Comorbid Conditions Associated with Hearing Loss: Another Challenge in Educating AuD Students

By James W. Hall III

A growing body of research confirms a connection between hearing loss and a variety of chronic diseases and disorders (for reviews see Abrams, 2017; Besser et al, 2018). The medical term "comorbidities" is appearing increasingly in the audiological literature and also in clinical conversations about patient diagnosis and management. Audiologists have long known that specific often acute disease processes are related directly to different types of hearing loss.

For example, chronic otitis media, cholesteatoma, and otosclerosis almost invariably produce middle-ear dysfunction and conductive hearing loss. Sensory hearing loss is a common finding in infections and other disease processes disrupting cochlear function, such as meningitis, cytomegalovirus, and Meniere's disease. And, audiologists are well aware that neoplasms such as vestibular schwannoma, and nontumor etiologies, like auditory neuropathy

FIGURE 1. Selected chronic health conditions with links to deficits in peripheral or central auditory function.

spectrum disorder, cause neural, or retrocochlear, auditory dysfunction. In the past few years, there has been increasing awareness of the clinical relation between auditory dysfunction and comorbidities, that is, the negative interaction of chronic health conditions or disease with hearing status.

When one thinks about comorbidities, the relationship between hearing loss and cognitive function or dementia may come to mind immediately. There now is increasing international scientific recognition of a link between peripheral and/or central hearing status and cognitive function and, in addition, a correlation between untreated hearing loss and cognitive decline (e.g., Lin, 2011; Thomson et al, 2017; Hung et al, 2015; Loughrey et al, 2018; Mamo et al, 2018; Dawes, 2019). However, as summarized in FIGURE 1, hearing impairment in adults is associated with other common chronic diseases. A PubMed (www.nlm.nih.gov/PubMed) literature search with the keywords "comorbidity" and "hearing loss," conducted as this article was written, yielded more than 600 citations for peer-reviewed publications. Data confirming the association of hearing loss with these comorbid conditions comes from many well-designed investigations of large samples of people from around the world, including systematic studies and meta-analyses of findings. Interestingly, some papers were based on studies of U.S. Medicare data for claims related to hearing loss and comorbid conditions, highlighting growing concern about the health-care costs associated with untreated hearing loss.

The new and growing focus on the relation between hearing loss and chronic disease, rather than hearing loss as an isolated sensory disorder, has multiple serious implications for the education of audiologists. The curricula for AuD students must include coursework covering normal human anatomy and physiology and also systemic diseases and disorders. Clinical experiences of AuD students should permit regular interaction with primary care physicians and physicians representing a wide range of medical specialties such as internal medicine, endocrinology, psychiatry, nephrology, rheumatology, geriatric medicine, in addition to otolaryngology. Although the short-term educational investment is challenging, it is likely to yield substantial long-term dividends. Among them are the potential for thriving clinical practices with diverse patient populations, the rewards of improved patient hearing and general health care, and a more secure future for the profession of audiology.

As stated in a 2016 ACAE Corner article on accreditation standards (Hunter, 2016): "Students in AuD programs today must be adequately prepared to meet unprecedented challenges in the practice of audiology tomorrow. The overall objective of the updated educational standards is to assist ACAE-accredited programs in the preparation of audiologists that have the knowledge, skill, and competencies required to successfully compete in a new audiology world" (Hunter, Hall and Gordon, 2016). Audiological management of hearing loss in the context of comorbid health conditions will be an important part of the new audiology world.

James W. Hall III, PhD, American Board of Audiology Certified, has 40 years of experience in audiology as a clinician, administrator, teacher, and researcher. A founder of the Academy and chair of the ACAE Board, Dr. Hall is a professor in the Osborne College of Audiology at Salus University in Elkins Park, Pennsylvania and a professor in the Department of Communication Sciences and Disorders at the University of Hawaii in Honolulu, Hawaii.

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