al., 2003).** VEMPs are short latency