Guest Editorial

Etiologies Seem to Be Changing Faster Than the Times!

I can recall as a small boy sitting on my grandmother’s lap and trying to cuddle close to her. She was an ample woman, endowed with the perfect place for a 4-year-old to place his head and feel secure and loved. However, there was a small problem; she was hearing impaired. To this day, I haven’t confirmed the etiology, but all evidence points to hyperbilirubinemia, probably associated with erythroblastosis fetalis. She was the only one to survive of her mother’s 9 or 10 pregnancies. The real problem was not with her hearing loss, but rather that Grandma wore one of the original carbon battery operated hearing aids. Strapped to her thigh was an “enormous” battery pack that held four units, each about 4 inches long and two inches in diameter, sort of like sticks of dynamite. A wire from the battery pack ran to the amplifier, which was hooked to her dress. It was metal—also big, at about 2–3 inches wide and equally deep, and about 7 inches high. From it, a cord ran to the receiver and earpiece, which was constantly squealing. My grandfather, never a tolerant person, was always complaining that my grandmother couldn’t hear anything with “...that damn thing, and the racket it makes is so loud no one else can hear themselves think either.” When she was wearing her aid, I simply could not sit on her lap. The discomfort caused by the battery pack on her leg, the steel box in the middle of her chest, and the whistle of the earpiece nullified my feelings toward my grandmother, making cuddling impossible.

Today, as I read the latest journals and trade magazines that extol the virtues of custom-made canal aids of the most minuscule size, I wonder what our relationship might have been, and I think of all the other hearing-impaired folks of that generation and what they must have experienced. It’s hard for me to realize that the extension connector on the electrical wire that ran between her amplifier and receiver was larger than one of today’s hearing aids, and the batteries she used are now on display in the Smithsonian!

When I read about otoacoustic emissions and auditory brainstem response (ABR) instrumentation, cochlear implants, programmable aids, and hundreds of other new developments, I am awed at how times have changed, how technology has moved forward. The interesting thing is that change is not limited to diagnostic and treatment factors. Indeed, even the causes of hearing loss are changing.

Not too many years ago, the primary etiologies of hearing loss in children included genetic factors, rubella, red measles, erythroblastosis fetalis due to Rh incompatibility, meningitis, and mumps. Today, every child in North America can receive immunization against measles, mumps, and rubella. As a consequence, those diseases are well on the road to extinction, and the number of hearing losses we see with those etiologies is so small that it is difficult to maintain accurate statistics. Further, fetuses that may be compromised by Rh incompatibility receive in utero transfusions to reduce the negative effects, and children who begin to show toxic levels of bilirubin are immediately treated with phototherapy lights, so that hyperbilirubinemia, which once
represented 7 percent of our hearing-impaired children, now represents less than 1 percent.

We have been considerably less successful in combating acquired hearing loss in the adult. What has changed is the venue for the noise, but not the fact that noise is probably the single largest external cause of hearing loss in adults. Fifty, thirty, even twenty years ago, the ears of our young men were pounded by the guns of Omaha Beach, Pusan, and Saigon. Today it's Guns and Roses, The Who, and Sting, but the effect is still the same: noise-induced hearing loss. What we have done is succeed, if you want to call it that, in moving noise from the workplace to the home and ensuring that we are exposed at work, at play, and at rest.

Sometimes, we have even created new and unusual ways to destroy our ears. I recall a paper by a colonel in the air force of the People's Republic of China in which this American-trained physician was applying acupuncture to over 100 pilots who were suffering severe barotrauma, ruptured tympanic membranes, vertigo, and hearing loss because of the pressure changes in their aircraft associated with rapid ascent and descent. Those with sensorineural losses were not affected, but a number of those with conductive components were improved by acupuncture. Needle placement triggered a trigeminal nerve response and an associated movement of the levator veli palatini, which seems to open the eustachian tube and equalize air pressure between the aircraft cabin and the middle ear. In one of those ironies of science, we have a new disorder caused by a modern scientific development, and the possibility that some assistance may be found in an ancient medical cure.

Sometimes, the cause of the hearing loss itself is a tremendous advance in medical care. For example, where medical science has been successful in saving lives, in ensuring that the unfortunate victim of a carcinoma lives a longer and more productive life, we have also seen a corresponding increase in the number of hearing-impaired persons associated with ototoxicity and irradiation. Likewise, when new epidemics and diseases have appeared, hearing has often been affected either directly (meningitis) or indirectly (HIV) by the disease, its side effects, or treatment.

What we are saying is that the causes of hearing loss are changing almost as rapidly as the cures. With that in mind, this special issue of JAAA was designed to consider changes that have occurred in the etiology of hearing loss within the last 5–10 years. Each of the papers considers a new pathology or modifications to existing ideas about the causes of hearing loss. What is especially unique about this issue is that a large number of the papers come from outside the United States. We have Canada, Costa Rica, Denmark, and the United Kingdom represented in longitudinal and extensive studies, as well as work that is unique to problems encountered in the United States. We hope the reader will find the materials interesting, informative, and, above all, stimulating. Times are changing, diseases are changing, treatments are changing, and it won't be long before what we know now will be “what we knew then.”

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