



PIC QUESTION OF THE WEEK: 11/08/04

Q: Can gentamicin be administered as an intratympanic injection for the treatment of Meniere's disease?

A: Meniere's disease is characterized by four symptoms. They include vertigo, fluctuating hearing loss, tinnitus, and a sensation of pressure in the ear. The patient suffers from periodic episodes, or attacks. Vertigo, a perception of spinning, is considered to be the most debilitating symptom. Meniere's disease primarily affects people in their 40s and 50s but individuals 20 years and older may be affected. Several treatment options have been explored, but there is a lack of evidence supporting any standard of therapy. Vestibular suppressants such as meclizine, diazepam, and dimenhydrinate are used to control vertigo and alleviate the acute symptoms of an attack. Diuretics seem to improve patient quality of life by reducing excess fluid in the inner ear. Corticosteroids, niacin, histamine, and a variety of other compounds have also been evaluated in the management of Meniere's disease.

Intratympanic injection of gentamicin has proven effective in eliminating vertigo in many patients with Meniere's disease. Gentamicin possesses the ability to damage endolymph-secreting vestibular cells, thus reducing the amount of fluid in the inner ear. The drug may also cause direct damage to vestibular and cochlear hair cells. Both effects may be responsible for symptomatic improvement. Quality of response may be due to variable factors such as membrane and mucosal thickness, tissue plugs, bony obliteration, etc. Gentamicin has been administered in doses ranging from 10-80 mg as a weekly or twice-weekly injection. Forms of administration include direct injection or infusion through a tympanostomy tube. The optimal method of administering intratympanic gentamicin has yet to be established.

References:

Diamond C, et al. Systematic review of intratympanic gentamicin in Meniere's disease. *J Otolaryng* 2003;32:351-61.

Meniere's disease-medical treatment. www.pennhealth.com (accessed 11/5/04).

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