

Luncheon Seminar 3

Hearing and Cognition

— Mechanisms linking the two and the effective use of hearing aids

Date

October 2
(Fri.), 2026 , 11:50~12:40

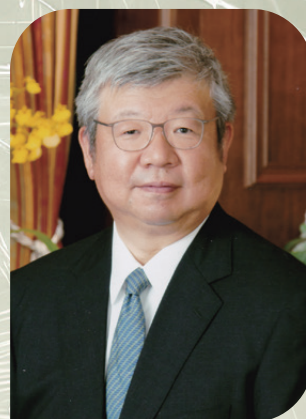
Venue

Room A(2F Empress Hall)
Grand Mercure
Sapporo Odori Park

Chair

Takashi Nakagawa MD, PhD

Society President
Japanese Society of Otorhinolaryngology-Head and Neck Surgery
Department of Otorhinolaryngology,
Kyushu University Graduate School of Medical Sciences,
Professor and Chairman



Speaker

Yasue Uchida MD, PhD

Professor, Department of Otorhinolaryngology Head and Neck Surgery,
Aichi Medical University



**Looking Back, Thinking Forward:
Revisiting Hypothetical Mechanisms**

Speaker

Yuko Kataoka MD, PhD

Associate Professor, Hearing Health Center, Okayama University Hospital



**Community-Based Strategies to Improve
Hearing Health in Older Adults**

Looking Back, Thinking Forward: Revisiting Hypothetical Mechanisms

In 2019, we published a review in *Auris Nasus Larynx* entitled “Age-related hearing loss and cognitive decline—The potential mechanisms linking the two.” In that review, we discussed four major hypotheses regarding the mechanisms underlying the association between age-related hearing loss and cognitive decline: (1) the cognitive load hypothesis, whereby increased listening effort places a greater demand on cognitive resources; (2) the common cause hypothesis, which proposes that shared age-related, vascular, or neurodegenerative processes contribute to both hearing loss and cognitive decline; (3) the cascade hypothesis, in which hearing loss may initiate a series of downstream changes, including social isolation, reduced peripheral stimulation, and alterations in brain structure and function; and (4) the overdiagnosis or harbinger hypothesis, suggesting that hearing loss may be an early marker of underlying pathological processes associated with cognitive impairment rather than a direct cause. We emphasized that these hypotheses are not mutually exclusive and that several mechanisms may coexist and interact.

Since then, a substantial body of evidence has accumulated, providing new insights into the complex relationship between hearing and cognition. Increasing attention has been directed toward changes in brain structure and function associated with hearing loss, as well as the relationship between hearing loss, neurodegenerative pathology, and biomarkers of dementia.

Nevertheless, the precise mechanisms linking hearing loss and cognitive decline remain incompletely understood, and the direction and nature of these relationships are likely to be multifactorial and dynamic. In this seminar, we will revisit the hypothetical mechanisms proposed in 2019 and examine how recent evidence has supported, challenged, or refined these concepts. Finally, we will discuss which mechanisms may be potentially modifiable and why this perspective is important when considering hearing intervention and the effective use of hearing aids.

Biography

Yasue Uchida, M.D., Ph.D., is Professor of Otorhinolaryngology–Head and Neck Surgery at Aichi Medical University and a Senior Researcher in the Department of Epidemiology of Aging, National Center for Geriatrics and Gerontology in Japan. She graduated from Osaka Medical College in 1990 and has built her career through academic and clinical appointments at Nagoya University, the National Center for Geriatrics and Gerontology, and Aichi Medical University, where she was appointed Professor in 2022.

Dr. Uchida is a board-certified Clinical Geneticist and holds qualifications, including certified instructor status in otologic surgery and specialized training in otorhinolaryngology–head and neck surgery. Her research focuses on hearing science, aging, and geriatric otology.

She has received the Excellent Paper Award from the Japan Geriatrics Society (2013) and the “Shining Female Otolaryngologist Award” (2023), and currently serves as a Board Member of both the Japan Audiological Society and the Japan Otological Society, and as a Councilor of the Japanese Society of Otorhinolaryngology–Head and Neck Surgery.

Community-Based Strategies to Improve Hearing Health in Older Adults

Age-related hearing loss can adversely affect communication, social participation, and quality of life and may be a risk factor for dementia and frailty. In recent years, the importance of early detection and early hearing intervention has been widely recognized, and various strategies have been proposed. However, according to JapanTrak 2025, the hearing aid ownership rate in Japan remains at only 16% among people who report hearing difficulties, while only 54% of hearing aid owners are satisfied with their devices. Both rates remain lower than those in other developed countries.

In collaboration with local governments and other stakeholders, we are developing a comprehensive, community-based Hearing Health model that supports the entire pathway from raising public awareness and hearing screening to hearing aid subsidies and the initiation of hearing aid use. We also conduct follow-up surveys, analyses, and outcome evaluations of each initiative to identify challenges, improve our programs, and determine what further strategies are needed.

Through these efforts, we have also encountered a significant challenge in non-urban areas, where access to otolaryngology services, accredited hearing aid centers, and certified hearing aid specialists is limited. Under these circumstances, ensuring appropriate hearing aid provision and improving user satisfaction with hearing aids remain particularly difficult. These findings suggest that increasing screening opportunities or financial support alone is not sufficient. A sustainable system must connect screening with medical evaluation, appropriate hearing aid fitting, outcome assessment, and continued follow-up, while adapting service delivery to local healthcare resources and geographic conditions.

In this seminar, I will present our implementation research, discuss the challenges identified through these initiatives and their evaluation, and outline future directions for improving Hearing Health among older adults.

Biography

1998- Graduated from the Faculty of Medicine, Okayama University
Joined the Department of Otolaryngology, Okayama University
2000- Kochi Prefectural Central Hospital, Okayama City Hospital

2003- Working at Okayama University Hospital

2023- Associate Professor, Hearing Health Center, Okayama University Hospital

Deputy Chair, UNESCO Chair, Okayama University

Deputy Director, Diversity Promotion center, Okayama University and Okayama University Hospital

Specialties: Audiology (healthcare, education, welfare, and disaster prevention for people with hearing loss), Diversity & Inclusion