The Journal of Laryngology and Otology
May 1990, Vol. **104**, pp. 445–448

Abstract selection

Prevalence of non-allergic nasal complaints in an urban and a rural population in Sweden. Jessen, M., Janzon, L. Department of Oto-rhino-laryngology, University of Lund, Malmo General Hospital, Sweden. *Allergy* 1989 Nov, Vol. 44 (8), pp. 582–7.
By questionnaire, 1469 randomly selected persons between 16 and 82 years of age were asked whether they had suffered from such nasal complaints as obstruction, sneezing and discharge, at least during the previous six months. Seventy five per cent answered the questionnaire, two thirds of whom were city dwellers and one third lived in a rural district. No difference was found between the urban and the rural populations regarding the prevalence of symptoms. Twenty-one per cent suffered from non-allergic nasal complaints, and 5 per cent from allergic nasal complaints. The prevalence of non-allergic nasal complaints was highest in the 20–30 year age group, and lowest in the 50–60 year age group. Contributory factors were of greater importance among the younger individuals than among the more elderly. Author.

Ambulatory esophageal and hypopharyngeal pH monitoring in patients with hoarseness. Katz, P. O. Johns Hopkins University Division of Digestive Diseases, Francis Scott Key Medical Center, Baltimore, Maryland. *American Journal of Gastroenterology* 1990 Jan, Vol. 85 (1), pp. 38–40.
Ten patients referred by an otolaryngologist for ambulatory esophageal pH monitoring for suspected reflux-induced hoarseness were monitored with a dual ambulatory pH system in which probes were simultaneously placed 5 cm above the lower esophageal sphincter and 2 cm above the upper esophageal sphincter (laryngeal inlet). All were nonsmokers. Hypopharyngeal reflux (pH drop less than 4 in upper electrode preceded by pH drop less than 4 in esophageal electrode) was conclusively demonstrated in seven of 10 patients. Three of these seven patients had normal frequency and duration of esophageal reflux and would have been classified as normal, yet demonstrated acid reflux into the hypopharynx. As a group, these patients were high frequency, short duration, upright refluxers. Combined hypopharyngeal and esophageal pH monitoring is useful in the diagnosis of reflux-induced hoarseness. Author.

Epiglottitis: comparison of signs and symptoms in children less than 2 years old and older. Losek, J. D., Dewitz-Zink, B. A., Melzer-Lange, M., Havens, P. L. Department of Pediatrics, Medical College of Wisconsin, Milwaukee, Wisconsin. *Annals of Emergency Medicine* 1990 Jan, Vol. 19 (1), pp. 55–8.
A 20-year retrospective review of 236 children with epiglottitis was performed to determine the frequency of occurrence of 21 presenting signs and symptoms. To determine the association of age with clinical presentation and diagnosis of epiglottitis, the signs and symptoms of children less than 2 years old were compared with those of children 2 years of age and older. Fifty-eight children (25 per cent) were less than 2 years old. Sore throat was the only factor significantly different in the two age groups (P less than .01), occurring more commonly in the older children. There were 128 children (54 per cent) with blood cultures positive for Haemophilus influenzae. Analyses of patients with positive blood cultures gave similar results. The signs and symptoms that clinically support epiglottitis in children less than 2 years old are similar in older children. Author.

Acute-onset Brown's syndrome associated with pansinusitis. Saunders, R. A., Stratas, B. A., Gordon, R. A., Holgate, R. C. Department of Ophthalmology, Medical University of South Carolina, Charleston. *Archives of Ophthalmology* 1990 Jan, Vol. 108 (1), pp. 58–60.
We treated a 5-year-old girl and a 6-year-old boy with acquired Brown's syndrome associated with pansinusitis. In both patients, the diagnosis was established roentgenographically, and the patients were treated with oral antibiotics. Systemic corticosteroids were used in one case, although their clinical value was uncertain. Patients presenting with acute-onset. Brown's syndrome of undetermined cause should undergo computed imaging of the orbits and paranasal sinuses. Author.

Acrobatic ears: a cause of petrified auricles. Lari, A. A., Al Rabah, N., Dashti, H. Departments of Plastic and Reconstructive Surgery, Mubarak Al-Kabeer Hospital, Kuwait. *British Journal of Plastic Surgery* Vol. 42 (6), pp. 719–21.
Calcified ear cartilages are rarely encountered and only 12 histologically proven cases have been documented. The case presented is of ossified auricles in a teenager and has many interesting features. Acrobatic manipulation of the auricles as a cause of the lesion was one of the distinguishing features. Author.

On the role of GABA as an inhibitory neurotransmitter in inferior colliculus neurons: iontophoretic studies. Faingold, C. L., Gehlbach, G., Caspary, D. M. Department of Pharmacology, Southern Illinois University School of Medicine, Springfield 62708. *Brain Research* 1989 Oct 23, Vol. 500 (1–2), pp. 302–12.
Significant neurochemical, immunocytochemical, and ligand binding studies support a role for GABA as an inhibitory neurotransmitter in the inferior colliculus (IC). The present study attempted to satisfy some of the remaining criteria for establishing transmitter identity by utilizing iontophoretic application onto IC neurons of agents affecting the action of gamma-aminobutyric acid (GABA). The agents examined include GABA, a GABAB agonist (baclofen), a GABAA antagonist (bicuculline), a GABA uptake inhibitor (nipecotic acid), and a benzodiazepine (flurazepam), thought to exert its actions on the GABA receptor complex. Application of GABA results in inhibition of the spontaneous firing and acoustically evoked responses of inferior colliculus neurons. The inhibitory effect of GABA is enhanced by the simultaneous application of nipecotic acid or flurazepam. These agents as well as baclofen produce firing reductions when applied alone in higher doses. The effect of GABA can be blocked by application of bicuculline, and acoustically evoked (binaural) inhibition can also be selectively blocked by low doses of this GABAA antagonist. These data along with previous studies utilizing different techniques fulfill many of the criteria for establishment of GABA as an important inhibitory transmitter in the inferior colliculus. Author.

Endobronchial epithelial papilloma associated with a foreign body. Greene, J. G., Tassin, L., Saberi, A. Pulmonary Division, University of North Dakota. *Chest* 1990 Jan, Vol. 97 (1), pp. 229–30.
Non-invasive papillary endobronchial lesions are among the least common of pulmonary neoplasms. We describe the occurrence of a papillary squamous tumor surrounding an aspirated sunflower seed foreign body, and briefly review the subject of endobronchial papilloma. This tumor should be a red flag for the presence of a foreign body, and foreign body removal may obviate the need for thoracotomy. Author.

Effect of broadband noise on the human brain stem auditory evoked response. Hecox, K. E., Patterson, J., Birman, M. Nicolet Instruments Corporation, Audiodiagnostics Division, Madison, Wisconsin. *Ear and Hearing* 1989 Dec, Vol. 10 (6), pp. 346–53.
The purpose of this paper is to describe the effect of broadband continuous noise on brain stem auditory evoked responses elicited from normal-hearing and hearing-impaired individuals. The motivation for this study derives from the increasing use of noise masking paradigms in diagnostic electrophysiology, the universal presence of background noise in everyday listening environments, and the frequent observation that background noise is more detrimental to the performance of the hearing-impaired individual than to the normal-hearing individual. Four studies were designed to evaluate: (1) the sensitivity and specificity of the latency-intensity series, (2) the sensitivity and specificity of the latency-noise series, (3) the dependence of the latency-noise series on signal-to-noise

ratio near electrophysiologic threshold, and (4) the dependence of the latency-noise index on the signal level at which the test is performed. The results of the studies reported herein show that the electrophysiological response to increasing masker levels is more sensitive for identifying inner ear pathology than previously used latency-intensity series measures, without compromising specificity. It is suggested that simultaneous broadband masking should be considered as a test for localization of pathology in those subjects for whom routine behavioral measurements are not possible or when the results of such measurements are equivocal. Author.

Measurement of hearing aid benefit in the elderly. Malinoff, R. L., Weinstein, B. E. Department of Communicative Disorders, New York Eye and Ear Infirmary, New York. *Ear and Hearing* 1989 Dec, Vol. 10 (6), pp. 354–6.
Providing amplification is at the heart of most rehabilitation programs for the elderly. Given the importance of quality assurance, methods of quantifying hearing aid fitting success are needed. This study was designed to assess the adequacy of a self-assessment scale at measuring hearing aid benefit following a three week interval of hearing aid use. Forty-five new hearing aid users completed the Hearing Handicap Inventory for the Elderly (HHIE) prior to and following three weeks of hearing aid use. Results of the study showed a significant reduction in handicap following three weeks of hearing aid use, suggesting the feasibility of using the HHIE as an outcome measure for hearing aid success after a brief interval of hearing aid use. Subjects will be followed longitudinally to determine the best time frame in which to administer this scale. Author.

Practices and attitudes related to hearing: a survey of executives. Fujikawa, S., Cunningham, J. K. Department of Surgery, University of California, Irvine. *Ear and Hearing* 1989 Dec, Vol. 10 (6), pp. 357–60.
Executives were surveyed about their hearing health-care practices and attitudes toward hearing loss (N = 140, mean age = 49, number of males = 133). In regard to hearing health-care practices, about one-third of the executives had not had a hearing test during the past five years. Fifty-one per cent of the executives reported that a hearing test was conducted or recommended during their annual physical examinations. Twenty (14 per cent) of the executives rated their hearing as fair or poor, but only two of them wore hearing aids. Executives who reported poorer hearing were less likely to have had recent hearing tests. When seeking a hearing evaluation, the executives indicated a two to one preference for medical doctors over audiologists—none preferred hearing aid dispensers. Regarding attitudes, approximately 90 per cent of the executive felt that hearing aids were effective, but only two-thirds disagreed with the stereotype that hearing aids connote old age. Executives who tended to equate hearing aids with old age were less likely to be aware of hearing-impaired employees in their companies. Implications of these findings are discussed. Author.

Measurement and prediction of hearing loss in a nursing home. Gutnick, H. N., Zillmer, E. A., Philput, C. B. Department of Otolaryngology, Eastern Virginia Medical School, Norfolk. *Ear and Hearing* 1989 Dec, Vol. 10 (6), pp. 361–7.
The purpose of this study was to evaluate the abilities of three paper-and-pencil tests to predict pure-tone hearing loss of nursing home residents. The three tests used were the staff version of the Nursing Home Hearing Handicap Index and two tests of mental status, the Mini Mental State and the Short Orientation-Memory-Concentration Test. Testing was done on the residents (n = 122) of a long-term, intermediate-care nursing home. In general, the residents who passed the hearing test (using a 40 dB HL criterion) performed better on all three tests than did the residents who failed the hearing test and the residents who could not be tested. The results of discriminant analyses showed that the factor of age predicted hearing loss with a sensitivity of 93 per cent and a specificity of 35 per cent. The factor of age in combination with question four of the SOMCT and question 10 of the NHHI improved specificity to 53 per cent. Author.

Kinins are generated in nasal secretions during natural rhinovirus colds. Proud, D., Naclerio, R. M., Gwaltney, J. M., Hendley, J. O. Department of Medicine, Johns Hopkins University, Baltimore, Maryland. *Journal of Infectious Diseases* 1990 Jan, Vol. 161 (1), pp. 120–3.
A prospective study compared the levels of inflammatory mediators in nasal lavages from non-infected, asymptomatic subjects with the mediator content of lavages from the same subjects during naturally occurring rhinovirus colds. Samples were obtained from 16 subjects who experienced natural colds that could be attributed to rhinovirus infections. Kinin levels during symptomatic colds were significantly elevated (P less than .01) compared with those measured when the subjects were non-infected and asymptomatic. Increases in kinins correlated with increased vascular permeability, as monitored by increased concentrations of albumin in lavages. In contrast, histamine levels in nasal lavages were not increased during symptomatic infections, suggesting that mast cell and basophil activation does not occur during rhinovirus colds. These data confirm and extend observations made during experimentally induced rhinovirus infections to the natural disease and are consistent with the hypothesis that kinins may play a role in the pathogenesis of symptomatic rhinovirus infections. Author.

Infratentorial subdural empyema: clinical and computerized tomography findings. Report of three cases. Borovich, B., Johnston, E., Spagnuolo, E. Department of Neurosurgery, Hospital de Clinicas, Faculty of Medicine, Montevideo, Uruguay. *Journal of Neurosurgery* 1990 Feb, Vol. 72 (2), pp. 299–301.
Infratentorial subdural empyemas are rare. The authors report three cases encountered between 1979 and 1988, representing a three per cent incidence among all subdural empyemas. The common source was an ear infection. Clinical presentation encompassed a systemic febrile illness, headaches, and a stiff neck. Only one patient had an inconspicuous focal neurological deficit that suggested a cerebral location. Initial diagnosis was acute meningitis in each case. A lumbar puncture was ordered in all three cases but was actually performed in two without developing tonsillar herniation. Cerebrospinal fluid analysis confirmed the diagnosis of meningitis in one but was normal in the other. Computerized tomography allowed a precise diagnosis and localization of the pathology. All three patients received aggressive antibiotic therapy plus suboccipital craniectomy and aspiration of pus; catheter drainage was performed in two. Cultures were positive in one case and negative in the others. Two patients were cured without sequelae; the third patient was moribund at surgery and died. Although it is known that subdural empyemas may localize in the posterior fossa, only one previous report was found. Infratentorial subdural empyema may sometimes be an unrecognized companion of acute meningitis and is cured with antibiotic therapy alone. Author.

Epistaxis due to glutaraldehyde exposure. Wiggins, P., McCurdy, S. A., Zeidenberg, W. Division of Occupational and Environmental Medicine, University of California, Davis. *Journal of Occupational Medicine* 1989 Oct, Vol. 31 (10), pp. 854–6.
Glutaraldehyde is commonly used as a cold disinfecting agent in the hospital setting and may cause irritation of skin, mucous membranes, and the upper respiratory tract in exposed workers. We report an unusual case of recurrent epistaxis associated with other symptoms of upper respiratory tract irritation and skin rash in a hospital employee using glutaraldehyde for sterilization of endoscopy equipment. A visit to the workplace revealed inadequate personal protective measures and inadequate local ventilation. High-risk work practices contributing to the hazard included soaking of endoscopy equipment in uncovered basins, manual pouring of concentrated glutaraldehyde solutions without the use of proper protective measures, and the use of paper masks, which provide inadequate protection from solvent vapours. The patient's symptoms resolved with the implementation of personal protective measures and engineering controls. Author.

Lyme disease misdiagnosed as a temporomandibular joint disorder. Lader, E. *Journal of Prosthetic Dentistry* 1990 Jan, Vol. 63 (1), pp. 82–5.
Craniomandibular disorders cause many pleomorphic and seemingly unrelated clinical manifestations that mimic other more serious medical problems and thus can present physicians and dentists with a challenge that invites misdiagnosis and improper treatment planning. Conversely, misdiagnosis and ineffective treatment planning are facilitated when serious medical problems manifest a range of signs and symptoms that are clinically similar to temporomandibular joint muscle dysfunction. At times, the patient's response to therapy may be the best method of corroborating a diagnosis, as illustrated in this report of a patient with Lyme disease that was misdiagnosed as a temporomandibular joint disorder. Lyme disease has already reached epidemic proportions in several parts of the United States and its geographic distribution is spread-

ing. Because Lyme disease is a life-threatening illness whose clinical manifestations can mimic temporomandibular joint/myofascial pain-dysfunction, it is the responsibility of every dentist who treats craniomandibular disorders to become familar with the clinical presentations of Lyme disease and more proficient in its differential diagnosis. Author.

A comparison of self recording audiometry in naval establishments and clinical audiometry in a hospital setting. Frampton, M. C., Counter, R. T. *Journal of Royal Navy Medical Services* 1989 Summer, Vol. 75 (2), pp. 99–104. ISSN: 0035-9033.
Following the introduction of self-recording audiometers into regular use in non-hospital Royal Naval medical facilities, there has been an increase in the rate of detection of hearing losses and consequent referral for formal audiometry and ENT evaluation at Naval Hospitals. Forty-two sets of audiograms have been examined and the hearing thresholds obtained by the two methods compared. The value of self-recording audiometry even in the often imperfect audiometric conditions available in a Naval sick bay has been confirmed and the midpoint of the tracing established as a reliable indicator of the hearing threshold. Author.

Mental nerve neuropathy in systemic cancer. Report of three cases. Penarrocha-Diago, M., Bagan-Sebastian, J. V., Alfaro-Giner, A., Escrig-Orenga, V. Section of Oral Medicine, Faculty of Medicine and Dentistry, University Hospital, La Fe, Valencia, Spain. *Oral Surgery, Oral Medicine, Oral Pathology* 1990 Jan, Vol. 69 (1), pp. 48–51.
Mental nerve neuropathy (MNN), an uncommon neurologic symptom, was observed in three patients with cancer. In the first patient, MNN was the primary manifestation of an occult carcinoma of the lung. The second patient had bilateral MNN. In the third patient, MNN coexisted with symptomatic trigeminal neuralgia as a consequence of a cavum adenocarcinoma. A nontraumatic MNN must be considered a potentially ominous symptom that should prompt a search for cancer. Author.

Supraglottitis in three young infants. Goldhagen, J. L. Division of General Academic Pediatrics, Rainbow Babies and Children's Hospital, Cleveland, Ohio 44106. *Pediatric Emergency Care* 1989 Sep, Vol. 5 (3), pp. 175–7.
Three case histories of young infants with supraglottitis are presented. At this age, supraglottitis rarely occurs. Atypical features, as compared to older children, include a viral prodrome, lack of fever, stomatitis, and negative blood cultures. Although viral supraglottitis has been previously reported, this is the first report of epiglottitis associated with parainfluenza virus. Author.

Intermittent absorption of warfarin caused by an unrecognized pharyngeal pouch. Ong, A., Slater, J. D. Cobbold Laboratories, Middlesex Hospital, London, UK. *Postgraduate Medical Journal* 1989 Sep, Vol. 65 (767), ppp. 660–1.
An 80 year old woman on long term warfarin presented with an acute haemarthrosis of her right knee. Further investigations revealed a large pharyngeal pouch and a history of tablet regurgitation was obtained. Surgical resection was necessary 12 months later to ensure predictable absorption of orally administered drugs. The varying presentation of pharyngeal pouches and the importance of this complication are discussed. Author.

MR imaging appearance of childhood adrenoleukodystrophy with auditory, visual, and motor pathway involvement. Jensen, M. E., Sawyer, R. W., Braun, I. F., Rizzo, W. B. Department of Radiology, Medical College of Virginia, Richmond 23298-0615. *Radiographics* 1990 Jan, Vol. 10 (1), pp. 53–66.
Childhood adrenoleukodystrophy is an X chromosome-linked disorder characterized by progressive demyelination of cerebral white matter and adrenal insufficiency. Magnetic resonance (MR) imaging was performed in 15 patients with symptomatic disease and three with presymptomatic disease. MR imaging findings were abnormal only in symptomatic patients. Major sites of disease were the occipital, parietal, and temporal lobes, with all patients showing involvement of occipital lobes, optic radiations, and splenium of the corpus callosum. Follow-up images obtained in four patients demonstrated a posterior-to-anterior progression of disease. Correlation of results from MR imaging with those from evoked potential studies indicated that MR imaging was the method of choice for detecting demyelination of visual, auditory, and motor systems in adrenoleukodystrophy. Author.

CT and MR imaging of intralabyrinthine schwannoma: report of two cases and review of the literature. Mafee, M. F., Lachenauer, C. S., Kumar, A., Arnold, P. M., Buckingham, R. A., Valvassori, G. E. Department of Radiology, University of Illinois, Chicago 60680. *Radiology* 1990 Feb, Vol. 174 (2), pp. 395–400.
Two cases of intralabyrinthine schwannoma were studied with computed tomography (CT) and magnetic resonance (MR) imaging. On CT scans, a soft-tissue mass was identified in the round window niche in both cases. Widening of the basilar turn of the cochlea and characteristic erosion of the promontory were noticed in one case. Preoperative MR imaging (performed in only one case) revealed a soft-tissue mass in the labyrinth, extending into the round window niche. Findings at CT and MR imaging are discussed, and a differential diagnosis is given. The literature is reviewed. The authors' findings suggest that CT and MR imaging may prove very valuable in the previously difficult preoperative diagnosis of these tumours. In the setting of progressive sensorineural hearing loss, atypical Meniere disease, or recurrent vertigo, the presence of a mass in the labyrinth or labyrinthine windows delineated on CT or MR images, despite a normal internal auditory canal, cerebellopontine angle, or brain stem—is highly suggestive of intralabyrinthine schwannoma. Author.

Pulsatile tinnitus and the vascular tympanic membrane: CT, MR, and angiographic findings. Remley, K. B., Coit, W. E., Harnsberger, H. R., Smoker, W. R., Jacobs, J. M., McIff, E. B. Department of Radiology, University of Utah Medical Center, Salt Lake City 84132. *Radiology* 1990 Feb, Vol. 174 (2), pp. 383–9.
The radiologic studies of 107 patients with pulsatile tinnitus or a vascular retrotympanic mass were retrospectively reviewed. Of the 100 patients with pulsatile tinnitus, 25 had objective tinnitus. A vascular tympanic membrane was present in 37 cases (35 per cent). Normal vascular variants were present in 23 patients (21 per cent). Twenty-seven patients (25 per cent) had acquired vascular lesions. Temporal bone tumours were found in 33 patients (31 per cent). No abnormality was identified in 21 cases (20 per cent). To ensure optimal radiologic examination, it is imperative to know the nature of the tinnitus (objective vs subjective) and the appearance of the tympanic membrane. All patients with subjective pulsatile tinnitus or a vascular retrotympanic mass should undergo high-resolution computed tomography of the temporal bone as the initial imaging study. Angiography is recommended for patients with objective tinnitus and a normal tympanic membrane. The role of MR imaging, even with the addition of gradient-echo techniques, remains limited and secondary. Author.

Malignant external otitis: utility of CT in diagnosis and follow-up. Rubin, J., Curtin, H. D., Yu, V. L., Kamerer, D. B. Department of Otolaryngology, University of Pittsburgh School of Medicine, PA 15261. *Radiology* 1990 Feb, Vol. 174 (2), pp. 391–4.
Malignant external otitis is a severe bacterial infection of the bone and soft tissues of the base of the skull that is frequently difficult to diagnose. The effectiveness of antibiotic therapy is likewise difficult to assess. Serial computed tomographic (CT) scans were obtained in 11 consecutive patients with malignant external otitis at time of diagnosis and periodically after conclusion of antibiotic therapy. All patients demonstrated abnormalities of the external auditory canal, with or without bone destruction. Soft tissue or fluid in the middle ear and mastoid, around the eustachian tube, and in the parapharyngeal space (both pre- and poststyloid) was seen in greater than 50 per cent of the cases. While remineralization of bone was not seen, soft-tissue disease improved dramatically, and recurrence or persistence could be corroborated by detection of more extensive soft-tissue changes. By delineating the extra- and intracranial extent of disease, serial CT scans enable one to make the diagnosis, determine the extent of infection, document recurrence, exclude progression, and confirm resolution of malignant external otitis. Author.

Tracheostomy in the management of laryngotracheobronchitis. Red Cross War Memorial Children's Hospital experience, 1980–1985. Prescott, C. A., Vanlierde, M. J. Department of Otolaryngology, University of Cape Town. *South African Medical Journal* 1989 Jan 20, Vol. 77 (2), pp. 63–6.
In the 6-year period 1980–1985 162 children required tracheostomy during treatment of laryngotracheobronchitis at Red Cross War Memorial Children's Hospital, Cape Town. This represents 4.6 per cent of 3,500 children with this disorder and 28 per cent of those requiring airway intervention. Fifty-eight per cent of the children

were decannulated within four weeks and 75 per cent within 10 weeks. Fifty-four per cent of the children required one or more further procedures before decannulation, including seven children who required a laryngotracheoplasty. Obstructing stomal granulation tissue had to be removed from 24 children and suprastomal collapse was a cause of decannulation failure in 29 children. Use of an expiratory valve as an aid to decannulation is discussed. Three children died of tracheostomy airway complications and six of a medical disorder. Another complication, laryngeal incompetence, was particularly associated with herpetic laryngeal ulceration. Author.

Brainstem response audiometry in chronic Lyme borreliosis. Sandstrom, M., Bredberg, G., Asbrink, E., Hovmark, A., Holmkvist, C. Department of Audiology, Sodersjukhuset, Stockholm, Sweden. *Scandinavian Audiology* 1989, Vol. 18 (4), pp. 205–10.
Auditory brainstem responses (ABR) were investigated in 26 patients with acrodermatitis chronic atrophicans, which is a late manifestation of Lyme borreliosis. Nine of the patients showed pathological ABR, four of them unilaterally and five bilaterally. The main pathological findings were: (1) Poor reproducibility of waves IV-V or of wave V; (2) Increased latency of wave V. After antibiotic treatment, ABR was improved in eight of the nine patients, and in three of them it was normal. In the five patients who did not completely recover, the improvement consisted in better reproducibility and a tendency towards normal wave V latencies. The results of this study indicate that the central nervous system may become involved in patients with acrodermatitis chronica atrophicans. Author.

Transcutaneous nerve stimulation (TNS) in tinnitus. Kaada, B., Hognestad, S., Havstad, J. Clinical Neurophysiological Laboratory, Rogaland Central Hospital, Stavanger, Norway. *Scandinavian Audiology* 1989, Vol. 18 (4), pp. 211–7.
Low-frequency (2 Hz) TNS applied distally to peripheral nerves of the upper extremity is known to induce a wide-spread, non-segmental and prolonged relief of pain and an increased microcirculation due to sympatho-inhibition in a number of vascular beds. Such stimulation was administered in 29 tinnitus patients of various etiology. Reduction of tinnitus was encountered in nine subjects in response to a 45 min TNS-session. The improvement was mainly seen in tinnitus characterized by lower frequencies (125–500 Hz). In seven of the nine patients, the tinnitus reduction was associated with improvement of hearing, predominantly in the low-frequency band. The effects were still present after one week following daily stimulation at home. On continued treatment, the effects were found to be transitory in four of the patients, whereas the remaining five patients are still using the stimulator after two to five years. It is suggested that the mechanism behind the beneficial effects is increased microcirculation in part of the auditory pathways. Author.

Clinical methods for the objective estimation of loudness discomfort level (LDL) using auditory brainstem responses in patients. Thornton, A. R., Farrell, G., McSporran, E. L. MRC Institute of Hearing Research, Royal South Hants Hospital, Hampshire, England. *Scandinavian Audiology* 1989, Vol. 18 (4), pp. 225–30.
Our previous work showed that the slope of the JV latency/intensity function can be used to estimate the loudness discomfort level (LDL). In this study, the previous work was repeated using normal subjects and patients whose LDL was unknown at the time of test. The results showed that the original model still applied. Further measures were taken to evaluate clinical methods of applying this technique. Four basic approaches were used, a 'correction factor' model and a 'curve-fitting' model and these were applied to data obtained from measurements taken in both 5 dB and 10 dB increments. The results showed that the 'correction factor' models were better than the 'curve-fit' approach. The prediction of LDL based upon the 5 dB increment data gave the greater accuracy but the 10 dB increment data gave predictions that were sufficiently accurate for clinical use (95 per cent confidence limits of +/− 8 dB). Thus this ABR estimator has wide application and good accuracy in estimating subjective LDL. A clinical protocol for applying this technique is described. Author.

Hearing impairment on orchestral musicians. Ostri, B., Eller, N., Dahlin, E., Skylv, G. Department of Audiology, Bispebjerg Hospital, Copenhagen, Denmark. *Scandinavean Audiology* 1989, Vol. 18 (4), pp. 243–9.
Symphony orchestra musicians from The Royal Danish Theatre (15 females and 80 males) aged 22 to 64 years were audiologically examined to elucidate the presence and the frequency of noise-induced hearing loss among classical musicians. Compared to a reference material (ISO 7029) the median hearing thresholds of the musicians were increased for all age groups. When using hearing sensitivity in one or both ears less than 20 dB HL as a criterion for normality, it was found the 58 per cent of the musicians had a hearing impairment. Fifty per cent of the males and 13 per cent of the females showed a typical audiogram with a notched curve at higher frequencies normally attributed to occupational noise exposure. Furthermore, a significantly poorer hearing on the left ear was found at higher frequencies among the violinists. It is concluded that symphonic musicians suffer from hearing impairment and that the impairment might be ascribed to symphonic music. Author.