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Managing Adults with Significantly Disabling Hearing Loss

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When I was first diagnosed with my hearing impairment at the age of 5, it was in the mild loss range. However, my hearing loss was progressive. During with high school years, my loss was in the moderate-severe range. By the time I was in university it had progressed to a severe loss. My hearing continued to diminish and by the time I was 41, I required a cochlear implant. Thus I have been a person with a severe loss or greater for about 30 years of my life.

Due to the severity of my hearing loss, I have needed the assistance of more than just personal hearing aids or a cochlear implant. Drawing upon both my academic knowledge from studying audiology as well as personal experience, I have done many things to mitigate the consequences of this significant hearing loss. In my desire to share this knowledge, I have decided to use this forum to write a series of columns on the management of adult patients with significantly disabling hearing loss. I originally wanted to write about patients with severe and profound hearing losses; however, I do believe that it is more important to view patients from a functional perspective rather than simply the pure tone audiogram. Hence the title “significantly disabling hearing loss.” Viewed from a functional perspective, we shall cast our net further and capture more patients who function in a similar manner.

There is no question that even a mild loss of hearing is significant. I personally have always disliked our classification scheme of slight, mild, moderate, moderate-severe, severe, and profound. For example. Mild implies a very minor problem that may not need intervention. With a mild and moderate hearing loss, we know our patients will have significant difficulty perceiving many of the voiced-less consonants such as /s/, /f/, /t/, and /k/. Moreover, these patients may also exhibit greater difficulty communicating in background noise due to the damage to the cochlea. However, with the use of today’s modern hearing aids, we can make speech audible, comfortable and feedback free. Moreover, we can help improve hearing in noise with the use of directional microphone technology.

There are those patients for whom personal ear level amplification cannot meet all of their needs. Thus for the purpose of these articles, I am referring to patients with at least one or more these characteristics:

- Severe and profound hearing loss as indicated by the pure tone audiogram.
- Poor word identification abilities in quiet. These patients may have pure tone audiograms in moderate–severe category or milder regions. But by virtue of the poorer word identification scores they function more like a patient with a severe or profound hearing loss.
- Patients with poor word identification abilities in noise. One’s word identification ability in quiet does not necessarily predict one’s ability to understand in noise. Thus a patient may present with 90% or better word identification scores in quiet, yet when may limited ability to comprehend in a signal to noise ratio of 0 dB Signal to noise ratios of 0 dB are extremely common in our modern

noisy worlds and these patients need assistance in coping with these adverse listening conditions.
- These patients typically use personal amplification or cochlear implants during most of their waking hours. Without such devices, these patients hear very little speech or environmental sounds.

When faced with a patient with one or more of these characteristics, we need to consider several areas such as:

- Audibility
- Communication in Noise
- Communication on the Phone
- Communication in Groups
- Recreational Activities
- Alerting and Safety Issues
- Psycho-social issues

The loss of audibility is, of course, the genesis of the problems faced by these adults. This is an area which we as audiologists have been well trained to address. As such I do not feel compelled to write too much on this area. However, a few comments are worthwhile.

With today's hearing aids and cochlear implants, we can now achieve a greater degree of audibility of speech than ever before. Our so called "power" hearing aids are smaller and more efficient. Improved feedback reduction algorithms have allowed us to provide greater amounts of gain. We also have tools such as non-linear frequency compression that will help restore audibility of high frequency sounds that conventional amplification cannot adequately amplify. Finally, in the event that amplification can no longer restore audibility, we can utilize cochlear implantation.

It would be wonderful if we could stop at this point. However, if we did we would only be helping these patients communicate in a one-on-one quiet environment such as the kitchen table at home. We have not addressed communicating in groups, listening to speech at a distance or speech in noise. We have not considered how these patients will wake up in the morning or if they will wake up to a fire alarm. We have not helped with movie theaters or concerts. We still need to address communication on the telephone.

In the next column I will discuss communication in noise, over distance and in groups.