

The Tampa Bay Hearing and Balance Center

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Transtympanic Gentamicin Therapy

What is “transtympanic gentamicin?”

Transtympanic gentamicin injection delivers a dose of the drug through the eardrum membrane into the middle ear, from which the medication diffuses into the inner ear. The medication is delivered with a tiny 27-gauge needle. The medication burns for a brief period of time after insertion and some may go down the Eustachian tube into the throat where it has a funny taste. After medication delivery, the patient lies down for about 45 minutes to hold the medicine next to the inner ear openings. The goal is for the medication to enter the inner ear.

What is the purpose?

Approximately 80-90% of patients with Meniere’s disease achieve relief of episodes of vertigo after transtympanic gentamicin therapy.

Alternatives to transtympanic gentamicin?

Some ears that are candidates for transtympanic gentamicin may improve spontaneously without therapy. For Meniere’s disease, transtympanic streptomycin therapy may relieve the vertigo spells, but is also more likely to worsen the hearing and ringing. Transtympanic steroids may also arrest Meniere’s disease at least temporarily but probability of sustained benefit remains an open question. Steroids by mouth are possible but carry a higher risk of steroid side effects like acne, sleeplessness, weight gain, stomach acid secretion, bone problems, hip and other bone fractures. Meniere’s disease also has surgical alternatives that are sometimes appropriate: endolymphatic sac shunt surgery, labyrinthectomy, vestibular nerve section, sacculotomy and others (please feel free to ask the doctor about these surgical alternatives). An alternative method of delivering gentamicin to the middle ear is by means of a hole in the eardrum membrane held open by a plastic tube. Some surgeons also place a wick through such a tube so that the patient can self-administer gentamicin. Results with the tube and wick technique do not appear to be superior to the transtympanic gentamicin technique herein described.

Resuming normal activities:

Use Vaseline (petroleum jelly) coated cotton to keep water out of the ear for about three days. Even then, avoid swimming under water for about a month after the last injection. Some persons have mild dizziness from the injections and should be careful with all situations where balance is critical until feeling normal.

Risks of transtympanic gentamicin?

Gentamicin placed in the middle ear represents high dose therapy to the inner ear, but low dose to the rest of the body. The principal risks of transtympanic gentamicin are worse hearing in the treated ear, louder or different ringing in the treated ear, and chronic imbalance that may not recover back to a good level. The goal of transtympanic gentamicin is to intoxicate the balance mechanism so that it can no longer send erroneous information about balance to the brain. When one balance organ’s function is lost, the brain works with the remaining balance organ to restore a more normal sense of balance. In most persons of just about any age, that recovery occurs in about six weeks. In some patients, the recovery or adaptation never fully occurs. Although functional status improves in these patients, a chronic sense of imbalance can sometimes be annoying. Walking in the dark may always be less confident and, if the other ear’s balance organ is not working well, walking in the dark may not be advisable. Nevertheless, the vast majority of gentamicin treated Meniere’s disease patients recover sufficient balance to feel much as they did before treatment when otherwise feeling well. In the medical literature, worse hearing may occur in 10-50% of treated ears. The estimated experience of the Tampa Bay Hearing and Balance Center is that less than 20% experience worse hearing from titrated gentamicin therapy (meaning one shot per week or one shot per month until evidence of inner ear affect results). While some patients notice worse or different ringing or other ear noise in the treated ear, the brain adapts to the new more predictable internal noise in time in a very high percentage of patients. With the brain adaptation, the ear noise, tinnitus, becomes a tolerable nuisance. Theoretically, transtympanic gentamicin therapy can result in an eardrum membrane perforation, infection, and require mastoid surgery, but such complications have not occurred in the experience of the Tampa Bay Hearing and Balance Center.

Patient/Guardian Statement: The patient or patient’s guardian and/or legal representative state by signing below that doctor has discussed the surgery, alternatives, and major risks, that the above information has been communicated to the patient, guardian, and/or legal representative and that an opportunity to ask questions has been given. The consent form should not be signed until the patient, guardian, and/or legal representative have obtained a layman’s understanding of the surgery and have obtained satisfactory answers to all questions. By signing the consent form, the patient, guardian, and/or legal representative indicate a layman’s understanding of the surgery, potential alternatives to surgery, and reasons for surgery and indicate a desire to proceed. If the surgery has been explained in another language, the person who has translated must indicate by cosigning the document that all information from the doctor and from this consent form have been communicated to the patient, guardian, and/or legal representative and that all questions have been answered satisfactorily.

Patient printed name			Patient/guardian signature		Date Signed
Circle Surgery ear	R	L	Doctor: Loren J Bartels MD FACS	Date-Planned Time line for Injections	
Witness		Guardian printed name		Translator	Language

Account Number: _____