

Abstract Selection

Influence of late side-effects upon daily life after radiotherapy for laryngeal and pharyngeal cancer. Jensen, A. B., Hansen, O., Jorgensen, K., Bastholt, L. Department of Oncology, Odense University Hospital, Denmark. *Acta Oncology* (1994) Vol. 33 (5), pp. 487–91.

The influence on daily life from long-term side-effects was studied in patients treated more than 5 years ago with radiotherapy for laryngeal and pharyngeal cancer. Forty-six patients were asked to participate in telephone interviews and 44 participated. Only a minority (10 per cent) stated serious problems related to the treatment. Problems related to the voice and severe xerostomia were especially mentioned. Half of the patients treated for pharyngeal cancer, complained of xerostomia and had occasionally a feeling of being handicapped. Social relations were impaired in 10 per cent of the patients and 10 per cent had retired due to their cancer or therapy related side-effects. It is concluded that radiotherapy seems to be a well tolerated treatment with relatively little impairment of the daily life in patients with laryngeal cancer. In patients with pharyngeal cancer, xerostomia is a major problem, which often persists more than 5 years after treatment. Author.

Concomitant radiotherapy and daily low-dose carboplatin in locally advanced, unrespectable head and neck cancer. Definitive results of a phase I–II study. Orecchia, R., Ragona, R., Airolidi, M., Gabriele, P., Gribaudo, S., Grazia, Ruo, Redda, M., Bussi, M., Cavalot, A., Rampino, M., Sannazzari, G. L. Radiation Therapy Department, University of Turin, Italy. *Acta Oncology* (1994), Vol. 33 (5), pp. 541–5.

The combination of daily low-dose carboplatin and radiotherapy was studied in 55 patients with inoperable head and neck cancer. All patients were planned to receive 70 Gy plus carboplatin i.v. daily, 45–60 min before radiotherapy. A starting schedule of 30 mg/m² on days 1 through 5, weeks 1, 3, 5 and 7 was administered to 17 patients; an escalating daily dose, up to 55 mg/m², was given to 38 additional patients. Up to a daily dose of 45 mg/m², only 4.4 per cent of the patients developed grade 3 leukopenia; on the contrary, grade 3 and 4 leukopenia was seen in 62.5 per cent of patients receiving 50 mg/m² or more. Mucositis was the major nonhaematologic toxicity and seemed to be dose-dependent. At the end of the loco-regional treatment there were 33 (61.1 per cent) CR and 17 PR; the most effective total carboplatin dose seemed to be 40–45 mg/m². After surgical salvage the number of CRs increased to 37 (68.5 per cent). One- and 2-year loco-regional control rates were 64 per cent and 53 per cent respectively. One- and 2-year actuarial survival rates were 71 per cent and 53 per cent respectively; the corresponding rates of disease-free survival were 60 per cent and 43 per cent. There was a strong correlation nodal status and both survival and disease-free survival. Author.

A new nonsyndromic X-linked sensorineural hearing impairment linked to Xp21.2. Lalwani, A. K., Brister, J. R., Fex, J., Grundfast, K. M., Pikus, A. T., Ploplis, B., San Augustin, T., Skarka, H., Wilcox, E. R. Laboratory of Molecular Genetics, National Institute on Deafness and Other Communication Disorders, National Institute of Health, Bethesda, MD 20892. *American Journal of Human Genetics* (1994) October, Vol. 55 (4), pp. 685–94.

X-linked deafness is a rare cause of hereditary hearing impairment. We have identified a family with X-linked dominant sensorineural hearing impairment, characterized by incomplete penetrance and variable expressivity in carrier females, that is linked to the Xp21.2, which contains the Duchenne muscular dystrophy (DMD) locus. The auditory impairment in affected males was congenital, bilateral, profound, sensorineural, affecting all frequencies, and without evidence of radiographic abnormality of the temporal bone. Adult carrier females manifested bilateral, mild-to-moderate high-frequency sensorineural hearing impairment of delayed onset during adult-

hood. Eighteen commercially available, polymorphic markers from the X chromosome, generating a 10–15-cM map, were initially used for identification of a candidate region. DXS997, located within the DMD gene, generated a two-point LOD score of 2.91 at theta = 0, with every carrier mother heterozygous at this locus. Recombination events at DXS992 (located within the DMD locus, 3' to exon 50 of the dystrophin gene) and at DXS1068 (5' to the brain promoter of the dystrophin gene) were observed. No recombination events were noted with the following markers within the DMD locus: 5' DYS II, intron 44, DXS997, and intron 50. There was no clinical evidence of Duchenne or Becker muscular dystrophy in any family member. It is likely that this family represents a new locus on the X chromosome, which when mutated results in nonsyndromic sensorineural hearing loss and is distinct from the heterogeneous group of X-linked hearing losses that have been previously described. Author.

Expression of the beta-adrenergic receptor-adenylyl cyclase system in basal and columnar airway epithelial cells. Kelsen, S. G., Zhou, S., Anakwe, O., Mardini, I., Higgins, N., Benovic, J. L. Department of Medicine, Temple University School of Medicine, Philadelphia 19140. *American Journal of Physiology* (1994) October, Vol. 267 (4 Part 1), pp. 1456–63.

Catecholamines acting through the beta-adrenergic receptor (beta AR) coupled-adenylyl cyclase system stimulate a variety of responses by airway epithelial cells which affect airway calibre and the response to inflammatory stimuli. Although the tracheobronchial epithelium (TBE) is composed of several phenotypically differentiated cell types, surprisingly little is known about the expression of the beta AR system by the major subpopulations of TBE cells (i.e., basal and columnar). We, therefore, examined the function of the beta AR system in columnar and basal cell-enriched populations of rabbit tracheocytes. Cells were collected from 35 rabbits in 17 separate experiments and separated into basal and columnar cell-enriched fractions by centrifugal elutriation. The columnar fraction demonstrated a significantly greater ($P < 0.005$) a denosine 3', 5'-cyclic monophosphate (cAMP) response to isoproterenol (10(-9)-10(-5)M) than the basal cell-enriched fraction (i.e., 74.7 ± 5.1 and 49.4 ± 2.8 pmol/10(6) cells, in columnar and basal cell-enriched fractions, respectively, $P < 0.0001$) as well as a higher beta AR density (i.e., 8678 ± 840 and 4754 ± 406 beta AR sites/cell, respectively, $P < 0.0001$). However, when corrected for differences in cell size assessed from measurements of total cell protein, cAMP production per milligram protein and beta AR density per milligram protein were similar in the two cell fractions ($P > 0.50$ for both comparisons). Beta AR subtype assessed by beta 1AR and beta 2AR subtype selective antagonists demonstrated that the beta 2AR subtype predominated (i.e., >90 per cent) in both cell populations ($P > 0.5$). Author.

Design and development of ultrathin-walled, nonkinking endotracheal tubes of a new 'no-pressure' laryngeal seal design. A preliminary report. Kolobow, T., Tsuno, K., Rossi, N., Aprigliano, M. Laboratory of Cell Biology, National Heart, Lung, and Blood Institute, National Institute of Health, Bethesda, Maryland 20892. *Anesthesiology* (1994) October, Vol. 81 (4), pp. 1061–7.

BACKGROUND: Endotracheal tubes (ETTs) of conventional design and manufacture greatly increase the air-flow resistance of the upper airways. This increase in upper-airway resistance can lead to a significant increase in the work of breathing and may necessitate the use of assisted mechanical ventilation. Current ETTs are relatively stiff and contribute greatly to patient discomfort. The inflatable cuffs now mounted onto the ETTs function well in short-term use but impart significant morbidity when used over longer periods. These issues were addressed by the designing of a low-resistance ETT. **METHODS:** Using new techniques, we developed ultrathin-walled, wire reinforced ETTs of conventional configuration and ETTs the

oropharyngeal-section diameter of which was a few millimetres larger than the diameter of the tracheal section. The wall thickness was a constant 0.20 mm. The wire reinforcement was stainless steel flat wire or superelastic nickel-titanium alloy. The superelastic nickel-titanium alloy reinforcement made those ETTs crush-proof; after forceful manual compression, recovery was complete. To obtain a seal with the upper airways, we first shaped a short section of the oropharyngeal section of the ETT from round to oval (or egg-shaped) to conform better to the larynx. We then attached to this segment numerous soft, pliable, 0.025–0.075-mm-thick rings of polyurethane to occlude voids for potential air leaks from within the larynx. **RESULTS:** *In vitro* pressure-flow studies showed a decrease by as much as four- or fivefold in air-flow resistance in the adult ETT range, effectively increasing the internal diameter by 2.3–3.7 mm, compared with conventional ETTs of the same outside diameter. *In vivo* studies for 24 h in sheep showed no air leaks at airway pressures to 30 cmH₂O and minimal leak at greater pressures. The gross appearance of the trachea was normal. **CONCLUSIONS:** Although the new tubes appear to offer advantages to those currently used, testing in humans is required to assess the clinical utility of the tubecuff design. Author.

Occupational exposure to noise and ototoxic organic solvents. Morata, T. C., Dunn, D. E., Sieber, W. K. National Institute for Occupational Safety and Health, Division of Biomedical and Behavioural Science, Robert A. Taft Laboratories, Cincinnati, Ohio. *Archives of Environmental Health* (1994) September–October, Vol. 49 (5), pp. 359–65.

The objectives of this study were to review the literature on the effects of occupational exposure to organic solvents on the auditory system and to identify work settings in which exposure to these agents and to noise might occur. The criteria for selecting the chemicals were (a) evidence available that indicated that the chemicals may affect the auditory system and enhance noise effects, and (b) the ubiquity of their use. References to ototoxicity were noted for three proven neurotoxicants, i.e., carbon disulfide, toluene, and trichloroethylene, and for two probable human neurotoxicants—styrene and xylene. The percentages of workers (estimated by NIOSH National Occupational Exposure Survey) exposed to these solvents in each economic sector are shown. Work settings are identified where multiple exposures occur to solvents and noise. The need for future research is discussed. Author.

Effect of cinnarizine in the prevention of seasickness. Doweck, I., Gordon, C. R., Spitzer, O., Melamed, Y., Shupak, A. Motion Sickness and Human Performance Laboratory, Israeli Naval Hyperbaric Institute, Haifa. *Aviation, Space and Environmental Medicine* (1994) July, Vol. 65 (7), pp. 606–9.

In a double-blind, placebo-controlled study, we evaluated the effect of two different doses of cinnarizine in the prevention of seasickness in very rough seas. We divided 95 healthy male subjects into three groups which received: cinnarizine 50 mg, cinnarizine 25 mg, and placebo. Seasickness susceptibility and severity were evaluated by a standard questionnaire concerning the subject's condition on previous voyages (seasickness susceptibility), and the subject's condition immediately after a 4–6-h voyage in very rough seas with 3.5 m waves (seasickness severity). Possible side effects of the drug were also evaluated by filling in a further questionnaire. Of the 31 subjects who received cinnarizine 50 mg, 65 per cent felt better during the present voyage than on previous voyages, compared to 41 per cent of the 32 subjects who received cinnarizine 25 mg and 31 per cent of the 32 who received placebo. A significant difference ($P < 0.05$) was found between the cinnarizine 50 mg and placebo groups, while cinnarizine 25 mg was no more effective than placebo. No notable side effects were found for any drug group. In conclusion, cinnarizine 50 mg was found to be effective in the prevention of seasickness in rough seas. Author.

A comparison of the efficacy of cinnarizine with scopolamine in the treatment of seasickness. Pingree, B. J., Pethybridge, R. J. Institute of Naval Medicine, Alverstoke, Gosport, Hants, UK. *Aviation, Space and Environmental Medicine* (1994) July, Vol. 65 (7), pp. 597–605.

Scopolamine was compared with cinnarizine in a double-blind sea trial involving 179 subjects from the crews of two warships. Medication was initiated prophylactically when weather information indicated the approach of nauseogenic conditions. Ship motion was measured during drug treatment periods. In one ship, moderate to severe nauseogenic conditions were encountered; a parallel group

comparison was achieved in this. In the other ship, the motion experienced was of a mild nature; a crossover comparison was achieved. Scopolamine was shown to be more effective than cinnarizine in protecting against the symptoms of seasickness. In mild motion, cinnarizine was better tolerated than scopolamine in having less marked side effects. As motion severity increased, the comparative tolerability of scopolamine improved. Author.

Syncope as the presenting symptom of nasopharyngeal carcinoma. Lin, R. H., Teng, M. M., Wang, S. J., Yeh, T. P., Liao, K. K., Liu, H. C. Neurological Institute, Veterans General Hospital-Taipei, Taiwan. *Clinical Neurological Neurosurgery* (1994) May, Vol. 96 (2), pp. 152–5.

Syncope is a rare symptom of nasopharyngeal carcinoma, a common tumour in Taiwan. We describe two patients with nasopharyngeal carcinoma who presented with frequent syncopal attacks five months before the diagnosis was made. We postulate that the mechanism of syncope is involvement of the glossopharyngeal or vagal nerve by para-pharyngeal extension of the tumour. Author.

Racemic versus 1-epinephrine aerosol in the treatment of post-extubation laryngeal edema: results from a prospective, randomized, double-blind study. Nutman, J., Brooks, L. J., Deakins, K. M., Baldesare, K. K., Witte, M. K., Reed, M. D. Division of Pediatric Pulmonary Medicine, Rainbow Babies and Children's Hospital, Cleveland, OH. *Critical Care Medicine* (1994) October, Vol. 22 (10), pp. 1591–4.

OBJECTIVE: To determine whether any advantage exists using racemic epinephrine instead of the more potent and less expensive levo(1)-epinephrine in the treatment of postextubation laryngeal edema. **DESIGN:** Prospective, double-blind, randomized study. **SETTING:** Paediatric intensive care unit in a university teaching hospital. **PATIENTS:** Twenty-eight patients with stridor during the immediate postextubation period. **INTERVENTIONS:** After extubation, patients demonstrating clinically important stridor were randomized in a double-blind fashion to receive an aerosol containing either 2.25 per cent racemic or 1 per cent 1-epinephrine. **MEASUREMENTS AND MAIN RESULTS:** Heart rate, respiratory rate, blood pressure, and stridor score were determined at 20, 40, and 60 min and 4 and 8 h after the initial aerosol administration. Patients in both groups demonstrated significant ($P < 0.01$) reductions in stridor score after aerosol administration. No significant differences were observed between treatment groups in improvement in stridor score or the number of subsequent aerosols required. Respiratory rate decreased significantly 40 and 60 min after 1-epinephrine but not after racemic epinephrine. No significant change in heart rate or blood pressure occurred after aerosol administration in either group. **CONCLUSIONS:** These data suggest that aerosolized 1-epinephrine is as effective as aerosolized racemic epinephrine in the treatment of postextubation laryngeal edema without additional adverse side effects. When dosed appropriately, 1-epinephrine is a less expensive and more widely available alternative to racemic epinephrine for the treatment of postextubation laryngeal edema. Author.

Whole-head mapping of middle-latency auditory evoked magnetic fields. Makela, J. P., Hamalainen, M., Hari, R., McEvoy, L. Low Temperature Laboratory (LTL), Helsinki University of Technology, Espoo, Finland. *Electroencephalographic Clinical Neurophysiology* (1994) September, Vol. 92 (5), pp. 414–21.

We recorded middle-latency auditory evoked magnetic fields from nine healthy subjects with a 122-channel whole-head SQUID gradiometer. The stimuli were click triplets, 2.5 msec in total duration, delivered alternately to the two ears once every 33 msec. Contralateral clicks elicited P30m responses in 16 and P50m responses in 12 out of 18 hemispheres studied; ipsilateral clicks did so in 7 and 13 hemispheres, respectively. The field patterns were satisfactorily explained by current dipoles in 16 and 4 hemispheres for contra- and ipsilateral P30m, and in 4 and 10 hemispheres for contra- and ipsilateral P50m. The peak latencies of P30m and P50m were not affected by stimulation side. The results show that middle-latency auditory evoked responses receive a strong contribution from auditory cortical structures, and that differences of input latency to cortical auditory areas, evaluated from MLAEF latencies, do not explain the latency differences seen in late auditory evoked fields to contralateral vs. ipsilateral stimulation. Author.

T1 glottic carcinoma involving the anterior commissure. Shvero, J., Hadar, T., Segal, K., Yaniv, E., Marshak, G., Feinmesser, R. Department of Otolaryngology, Beilinson Medical Center, Petah

Tiqva, Israel. *European Journal of Surgical Oncology* (1994) October, Vol. 20 (5), pp. 557–60.

This study reviews the records of 56 patients with early glottic carcinoma involving the anterior commissure (T1N0M0) who were treated between 1958 and 1988 at Beilinson Medical Center. Five- and 10-year survival rates were 82 per cent and 60 per cent, respectively. Most failures were local (15 patients). In addition, three patients who were treatment failures had neck lesions (regional failure) and one had lung lesions (distant metastases). All 56 patients received irradiation as the only mode of initial treatment. The effectiveness of irradiation for anterior commissure lesions is therefore evaluated. The study supports previous reports suggesting that glottic carcinoma involving the anterior commissure is associated with a high rate of treatment failure. Author.

Alterations of auditory nerve responses by hypoxia in normal and hydropic ears of awake guinea pigs. Cazals, Y., Wu, Z. Y., Horner, K. Laboratoire d'Audiologie experimentale, Inserm unite 229, Hopital Pellegrin, Universite Bordeaux II, France. *Hearing Response* (1994) June 15, Vol. 77 (1–2), pp. 177–82.

Total interruption of blood or oxygen supply to the inner ear produces very rapid and drastic effects, whereas moderate decreases can be well tolerated by normal ears. In experimental endolymphatic hydrops some moderate alterations of cochlear vasculature have been described which might affect cochlear adaptation to moderate blood or oxygen deficiencies. In order to test this hypothesis an hypoxia at 5 per cent oxygen was imposed for 30 min in normal and hydropic ears of awake guinea pigs and cochlear function was monitored with an electrode at the round window. Electrophysiological recordings used measures of compound action potential (CAP) amplitudes evoked by high-intensity tones, and of CAP thresholds. In normal ears hypoxia induced threshold elevations at all frequencies and decreases of CAP amplitude only for high frequencies. Hydropic ears presented similar or smaller threshold elevations but showed CAP amplitude decreases extending to lower frequencies and showed a much slower recovery both for CAP thresholds and amplitudes. The data indicate that hypoxia had different effects on auditory nerve responses evoked by high versus low intensity tones. The deleterious effects of hypoxia were increased in hydropic ears. Hypoxia-induced alterations were measured twice at one week intervals during which an anti-ischaemic drug was administered to the animals; some beneficial effects of the drug treatment were observed on normal but not on hydropic ears. Author.

A method for determining three-dimensional vibration in the ear. Decraemer, W. F., Khanna, S. M., Funnell, W. R. Laboratory of Biomedical Physics, University of Antwerp, Rijksuniversitair Centrum Antwerpen, Belgium. *Hearing Response* (1994) June 15, Vol. 77 (1–2), pp. 19–37.

In the classical concept of the middle ear function the malleus rotates around a fixed axis which implies that at small amplitudes of vibration its displacement is essentially one dimensional. As a consequence malleus vibrations have been measured previously along a single viewing axis. As a first step in the study of the complete malleus motion we determined the three dimensional components at a single point (umbo) of the manubrium. To define 3-D motion it is in principle necessary to measure the vibrations from widely different observation angles. The viewing angles are limited however in our case by the ear canal geometry to about ± 15 degrees. In order to resolve the 3-D components under these conditions it is necessary to measure the vibration components with high accuracy. Amplitude and phase of the umbo vibrations were measured with a heterodyne interferometer over a wide frequency range (100 Hz to 20 kHz). The system included a two axis goniometer with the axes of rotation positioned at the focal plane of the interferometer objective lens. It was therefore possible to change the viewing angle in small increments around two orthogonal axes while keeping the same point in focus. From a redundant set of measurements the three orthogonal components of vibration were calculated by least squares fitting. The vector sum of the three components gives the three dimensional motion of the observed point. The vibration of the point on the umbo was found not to follow a straight line but an elliptical path instead. The shape of the ellipse and the inclination of the plane of the ellipse with respect to the stationary malleus position changed with frequency. These observations are consistent with our earlier findings that the mode of malleus vibration changes with frequency (Decraemer *et al.* (1991) *Hearing Response* 54, 305–18). Author.

Topical glucocorticosteroid (fluticasone propionate) inhibits

cells expressing cytokine mRNA for interleukin-4 in the nasal mucosa in allergen-induced rhinitis. Masuyama, K., Jacobson, M. R., Rak, S., Meng, Q., Sudderick, R. M., Kay, A. B., Lowhagen, O., Hamid, Q., Durham, S. R. Department of Allergy and Clinical Immunology, National Heart and Lung Institute, London, UK. *Immunology* (1994) June, Vol. 82 (2), pp. 192–9.

Allergen-induced late nasal responses are associated with recruitment and activation of T lymphocytes and eosinophils and preferential mRNA expression for T-helper type 2 (Th2) cytokines. We tested the hypothesis that topical corticosteroids may inhibit late responses by inhibiting cells expressing mRNA for Th2 cytokines. A randomized double-blind placebo-controlled trial of topical corticosteroid (fluticasone propionate) was performed in 48 adult grass pollen-sensitive patients. Nasal biopsies were taken at baseline and repeated 24 h after local nasal allergen provocation following 6 weeks treatment with either fluticasone propionate 200 micrograms or placebo nasal spray twice daily. Baseline mRNA expression for interleukin-4 (IL-4) ($P = 0.01$) and IL-5 ($P = 0.002$) was higher in the patients than in normal controls. Topical corticosteroid treatment significantly inhibited immediate nasal symptoms, with almost complete inhibition of the late response following allergen challenge. This was associated with a marked decrease in the allergen-induced increases in cells expressing mRNA for IL-4 ($P = 0.002$) but not for IL-5. Inhibition of the late response was also accompanied by decreases in CD25+ cells, presumed T lymphocytes and eosinophils. A significant correlation was observed between the decreases in IL-4 mRNA+ cells and in eosinophils after treatment ($r = 0.46$, $P < 0.05$). These results suggest that prolonged treatment with topical corticosteroid inhibits allergen-induced early and late nasal responses and the associated tissue eosinophilia, and that, at least in part, this may result from inhibition of cells expressing mRNA for IL-4. Author.

T lymphocytes and mast cells express messenger RNA for interleukin-4 in the nasal mucosa in allergen-induced rhinitis. Ying, S., Durham, S. R., Jacobson, M. R., Rak, S., Masuyama, K., Lowhagen, O., Kay, A. B., Hamid, Q. A. Department of Allergy and Clinical Immunology, National Heart and Lung Institute, London, UK. *Immunology* (1994) June, Vol. 82 (2), pp. 200–6.

We have investigated the phenotype of interleukin-4 (IL-4) mRNA+ cells in the nasal mucosa of six subjects with allergic rhinitis before and 24 h after local allergen provocation with grass pollen extract. Serial cryostat sections were cut from paraformaldehyde-fixed snap-frozen nasal biopsies, and immunocytochemistry (APAAP) followed by *in situ* hybridization performed on the same sections. For immunocytochemistry, antibodies against CD3, tryptase, major basic protein (MBP) and CD68 were used to identify T cells, mast cells, eosinophils and macrophages, respectively. Hybridization studies were performed using a digoxigenin-labelled IL-4 riboprobe. Nitroblue tetrazolium (NBT) and X-phosphate-5-bromo-4-chloro-3-indolyl phosphate (BCIP) served as chromogens to detect hybridization IL-4 mRNA signals. Significant increases in T lymphocytes and eosinophils and in the number of IL-4 mRNA+ cells were observed after allergen challenge. Double immunocytochemistry/*in situ* hybridization demonstrated that the majority of IL-4 mRNA+ cells after allergen challenge were CD3+ (73.7 per cent ± 1.6). Lower numbers of IL-4 mRNA hybridization signals were co-localized to tryptase+ cells (26.0 per cent ± 1.6). In contrast, no IL-4 mRNA hybridization signals were co-localized to either eosinophils or macrophages. These results indicate that after allergen challenge T cells are the principal cellular source of IL-4 mRNA transcripts during human late nasal responses, with a lesser contribution from mast cells. Author.

Acute mastoiditis—relevant once again. Hoppe, J. E., Koster, S., Bootz, F., Niethammer, D. Kinderklinik der Eberhard-Karls-Universität, Tübingen, Germany. *Infection* (1994) May–June, Vol. 22 (3), pp. 178–82.

During recent years, a significantly increased incidence of acute mastoiditis was observed at the University Children's Hospital, Tübingen, Germany (1975–1979: 1.4 patients/year; 1987–1992: 4.2 patients/year; $P < 0.05$). We therefore reviewed the records of all patients with acute mastoiditis ($n = 58$) that had been treated at the Children's Hospital between 1975 and 1992 and at the Clinic of Otorhinolaryngology between 1978 and 1992. The male to female ratio was 1.8:1 and 60.4 per cent of the patients were younger than 24 months. Retroauricular swelling was more often observed ($n = 49$) than protrusion of the pinna ($n = 45$) and retroauricular redness ($n = 38$). *Streptococcus pneumoniae* was the most frequently iso-

lated pathogen. Several factors predisposing for the development of acute mastoiditis were identified. These included withholding antimicrobials for treatment of the preceding episode of otitis media; use of suboptimal agents for therapy of otitis media (penicillin and, possibly, erythromycin ethylsuccinate); and insufficient duration of treatment. Author.

Cricothyroid muscle activity during sleep in normal adult humans. Kuna, S. T., Smickley, J. S., Vanoye, C. R., McMillan, T. H. Department of Internal Medicine, University of Texas Medical Branch, Galveston 77555-0561. *Journal of Applied Physiology* (1994) June, Vol. 76 (6), pp. 2326–32.

Previous investigators reported that cricothyroid (CT) muscle usually exhibits phasic inspiratory activity in normal adult humans during wakefulness. The purpose of this study was to determine respiratory-related CT activity in normal adult humans during sleep. Nighttime polysomnograms were performed in 16 subjects. Hooked-wire electrodes were percutaneously implanted in CT with 21-gauge needle-catheter unit that allowed artifact-free monopolar recordings during electrode placement. During wakefulness, CT was usually phasically active on inspiration, with tonic activity throughout the respiratory cycle. Phasic inspiratory activity was present throughout sleep in all subjects, even those without respiratory-related CT activity during wakefulness. Compared with non-rapid-eye-movement (NREM) sleep, phasic CT activity uniformly increased in rapid-eye-movement (REM) sleep. No differences were apparent in height of phasic CT activity between phasic and tonic REM sleep. Application of nasal continuous positive pressure in stage 3/4 NREM sleep was associated with a decrease in phasic CT activity. Passively induced hypocapnia with positive-pressure ventilation via a nose mask in stage 3/4 NREM sleep was associated with a disappearance of phasic CT activity. Cessation of positive-pressure ventilation under hypocapnic conditions frequently resulted in apnea. Phasic CT activity remained absent during apnea but reappeared coincident with or soon after resumption of spontaneous respiration. In summary, CT's phasic inspiratory activity and respiratory-related response to various stimuli during sleep were very similar to those of posterior cricoarytenoid muscle, the principal vocal cord abductor. Author.

Nasopharyngeal colonization with nontypeable *Haemophilus influenzae* and recurrent otitis media. Tonawanda/Williamsville Pediatrics. Harabuchi, Y., Faden, H., Yamanaka, N., Duffy, L., Wolf, J., Krystofik, D. Department of Otolaryngology, Sapporo Medical College, Japan. *Journal of Infectious Diseases* (1994) October, Vol. 170 (4), pp. 862–6.

The relationship between nasopharyngeal colonization with nontypeable *H. influenzae* and recurrent otitis media was assessed in 157 children followed prospectively from birth through 12 months of age. Forty-nine (31 per cent) became colonized. Nasopharyngeal secretory IgA (sIgA) reactive with the P6 outer membrane protein was detected in all colonized children. Reduction or elimination of the organism was associated with a better mucosal immune response (560 ± 864 units/ng/mL of sIgA) than was persistence in the nasopharynx (121 ± 81 ; $P = 0.04$). Forty colonized children (82 per cent) and 61 noncolonized children (56 per cent) developed otitis media ($P = 0.004$); colonized children were four times more likely to be classified as otitis prone ($P = 0.003$). The frequency of otitis media episodes was directly related to the frequency of colonization ($r = 0.42$, $P < 0.01$). These results demonstrate a strong relationship between nasopharyngeal colonization patterns and otitis media. The mucosal immune response may be important in elimination of potential pathogens from the respiratory tract. Author.

Treatment of seasonal allergic rhinitis with once-daily intranasal fluticasone propionate therapy in children. Fluticasone Propionate Collaborative Pediatric Working Group. *Journal of Pediatrics* (1994) October, Vol. 125 (4), pp. 628–34.

PURPOSE: To evaluate the efficacy and tolerability of intranasally administered fluticasone propionate, 200 micrograms or 100 micrograms (half the adult dosage) when administered once daily for 4 weeks to children with seasonal allergic rhinitis. **DESIGN AND SETTING:** Double-blind, randomized, placebo-controlled, parallel-group clinical study in 10 paediatric outpatient centres. **SUBJECTS:** Children ($n = 249$), 4 to 11 years of age, with moderate to severe symptoms of seasonal allergic rhinitis, positive skin test reaction to a local autumn allergen, and a history of seasonal allergic rhinitis. **MEASUREMENTS:** Clinician- and patient-rated nasal symptom scores (obstruction, rhinorrhea, sneezing, itching), clinician-rated assessment of overall response to treatment, patient-rated nasal obstruction on awakening, and use of rescue medication. Clinicians questioned patients (or parents) regarding symptoms and adverse events. Morning plasma cortisol concentrations and 24-hour urinary excretion of cortisol and 17-ketogenic steroids were evaluated. **RESULTS:** Intranasal fluticasone propionate, 200 micrograms or 100 micrograms once daily, was significantly more effective than placebo in the treatment of seasonal allergic rhinitis in children. Clinician- and patient-rated symptom scores indicated greater improvement in nasal symptoms, including nasal obstruction on awakening, among patients receiving intranasal fluticasone propionate. Overall response to treatment was also significantly greater in the active treatment groups. The two fluticasone propionate groups were not statistically different. Mean morning plasma cortisol concentrations and 24-hour urinary excretion of free cortisol and 17-ketogenic steroids were similar across all groups both before and after treatment. **CONCLUSIONS:** Intranasal fluticasone propionate, 100 micrograms (half the adult dose) or 200 micrograms given once daily for 4 weeks is effective and well tolerated in children 4 to 11 years of age with seasonal allergic rhinitis. Author.

Managing otitis media with effusion in young children. American Academy of Pediatrics The Otitis Media Guideline Panel. *Pediatrics* (1994) November, Vol. 94 (5), pp. 766–73.

This reference guide contains highlights from the Clinical Practice Guideline, Otitis Media with Effusion in Young Children. The Otitis Media Guideline Panel, a private-sector panel of health care providers, developed the Guideline after comprehensively analysing the research literature and current scientific knowledge of the development, diagnosis, and treatment of otitis media with effusion in young children. Specific recommendations are given for the management of otitis media with effusion in young children age 1 through 3 years with no craniofacial or neurologic abnormalities or sensory deficits. The natural history of otitis media with effusion, the functional impairments that may result from otitis media with effusion, and the difficulty of measuring the effects of medical and surgical interventions on long-term outcomes are included. The medical interventions studied involve antibiotic, steroid, and anti-histamine/decongestant therapies. The surgical interventions studied involve myringotomy with insertion of tympanostomy tubes, adenoidectomy, and tonsillectomy. Short-term outcomes addressed are resolution of effusion and restoration of hearing. Author.