

# Ototoxicity

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## Ototoxicity

Medications used to treat cancer and some infections can cause side effects, including balance and hearing problems. Damage to hearing and/or balance systems caused by drug treatment is called “ototoxicity”. Patients might notice ototoxicity as dizziness, ringing in the ears (called tinnitus), or difficulty understanding speech in noise. Ototoxic dizziness can be experienced as unsteadiness, or spinning, or difficulty keeping a steady visual field. Ototoxic hearing loss is sensorineural and often affects both ears. The hearing loss affects high-pitched sounds before the lower pitches. Ototoxicity can be temporary or show some recovery with time. However, ototoxicity can also be permanent and can become worse with time.

Some classes of drugs known to cause ototoxicity include aminoglycoside antibiotics (such as gentamicin) and platinum-based chemotherapy agents (such as cisplatin). Certain antibiotics such as gentamicin and streptomycin are a greater threat to balance than to hearing. In contrast, platinum-based drugs are more likely to impair hearing than balance. Diuretics such as furosemide can also cause ototoxicity particularly when administered together with other ototoxic drugs. Exposure to noise increases the risk of hearing loss during treatment with ototoxic drugs. In addition, certain people are genetically disposed to hearing loss following treatment with aminoglycoside antibiotics.

Patients often do not realize they are experiencing a change in their balance or hearing until a problem becomes significant. Therefore, audiological management of patients receiving ototoxic medication is an important part of a therapeutic drug treatment plan, improving quality of life during and after treatment.

## What can be done about ototoxicity?

Audiologists can test for early ototoxic damage so that doctors, patients and their families can make informed decisions about their treatment. By identifying hearing changes early, sometimes hearing loss can be avoided that will affect speech communication, depending on the patient’s overall treatment picture. Similarly, by catching balance changes early, continued damage may be able to be avoided in some cases.

- Family history of ototoxicity should be reported to the audiologist and treating physician.
- Balance and hearing should be evaluated before treatment and should be monitored during treatment.
- Patients should be followed by an audiologist at least 6 months after treatment has ended.
- Noise exposure should be avoided during and after treatment. If noise cannot be avoided, careful use of hearing protection devices is warranted.

Audiologists can provide hearing and balance rehabilitation to help patients deal with any hearing and balance changes as a result of their drug treatment. In addition, communication training can improve listening and speech-reading skills.