

Michael G. Gartlan, MD, FAAP, FACS
Rajeev H. Mehta, MD, FACS
Scott W. Divenere, MD
Sung J. Chung, MD
Ankit M. Patel, MD
Matthew R. Bartindale, MD

2201 Glenwood Ave., Joliet, IL 60435
(815) 725-1191, (815) 725-1248 fax

1890 Silver Cross Blvd.
Pavilion A, Suite 435
New Lenox, IL 60451
(815) 717-8768

960 W Bedford Rd
Morris, IL 60450
(815) 941-1972

www.entsurgicalillinois.com

SUDDEN SENSORINEURAL HEARING LOSS

What is sudden sensorineural hearing loss?

There are two types of hearing loss – conductive and sensorineural. Conductive hearing loss comes from a mechanical problem with either the outer or middle ear and can usually be fixed with treatment of an infection or surgery. Sensorineural hearing loss comes from the inner ear or central nervous system and can usually only be improved with hearing aids. Sudden sensorineural hearing loss (sSNHL) is a distinct clinical diagnosis when a patient develops a sensorineural hearing loss in a single ear that develops within 72 hours. This is often associated with ringing (tinnitus) or a feeling of fullness in that ear. Sometimes dizziness can occur at the same time which gradually goes away over the next few days.

Is this common?

No, this occurs in about 20 per 100,000 people per year. That means that in a city the size of Joliet (150,000 people), about 30 people will have this problem each year.

What causes sudden sensorineural hearing loss?

More than 90% of patients with sSNHL have no identifiable cause. It is thought to be related to a viral infection of the inner ear because it frequently occurs during or closely following an upper respiratory infection. A conflicting theory is that it is caused by blood vessels spasms. In about 7% of patients it is caused by a benign tumor of their balance nerve called a vestibular schwannoma (aka acoustic neuroma). Unless it is caused by a tumor, it is rare that a cause is found.

Why do I need an MRI?

Since 7% of patients with sSNHL have a vestibular schwannoma causing it, it is recommended to have an MRI with contrast to check. This is by far the best way to detect a vestibular schwannoma. They are usually not visible on a CT scan and there are no blood tests that can detect one. If a vestibular schwannoma is found there are several treatment options and it is almost never life threatening.

Will I get my hearing back?

Maybe. Based on prior studies somewhere between 32-65% of patients recover to some degree without treatment. There are treatments available which can help significantly improve the likelihood of recovery, but even with treatment recovery is never guaranteed. Patients who have dizziness associated with their sudden hearing loss are less likely to recover. Your tinnitus will correlate with your hearing loss as you recover.

What if my hearing does not come back?

We will repeat your audiogram three months following the onset of symptoms. If your hearing is still decreased, we will be able to help you with either traditional hearing aids, a bone anchored hearing aid (BAHA), or a cochlear implant depending on the severity of the hearing loss and your preference.

What treatments are available?

Steroids are the mainstay of treatment for sSNHL. They *increase the likelihood* of recovery but are not a certain cure. Some patients' hearing will recover regardless with or without treatment, and some will not recover no matter what is done – unfortunately there is no way to identify who will or won't recover. The earlier treatment is given the better. There is no

evidence that steroids help more than 6 weeks after the hearing loss.

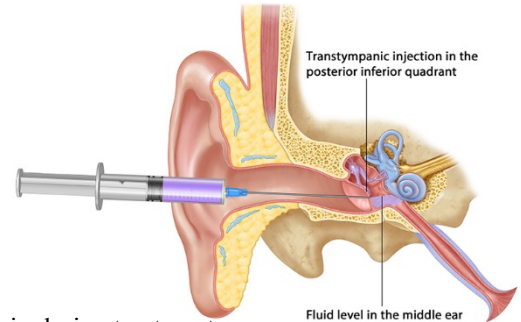
- Oral steroids
 - Pros – Convenience
 - Cons – Numerous side effects, less effective >2 weeks after hearing loss
- Intratympanic steroid injections – 3 weekly steroid injections into your middle ear
 - Pros – No side effects, still effective 2-6 weeks after hearing loss
 - Cons – Several office visits, very small risk of eardrum perforation
- Oral followed by intratympanic steroids

Oral and intratympanic steroids have been found to be equally effective in the first two weeks. 2-6 weeks after the hearing loss intratympanic steroids are more effective. Taking oral steroids followed by intratympanic steroids is more effective than either alone.

Hyperbaric oxygen therapy is used in some places, however there are no studies proving its effectiveness and it is quite expensive and inconvenient. We do not encourage this treatment, however are willing to refer you if that is your preference.

How are intratympanic steroid injections performed?

Your eardrum will be numbed with phenol for the first injection. This sometimes stings for ~10 seconds. A needle is then inserted through the eardrum and 1 mL of steroid is injected into the middle ear to bathe the inner ear. Since you have been numbed there is typically no pain going through the eardrum, just a peculiar popping sensation. You will get dizzy ~20 seconds after the injection and the spinning will last about one minute. It is still safe to drive home after this procedure. After the injection is complete you will be asked to lie on your back for 15 minutes to allow the steroid to adequately bathe your inner ear. You will then come back each of the next 2 weeks. The same hole in your eardrum is used for the second and third injections so phenol does not need to be reapplied. If you notice an improvement in your hearing between injections an audiogram will be done before the next injection to see if you have fully recovered – if so, more injections will not be needed.



What are the side effects of oral steroids?

- Mental – anxiety, insomnia, mood changes
- Increased energy
- Stomach ulcers
- Avascular necrosis of the hip – call your doctor immediately with hip pain during treatment
- Hyperglycemia – if you are diabetic, watch your blood sugar extra closely
- High blood pressure – if you have hypertension, monitor your blood pressure closely
- Birth control can be ineffective
- Decreased immune system and wound healing function

If you feel as though you need to stop, please call us in order to safely wean off steroids. Stopping abruptly can lead to dangerous additional side effects.

Reference: Chandrasekhar SS, Tsai Do BS, Schwartz SR, et al. Clinical Practice Guideline: Sudden Hearing Loss (Update). Otolaryngol Head Neck Surg. 2019; 161:S1-S45.

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