Current Status of Otorhinolaryngology and Head and Neck Surgery in Japan


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Otology

1. Otological Society of Japan
The Otological Society of Japan held its 17th annual meeting in 2007. This society was developed in 1991 through the merger of two related societies, each with more than 30 years of history, namely, the Japan Society of Ear Research (formerly the Japan Society of Inner Ear Biology) and the Japan Society of Clinical Otology (formerly the Japan Oto-Microsurgery).

(1) Matters relating to basic otology

Genesis of the inner ear:
Research on the genesis of the inner ear has progressed from the morphological aspects to the molecular biological aspects. Specific subjects of research include the preparation of motor protein-expressing outer hair cell lines, the mechanism of differentiation of inner ear precursor cells, and the role of the Notch signal system in the differentiation of inner ear precursor cells into hair cells and supporting cells.

Regeneration of the inner ear:
Studies on the regeneration of sensory cells in the inner ear are in progress, especially with regard to the introduction of ES cells. Data are accumulating from studies on the methods of regenerating hair cells, supporting cells, and ganglion cells in cases of inner ear disorder.

Pattern of the manifestation of inner ear disorder:
The expression of a neural stem-cell-specific marker, Musashi protein, in cases of inner ear disorder, localization of \( \alpha \)-tectorin (a constituent of the non-collagen matrix of the tectorial membrane), and the relationship between variations in Connexin 26 and the degree of hearing loss all have been studied.

Aging process of the inner ear:
The prevention of age-related hearing loss through calorie restriction has been studied in mice. Studies on the protective function of the neurotrophin receptor P75 and the prevention of inner ear aging through the use of antioxidants are also underway.

(2) Matters relating to clinical otology

Inner ear surgery:
The method of evaluating the results of tympanoplasty for hearing improvement has been revised, and standardized evaluation based on the revised method has become common. Navigation surgery is being employed for the treatment of outer and middle ear anomalies such as atresia of the ear canal.

Artificial eustachian tube and cochlear implant:
Artificial eustachian tubes have been developed for the treatment of patulous eustachian tube. Most children who have undergone cochlear implant surgery attend ordinary elementary schools, and thus the importance of coordination with school education is increasing.

Guidelines for the diagnosis and treatment of acute otitis media:
Guidelines for the diagnosis and treatment of acute otitis media were developed through the efforts of the Japan Society for Pediatric ORL, the Otological Society of Japan, and the Japan Society of Immunology & Allergology in Otolaryngology. These are the first guidelines concerning acute otitis media in Japan, and they are expected to have an important impact on future clinical practice.

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2. Japan Audiological Society
The Japan Audiological Society is an academic society with a history of over 50 years. The following areas of clinical practice and research have received particular focus in recent years.

(1) Sensorineural deafness
A number of reports on sudden deafness and low-tone sensorineural deafness have been presented, particularly from the aspects of clinical epidemiology and treatment modality.

(2) Evoked response
In addition to auditory brainstem response (ABR) testing using click stimuli, ABR measurement devices with frequency response have been introduced and are currently in wide use.

(3) Hearing aids
The preference of hearing aid users is shifting from analog to digital types, and research on such hearing aids is progressing rapidly.

(4) Neonatal hearing screening
Neonatal hearing screening has become more common. In cooperation with the Oto-Rhinolaryngological Society of Japan, the Japan Audiological Society accredits facilities available for further intensive hearing testing, and thereby facilitates the formulation of a care system for neonates with hearing impairment.

(5) Hearing loss and genes
Several types of genetic abnormalities common in Japan have become apparent.

3. Japan Society for Equilibrium Research
The Japan Society for Equilibrium Research is an academic society with a history of more than 50 years since its founding. As a society that deals with equilibrium, this society is unique from a global standpoint in view of its large membership and extensive activities, outlined below.

(1) The benign paroxysmal positional vertigo (BPPV) clinical trial project led by this society
In order to determine the clinical efficacy of physical therapies for BPPV, this society has taken a leading role in undertaking randomized controlled trials to investigate the efficacy of treatment in patients enrolled via the Internet.

(2) Publication of a CD-ROM guide for equilibrium testing in daily clinical practice
A CD-ROM guide for equilibrium testing has been published and is being distributed to JSER members, providing an easily accessible aid for equilibrium testing in outpatient clinics.

(3) Vestibular evoked myogenic potential (VEMP) in otolith function test
VEMP evoked by acoustic stimulation and its clinical application have been studied in depth.

(4) Video images and the three-dimensional analysis of eye movements
Studies to elucidate the origin of nystagmus by the three-dimensional analysis of video-recorded eye movements (slow phase of nystagmus) and by calculation of the axis of eye movements are in progress. It has become apparent that BPPV lesions are not necessarily located in the posterior semicircular canal.

Rhinology

Rhinology-related academic societies include the Japan Rhinologic Society and the Japan Society of Immunology & Allergology in Otolaryngology. The former covers research and the clinical care of inflammation, allergy, trauma, tumor, and other diseases of the nose and nasal sinus. The latter society was established to cover allergies in all areas of otorhinolaryngology. This society, however, currently deals with diseases related to the nose and nasal sinus in most cases, excluding some exceptional cases, and therefore is referred to under the category of rhinology.

(1) Intractable sinusitis
The results of treatment for chronic sinusitis have improved markedly by virtue of the long-term administration of 14-membered ring macrolide antibiotics developed in Japan and the spread of endoscopic intranasal sinus surgery. Nevertheless, cases of intractable sinusitis that do not respond to treatment are increasing. Patients with this condition are divided into the combined type, in which allergic inflammation is present, and the conventional uncombined type. Nasal discharge in combined-type cases contains abun-
dant IL5 and leukotriene, whereas IL-1, TNF, and IL-8 are predominant in the conventional cases. It has been pointed out that high concentrations of IL5 are involved in the migration and activation of eosinophils and have a strong relation with the manifestation of eosinophilic sinusitis.

(2) Nasal allergy
Topics related to the treatment of nasal allergy, a condition that is practically a national affliction, include anti-IgE antibody therapy, gene therapy, and oral hyposensitization therapy. Most of these therapies have been developed in other countries, and additional large-scale clinical trials are needed to address racial differences and other issues. The Japan Society of Immunology & Allergology in Otolaryngology is promoting the establishment of standards to be used in the diagnosis and treatment of nasal allergy by developing guidelines for the diagnosis and treatment of this condition.

(3) Smell disorder
Experimental studies of the efficacy of nasal steroid therapy in patients with smell disorder have been carried out. A comparison of the conventional suspended head position and the supine position in instillation has revealed that the steroid drop can adequately reach the olfactory mucosa in the supine position.

Head and Neck Surgery
Academic societies related to head and neck surgery include the Japan Society for Head and Neck Surgery and the Japan Society for Head and Neck Cancer. The former consists of otorhinolaryngologists, whereas members of the latter society includes many dentists. This is different from corresponding academic societies in other countries, and some reform would be desirable to clarify this issue.

The sensory organs responsible for vision, smell, hearing, equilibrium, and taste are present in the head and neck region, and are involved in masticating and swallowing functions in the upper digestive tract, and in respiratory, phonetic, and language functions in the upper airway. The face and features represent the personality of the individual, and their damage creates a serious situation for the patient. Therefore, treatment of this region, particularly that of malignant tumors, requires comprehensive selection of the treatment modality, taking into account the patient’s rehabilitation into society after the end of treatment, although vital prognosis is the first priority.

Recent topics in this field include multiple head and neck cancer, diagnosis and treatment of early oropharyngeal cancer, larynx preservation, chemoradiotherapy, and super-selective arterial infusion chemotherapy. However, at present, otorhinolaryngologists who wish to become head and neck surgeons are not common. A variety of efforts will be necessary in the future to increase the number of otorhinolaryngologists in this field.

Others
Other academic societies related to the Oto-Rhino-Laryngological Society of Japan include the Japan Broncho-Esophagological Society, Japan Society of Logopedics and Phoniatrics, Japan Society for Pediatric ORL, Society of Practical Otolaryngology, Japan Society of Stomatopharyngology, Japan Laryngological Association, and the Society of Swallowing and Dysphagia of Japan. In addition to the above-described academic activities, each of these societies is engaged in important activities.