Case Report – Four Days Posttreatment

Objective: To present a rare case report of a teenager who developed bilateral moderate-to-severe sensorineural hearing loss following a night of polysubstance abuse that resolved with pentoxifylline therapy. Presentation, audiologic findings, associated co-morbidities, treatment options, and potential etiologies are discussed.

Study Design: Case report and review of literature.

Methods: Chart review of an 18-year-old female who presented two days after a binge of polysubstance abuse with sudden-onset bilateral hearing loss. Workup included MRI/CT brain imaging, lumbar puncture, and infectious disease/autoimmune screening.

Results: The patient admitted to using heroin, benzodiazepines and cocaine one night prior to developing bilateral moderately-severe sensorineural hearing loss (60 dB SRT-60% discrimination). The hearing loss was initially treated with high-dose oral prednisone and antiviral therapy without resolution, followed by a ten month course of pentoxifylline with subsequent improvement no longer requiring hearing-aid amplification (normal speech audiometry, 15dB SRT / 90% discrimination) and only residual high-frequency sensorineural hearing loss (3.8 kHz).

Conclusion: This case report highlights the importance of recreational drug abuse history when evaluating patients with sudden onset hearing loss. Several cases have been reported in the literature with sudden hearing loss requiring cochlear implantation following hydrocortone / acetaminophen abuse. Potentially etiologies include altered pharmacokinetics, vascular spasm / ischemia, encephalopathy, acute intralabyrinthine injury and genetic polymorphisms of drug metabolizing enzymes.

Case Report – Initial Evaluation

- Patient EG is an 18-year-old female with a history of alcohol and drug abuse. Two months prior to the onset of her hearing loss, she was released from a rehabilitation center following successful completion of detoxification treatment program.
- Two days prior to the initial hearing evaluation, the patient left home and admitted to engaging in consumption of alcohol, heroin, Xanax, and crack.
- When she awoke the next morning, she noticed that she had a significant hearing loss along with intermittent, fluctuating tinnitus bilaterally.
- Two days after noting the hearing loss, she presented to a local emergency room. She denied any vertiginous symptoms, headache, or other neurologic symptoms. Her physical examination findings were unremarkable.
- The auditory disorder was characterized by a severe sensorineural hearing loss, presumptively of cochlear origin, that recovered to a considerable extent following a course of steroids and pentoxifylline.

Case Report – Follow up

- A complete audiological evaluation was carried out one month after onset of the initial symptoms. Immittance measures were consistent with normal middle ear function, characterized by normal Type A tympanograms, normal static immittance, and a return of acoustic reflexes. Uncrossed reflexes were within normal limits, although crossed acoustic reflexes remained elevated at most frequencies. Hearing sensitivity continued to show improvement and was near at normal levels below 1500 Hz, with a symmetric mild to moderate sensorineural hearing loss above. Word recognition scores were 88% bilaterally.
- Auditory brainstem response (ABR) testing was also carried out to rule out any contribution of the auditory nervous system to the hearing loss. ABR testing showed well-formed responses to click stimuli with component peaks at normal and symmetric absolute latencies and inter-peak intervals. Component wave I-V inter-peak intervals were 4.12 msec on the right and 4.04 msec on the left. These results showed no electrophysiologic evidence of eighth nerve or auditory brainstem disorder.
- At four months following onset, the hearing sensitivity loss began to stabilize. Results at four, six, and ten months showed nearly identical hearing sensitivity. Results at 10 months post onset, in Figure 2, show minimal sensorineural hearing loss through 2000 Hz and moderate sensorineural hearing loss at higher frequencies.

References