

Abstract Selection

Powder administration of pure budesonide for the treatment of seasonal allergic rhinitis. Pedersen, B., Bundgaard Larsen, B., Dahl, R., Lindqvist, N., Mygind, N. Department of Respiratory Diseases, University Hospital of Aarhus, Denmark. *Allergy* (1991) Nov, Vol. 46 (8), pp. 582–7.

The objective of this study was to compare the efficacy and safety of a pure powder formulation of budesonide, delivered from a new multidose dispenser for nasal drug application, with the commercially available budesonide pressurized aerosol, and with placebo. Of 116 patients with grass pollen-induced allergic rhinitis, 112 finished the study, which comprised a four-week treatment period, preceded by a one-week run-in period. The patients were randomized to four parallel treatment groups: budesonide powder 400 mg/dl; budesonide powder 800 mg/dl; budesonide aerosol 400 mg/dl; and placebo powder. Treatment was given once daily in the morning. The study was double-blind regarding comparison between budesonide powder and placebo. Assessment of efficacy, made by comparing mean scores of nasal symptoms and use of rescue medication, showed equal efficacy of all three budesonide groups compared with placebo. There were no differences between budesonide- and placebo-treated groups with regard to side effects. Budesonide treatment had no demonstrable effect on the HPA-axis assessed by measurement of 24-h urine cortisol. We conclude that budesonide, delivered as pure powder from a multidose dispenser, is effective and safe for the treatment of seasonal allergic rhinitis. This new formulation is a good alternative to the commercially available preparations, as it does not contain carrier gas, preservatives or lubricants. Author.

Oral allergy syndrome: the effect of astemizole. Bindslev Jensen, C., Vibits, A., Stahl-Skov, P., Weeke, B. Medical Department TTA, National University Hospital, Copenhagen, Denmark. *Allergy* (1991) Nov, Vol. 46 (8), pp. 610–3.

The effect of treatment with astemizole (Hismanal) on symptoms elicited by ingestion of hazelnuts in birch pollen-allergic patients (the oral allergy syndrome) was investigated. Thirty patients with a well-documented allergy to silver birch, experiencing symptoms when ingesting hazelnuts, were included in the study. All had a positive skin prick test (SPT) to birch, whereas 29 and 27, respectively, showed a positive RAST and basophil histamine release test (HR) to birch. In contrast, only 15 patients had a positive SPT to hazelnut, 13 had a positive RAST, whereas 24 had a positive HR. After two oral provocations with hazelnuts the patients were randomized to receive either 10 mg of astemizole or placebo daily for two weeks in a double blind protocol followed by two oral provocations. Treatment with astemizole significantly reduced the symptoms compared with placebo ($p = 0.004$); however, without completely abolishing the symptoms. Author.

Alcohol, smoking, and occupational factors in cancer of the larynx: a case-control study. Ahrens, W., Jockel, K. H., Patzak, W., Elsner, G. Bremen Institute for Prevention Research and Social Medicine, Federal Republic of Germany. *American Journal of Industrial Medicine* (1991) Vol. 20 (4), pp. 477–93.

A hospital-based case-control study of laryngeal cancer was conducted in Bremen in 1986 and 1987 with 100 prevalent male laryngeal cancer patients and 100 male hospital controls with diseases not considered to be related to smoking, alcohol, or occupational exposures, who were frequency matched by age. The odds ratio for heavy smoking (more than 30 pack-years) reached a value of 3.5 (95 per cent confidence limits (CL) 1.1, 7.9). Ex-smokers showed a significant decrease in risk; this reached the level of those who had never smoked about 15 years after smoking cessation. For daily consumers of alcohol an odds ratio of 3.2 (95 per cent CL 1.4, 7.5) was observed. Among the 17 occupations in which at least ten subjects had worked, excess risks were observed for stock keeping and transportation workers, and for leather and textile workers. The odds ratio was significantly increased for the latter (p less than 0.05). Among

all those persons ever employed in a priori defined-risk occupations, an odds ratio of 2.74 (95 per cent CL 1.23, 6.06) was observed. Considering responses to an exposure check-list, no increased risks could be shown for exposure to asbestos, coal tar, or welding fumes. On the other hand, excess risks were observed for exposures to diesel oil, gasoline, and mineral oil, controlling for smoking and alcohol. The findings in occupational and exposure subgroups were based on small numbers of cases and controls and, consequently, were subject to large sampling errors. Many of the results are consistent, however, with occupational risk factors reported from other studies. Author.

Occupational risk factors for sinonasal cancer: a case-control study in France. Luce, D., Leclerc, A., Morcet, J. F., Casal-Lareo, A., Gerin, M., Brugere, J., Haguener, J. M., Goldberg, M. Institut National de la Sante et de la Recherche Medicale, Unite 88, Paris, France. *American Journal of Industrial Medicine* (1992) Vol. 21 (2), pp. 163–75.

A case-control study was conducted in France to examine occupational risk factors for sinonasal cancer; 207 cases and 409 controls were included in the study. Detailed information was collected on occupational history and other potential risk factors for nasal cancer. Results are presented for three histologic types: adenocarcinoma, squamous cell carcinoma, and others. Among males, the risk of adenocarcinoma was significantly elevated for cabinetmakers (odds-ratio = 35.4, 95 per cent confidence interval = 18.1–69.3), carpenters and joiners (OR = 25.2, 95 per cent CI = 14.6–43.6), and wood-working machine operators (OR = 7.4, 95 per cent CI = 3.4–15.8) whereas the odds-ratios were less than one for loggers and wood preparation workers. Odds-ratios associated with cabinetmakers (OR = 11.2, 95% CI = 2.7–45.9) and carpenters and joiners (OR = 5.8, 95% CI = 1.8–18.6) were also significantly elevated for the other histologic types category. Significant excesses in risk of squamous cell cancer were noted for 'bakers, pastry cooks, grain millers' (OR = 3.9, 1.2–12.8), construction workers (OR = 3.7, 95 per cent CI = 1.7–8.0), and carpenters and joiners having worked for at least 15 years in the wood manufacturing industry (OR = 8.1, 95 per cent CI = 1.3–50.3). Among females, a significant increase in risk of squamous cell carcinoma (OR = 9.5, 95% CI = 1.7–54.1) and a moderate increase in risk of adenocarcinoma (OR = 4.0, 95 per cent CI = 0.7–23.5) was observed for textile workers. Elevated risks of squamous cell cancer were noted for farm workers of both sexes (males: OR = 2.2, 95 per cent CI = 1.1–4.4; females: OR = 4.9, 95 per cent CI = 1.0–24.9). Author.

Resolution of laryngeal injury following translaryngeal intubation. Colice, G. L. Department of Internal Medicine, Dartmouth Medical School, Hanover, New Hampshire. *American Review of Respiratory Disorders* (1992) Feb, Vol. 145 (2 Pt 1), pp. 361–4.

Translaryngeal intubation (TLI) causes mucosal ulcerations of the vocal cords and posterior laryngeal commissure. Usually these ulcers heal by primary reepithelialization, but occasionally laryngeal granulomas or strictures develop at these ulcer sites. The incidence of granuloma and stricture formation and the variables influencing abnormal laryngeal healing following TLI are not well understood. A group of 54 patients who experienced prolonged TLI were followed prospectively to determine the resolution rate of laryngeal injury. Direct fiberoptic laryngoscopy was performed at either extubation or tracheostomy and repeated every two weeks until the larynx returned to normal or a persistent laryngeal abnormality was identified. Laryngeal symptoms were assessed at these same time points. In five patients (9 per cent) the appearance of the larynx was normal at extubation, and in 42 patients (78 per cent) laryngeal healing occurred by primary reepithelialization within eight weeks. Four patients (7 per cent) developed laryngeal granulomas, which required surgical removal in all but one case. No patients in this series developed laryngeal strictures. Three patients (6 per cent) died before complete follow-up. Laryngeal symptoms, particularly hoarseness, resolved as the larynx healed. Performance

of tracheostomy, age, TLI for more than 10 days, and severe laryngeal injury at extubation did not influence the median time to resolution of laryngeal abnormalities. Abnormal laryngeal healing following TLI is uncommon but is not exacerbated by prolonged TLI (more than 10 days), severe laryngeal injury at extubation, or performance of a tracheostomy. Author.

Blood gas changes in nonasthmatic rhinitis during and after nonspecific airway challenge. Dal Negro, R. W., Turco, P. A., Allegra, L. Department of Clinical Respiratory Physiology, Bussolengo General Hospital, Verona, Italy. *American Review of Respiratory Disorders* (1992) Feb, Vol. 145 (2 Pt 1), pp. 337–9.

Noninvasive blood gas monitoring is a new, simple, and reliable method for assessing hyperreactivity associated with bronchial asthma. In this study, 104 atopic rhinitic subjects with no history of wheezing and 104 healthy volunteers were challenged with ultrasonically nebulized distilled water (UNDW). Blood gases were monitored transcutaneously (PtcO₂ and PtcCO₂) over 42 min (20 min for electrode stabilization, 3 min for monitoring a steady baseline, 5 min during UNDW and 14 min after UNDW). Mean baseline PtcO₂ and PtcCO₂ values were comparable in the two groups. In rhinitic subjects only, a sudden decrease in PtcCO₂ (starting immediately after the beginning of the challenge and maximal 34.7 ± 0.4 mmHg SEM versus baseline 41.8 ± 0.2 SEM mmHg at the third minute of UNDW exposure) was induced by the challenge and proved significant (p less than 0.001). In the same subjects, a slightly delayed decrease in PtcO₂ (starting immediately after the end of UNDW inhalation and maximal 64.5 ± 1.1 mmHg SEM versus baseline 78.3 ± 0.7 SEM mmHg at 4 min post-UNDW) was also induced by the challenge and proved highly significant (p less than 0.001). The effects of UNDW inhalation on blood gases in normal subjects were negligible and nonsignificant. UNDW in nonasthmatic rhinitis but not in normal subjects gives rise to a sudden hyperventilation and to gas-exchange abnormalities presumably reflecting a ventilation-perfusion mismatching, which, however, is of shorter duration in rhinitic than in asthmatic subjects. Author.

A serious complication of minitracheotomy. McEwan, A. I., Francis, G. A., Clarke, J. T. Department of Anaesthesia, St George's Hospital, London. *Anaesthesia* (1991) Dec, Vol. 46 (12), pp. 1041–3. A previously unreported complication of minitracheotomy is described. The minitracheotomy introducer was lost into the pleural cavity and a thoracotomy was required to remove it. Author.

Retrograde intubation of the pharynx: an unusual complication of emergency cricothyrotomy. Slobodkin, D., Topliff, S., Raife, J. H. Texas Tech University Health Center, El Paso. *Annals of Emergency Medicine* (1992) Feb, Vol. 21 (2), pp. 220–2.

Retrograde, translaryngeal intubation of the pharynx, a previously unreported and potentially fatal complication of emergency cricothyrotomy, is described. Methods of avoiding this complication are discussed. Reports in the literature of related technical errors following successful surgical incision of the cricothyroid membrane are discussed. Author.

Mupirocin treatment of nasal staphylococcal colonization. Scully, B. E., Briones, F., Gu, J. W., Neu, H. C. Department of Medicine, College of Physicians and Surgeons, Columbia University, New York, NY 10032. *Archives of Internal Medicine* (1992) Feb, Vol. 152 (2), pp. 353–6.

The effectiveness and safety of mupirocin calcium ointment applied to the anterior part of the nares for five days in the eradication of nasal carriage of *Staphylococcus aureus* was investigated in a placebo-controlled, double-blind study. Subjects were healthy medical centre staff who had two positive cultures of the anterior nares for *S. aureus*. Antimicrobial susceptibility, phage typing, and restriction endonuclease analysis of plasmid DNA were used to monitor the identity of relapsing and persisting strains. Mupirocin eliminated 74 per cent of *S. aureus* at early follow-up and 91 per cent of original strains. At four weeks, 78 per cent of the original strains were eradicated, whereas all of the placebo group remained colonized. Recolonization with mupirocin-resistant strains occurred in six patients, but these were of different phage and plasmid types from the original isolates. None of the subjects had serious adverse effects. Applied intranasally for five days, a calcium preparation of mupirocin in a paraffin base is effective in eliminating *S. aureus* nasal carriage and is well tolerated. Author.

Moderately differentiated neuroendocrine carcinoma (atypical-carcinoid) of the supraglottic larynx. A report of two cases

including immunohistochemistry and aspiration cytology (see comments). Dictor, M., Tennvall, J., Akerman, M. Department of pathology and Cytology, University Hospital, Lund, Sweden. *Archives of Pathology and Laboratory Medicine* (1992) Mar, Vol. 116 (3), pp. 253–7. Comment in: *Archives of Pathology and Laboratory Medicine* 1992 Mar; 116 (3): 237–8.

Moderately differentiated neuroendocrine carcinoma of the larynx is morphologically distinct from the classic carcinoid and small-cell carcinoma. It is composed of medium to large polyhedral cells with an insular, trabecular, or acinar growth pattern, variable pleomorphism, and a tendency to metastasize to skin and bone. We describe the clinicopathological features of the tumour in two patients in whom tumour dissemination resulted in death 13 and 33 months after diagnosis. Both tumours occurred above the glottis and metastasized to bone but not to regional tissues. In one case, the diagnosis was confirmed when the aspiration cytological specimen from a rib lesion suggested a neuroendocrine carcinoma resembling medullary thyroid cancer (triangular cytoplasm, double nuclei, and fine red cytoplasmic granules on May-Grunwald-Giemsa staining). Both tumours were originally misdiagnosed as squamous cell carcinoma, as acinic cell cancer, or as suggesting metastasis of melanoma. Immunohistochemistry gave strong reactivity in both for chromogranin A and calcitonin, although the serum level of calcitonin, determined in one case, was normal. Author.

Occupational noise induced vestibular malfunction? Hinchcliffe, R., Coles, R. R., King, P. F. Institute of Laryngology and Otolaryngology, London. *British Journal of Industrial Medicine* (1992) Jan, Vol. 49 (1), pp. 63–5.

This paper comprises a review of the evidence for the possibility that exposure to noise may damage the vestibular receptors in the internal ear as well as those in the cochlea. The review covers lay and medical publications, observations on patients, experimental studies, and compensation claims. It concludes that the verdict must be 'not proven'—that is, although such damage is possible, the evidence is not strong enough to regard it as probable. Author.

Intra-osseous squamous cell carcinoma of the maxilla: probably arisen from non-odontogenic epithelium. Takeda, Y. Department of Oral Pathology, School of Dentistry, Iwate Medical University, Morioka, Japan. *British Journal of Oral Maxillofacial Surgery* (1991) Dec, Vol. 29 (6), pp. 392–4.

This paper reports a case of intra-osseous squamous cell carcinoma (IOSC) of the maxilla. The patient was a 52-year-old male with a chief complaint of swelling of his hard palate. The lesion was initially diagnosed as an incisive canal cyst from the clinical and radiographic findings, but histological examination revealed the lesion to be a poorly differentiated squamous cell carcinoma. The review of the literature yielded only a few previous cases of IOSC of the maxilla, which were probably of odontogenic origin. The present maxillary IOSC is thought to be non-odontogenic in origin. Author.

A central venous catheter complicating head and neck surgery. McGurk, M., Thomson, P. J. Queen's Medical Centre, University Hospital, Nottingham. *British Journal of Oral and Maxillofacial Surgery* (1991) Dec, Vol. 29 (6), pp. 388–91.

A case is reported of a central venous catheter that was placed inadvertently into the internal jugular vein during the anaesthetic preparation for surgery. The catheter tip was sectioned during surgery and was feared to have embolized into the central circulation but it was subsequently identified in the pathological specimen. A summary of the complications associated with central venous catheterization is reported and a simple protocol is proposed to avoid a similar complication. Author.

Internal derangement of the temporomandibular joint: an audit of clinical findings, arthrography and surgical treatment. Smith, W. P., Markus, A. F. Department of Oral and Maxillofacial Surgery, Poole General Hospital. *British Journal of Oral and Maxillofacial Surgery* (1991) Dec, Vol. 29 (6), pp. 377–80.

Forty-seven patients who underwent double contrast video-arthrography followed by surgery for internal derangement of the temporomandibular joint were reviewed retrospectively. Of the 50 joints assessed, arthrography demonstrated 39 (78 per cent) with irreducible meniscal displacement and 11 (22 per cent) with reducible displacement. Clinical findings were found to be unreliable in demonstrating the degree of internal derangement: 49 per cent of irreducible meniscal displacements presented with clicking and only

20 per cent with loss of click. The importance of video-arthrography is emphasized. Surgery for internal derangement proved successful. It is proposed that patients who have clinical evidence suggestive of irreducible meniscal displacement and have disabling symptoms should undergo early video-arthrography and be offered surgical correction. Author.

Nasal symmetry: a 10-year comparison between the Pigott and McComb nasal correction. James, N. K., Mercer, N. S., Peat, B., Pigott, R. W., McComb, H. Department of Plastic Surgery, Frenchay Hospital, Bristol, Australia. *British Journal of Plastic Surgery* (1991) Nov-Dec, Vol. 44 (8), pp. 562–6.

The objective assessment of the symmetry of the cleft lip nose has not been properly evaluated. A simple technique using enlarged photographs and area assessment is described. Two different techniques were assessed, the Pigott 'alar leapfrog' technique and the McComb alar lift technique. The children were assessed at 10 years of age. The results show no differences in the linear measurements or when the symmetry is assessed in the frontal view. In the worm's eye view, the Pigott correction was shown to produce a more asymmetric nose when compared with the McComb technique. Both corrections produce significant asymmetry when compared with a control group. Author.

A new approach for the refinement of the very broad nasal tip.

Chait, L., Ritz, M. Division of Plastic and Reconstructive Surgery, University of Witwatersrand, Johannesburg, South Africa. *British Journal of Plastic Surgery* (1991) Nov-Dec, Vol. 44 (8), pp. 572–4. Refining the very broad nasal tip has been difficult to achieve with a single technique. Operations described often violate the domes and may result in visible irregularities and collapse of the ala. Adequate narrowing can be obtained by decreasing the angle between medial and lateral crura of the ala cartilage at the dome and decreasing the overall length of the ala cartilage. This narrowing is achieved predictably by removing a small segment at the lateral most part of the ala cartilage. Scoring of the dome can also be done. We describe the technique in a large series of patients, all of whom have retained their results without undesirable problems. Author.

External rhinoplasties: indications for use. Teichgraeber, J. F., Riley, W. B., Russo, R. C. Department of Surgery, University of Texas Health Science Center, Houston. *British Journal of Plastic Surgery* (1992) Jan, Vol. 45 (1), pp. 47–54.

The technique, indications and role of external rhinoplasty in nasal surgery are presented. The technique has been utilized in 563 patients with a minimum follow-up of 18 months. The external approach has been especially helpful in the severely twisted nose, secondary rhinoplasty, augmentation rhinoplasty, congenital deformities of the nose, closure of septal perforations and in the teaching and learning of rhinoplasty. In this series there were no reported complications attributable to the external approach. Author.

Normal tissue reactions in the British Institute of Radiology Study of three fractions per week versus five fractions per week in the treatment of carcinoma of the laryngo-pharynx by radiotherapy. Rezvani, M., Alcock, C. J., Fowler, J. F., Haybittle, J. L., Hopewell, J. W., Wiernik, G. CRC Normal Tissue Radiobiology Research Group, (University of Oxford), Churchill Hospital, Headington, UK. *British Journal of Radiology* (1991) Dec, Vol. 64 (768), pp. 1122–33.

The radiobiological data obtained from a multicentre clinical trial of the British Institute of Radiology, which compared the treatment of carcinoma of the laryngo-pharynx by three fractions per week (3F/wk) with five fractions per week (5F/wk) radiotherapy, have been studied. The trial involved an intake of 734 patients between 1966 and 1975. The number of fractions, overall treatment time and total doses used by different treatment centres ranges from 9 to 40 fractions, 18 to 70 days and 3880 to 7800 cGy, respectively. An 11 to 13 per cent reduction in the total radiation dose was applied for treatments with 3F/wk as compared with 5F/wk in centres treating over six weeks and three weeks, respectively. All patients were followed for 10 years from the start of treatment. Different types of early and late normal-tissue reactions were investigated, ranging from a low percentage incidence of perichondritis to 95 per cent for light early reactions. Greater than 80 per cent of the late normal-tissue reactions seen were observed within the first year after the start of treatment, and 96 per cent were observed within the first five years. There was no statistically significant difference in the normal-tissue event-free rates between the 3F/wk and 5F/wk treatment groups. This finding

did not differ when different major treatment centres were studied separately. For a number of end-points, alpha/beta ratios and N- and T-exponents of a modified nominal standard dose (NSD) formula have been calculated. Author.

Radical radiotherapy for 28 cases of mucosal melanoma in the nasal cavity and sinuses. Gilligan, D., Slevin, N. J. Department of Clinical Oncology and Radiotherapy, Christie Hospital, Manchester, UK. *British Journal of Radiology* (1991) Dec, Vol. 64 (768), pp. 1147–50.

Mucosal melanoma is rare and is traditionally treated by radical surgery. A retrospective survey was made of 28 cases of malignant mucosal melanoma of the nasal cavity and paranasal sinuses treated by definitive radiotherapy. Initial complete regression was observed in 22 out of 28 cases (79 per cent). Absolute local control by radiotherapy alone was achieved in 17 out of 28 cases (61 per cent) but follow-up was limited in many cases by early death due to metastatic disease; actuarial local disease-free survival was 49 per cent at three years. The approach of radical radiotherapy for melanoma of this site can be justified on the basis of the local control achieved, low treatment morbidity in patients who are typically elderly and the propensity to disseminated disease. Doses of radiotherapy required to achieve local control need to be radical; the influence of dose per fraction is uncertain. Author.

The functional anatomy of middle latency auditory evoked potentials. Barth, D. S., Di, S. Department of Psychology, University of Colorado, Boulder 80309-0345. *Brain Research* (1991) Nov 22, Vol. 565 (1), pp. 109–15.

The neural origins of middle latency auditory evoked potentials (MAEP) were studied in rat cortex. MAEP were mapped from the cortical surface with a high spatial resolution electrode array. Spatio-temporal analysis, based on multivariate statistical methods, was then used to relate putative neural generators of the MAEP complex to established cytoarchitectural anatomy. These data indicate that the MAEP waveform reflects systematic asynchronous activation of both primary and secondary auditory cortex during the processing of simple click stimuli. Author.

(3H)nitrendipine binding in temporal cortex in Alzheimer's and Huntingdon's diseases. Piggott, M. A., Candy, J. M., Perry, R. H. MRC Neurochemical Pathology Unit, Newcastle General Hospital, Newcastle upon Tyne, U.K. *Brain Research* (1991) Nov 22, Vol. 565 (1), pp. 42–7.

Specific (3H)nitrendipine binding which was shown to be calcium- and calmodulin-dependent was found to be significantly reduced in the temporal cortex in Alzheimer's disease compared to age-matched controls. Scatchard analysis revealed that this reduction was due to a loss in the number of cortical (3H)nitrendipine binding sites rather than a change in the affinity of the binding site in the Alzheimer patients. The reduction in cortical (3H)nitrendipine-specific binding was most marked in those Alzheimer's disease cases where the duration of the dementing illness was longer than two years. In contrast, no reduction in cortical (3H)nitrendipine binding was found in Huntingdon's disease. There was no significant correlation found between age (38–89 years) and (3H)nitrendipine binding in control cases, or between mean overall plaque counts and (3H)nitrendipine binding in the Alzheimer's disease cases. There was a significant correlation found between age (46–88 years) and (3H)nitrendipine binding in the Alzheimer's disease cases where the duration of the dementing illness was greater than two years. Author.

A phase II study of piritrexim in patients with advanced squamous head and neck cancer. Uen, W. C., Huang, A. T., Mennel, R., Jones, S. E., Spaulding, M. B., Killion, K., Havlin, K., Keegan, P., Clendeninn, N. J. Division of Hematology/Oncology, Duke University Medical Centre, Durham, North Carolina 27710. *Cancer* (1992) Feb 15, Vol. 69 (4), pp. 1008–11.

Piritrexim (PTX) is a newly developed lipid-soluble folate antagonist that crosses the cell membrane by a simple, rapid, carrier-independent diffusion process. A Phase II study was conducted to evaluate the activity of PTX in 34 patients with previously chemotherapy-naïve squamous cell cancer of the head and neck area (SCCHN). Among them, 30 patients had received previous radiation therapy and/or surgery. Of 33 patients who could be examined, three had a complete response (CR), six had a partial response (PR), 11 had no change, and 13 had disease progression. The overall response rate (CR + PR) was 27 per cent (nine of 33; 95 per cent confidence

interval, 13 to 46 per cent). The response duration ranged from 36 to 360+ days (median, 162) and was similar to the best studies reported with methotrexate. The three most severe side effects (Grades 3 and 4 by World Health Organization criteria) were leukopenia, thrombocytopenia, and mucositis. These occurred in 41 per cent, 26 per cent and 15 per cent of the 34 patients, respectively. This study established PTX as an agent with some activity in SCCHN. The use of PTX in combination chemotherapeutic regimens needs to be explored. Author.

Pharmacokinetic and pharmacodynamic studies with mitoxantrone in the treatment of patients with nasopharyngeal carcinoma. Hu, O. Y., Chang, S. P., Law, C. K., Jian, J. M., Chen, K. Y. School of Pharmacy, National Defense Medical Centre, Taipei, Republic of China. *Cancer* (1992) Feb 15, Vol. 69 (4), pp. 847–53. The pharmacokinetics and pharmacodynamics of mitoxantrone were studied in 15 patients with advanced nasopharyngeal carcinoma (NPC) after single intravenous rapid infusion (12 to 14 mg/m²). Mitoxantrone plasma concentrations and urinary excretion were measured specifically with the use of a high-performance liquid chromatographic method with ultraviolet detection at 242 and 658 nm. The pharmacokinetic parameters are described adequately by a three-compartment model with a terminal half-life of 71.5 ± 40.1 hours and a volume of distribution of 5037 ± 2377 l. The total plasma clearance was 743 ± 462 ml/min, and the renal clearance was 18.8 ± 8.49 ml/min. Within 72 h, 1.8 ± 0.6 per cent of the administration dose was excreted in urine as mitoxantrone parent compound. From the urinary excretion rate data, glomerular filtration and possible tubular reabsorption were the mechanisms involved in the urinary excretion of mitoxantrone. The values for unbound fraction (%) in plasma at time 0 and 5 mins were 2.88 ± 0.91 per cent and 3.25 ± 1.19 per cent, with an average of 3.04 ± 1.01 per cent. The degree of protein binding of mitoxantrone was not affected by concentration (p greater than 0.05) in Chinese patients with NPC. The response rate for mitoxantrone was poor in this study. Clinical studies have demonstrated that mitoxantrone was generally well tolerated. Only very low incidences of nausea, vomiting, and alopecia were observed. The mild and rapidly reversible dose-limiting hematologic toxic effects have proven leukopenia. Although the toxicities reported here were tolerated for most patients, other combination regimens including mitoxantrone or other administration routes may be considered and need to be evaluated carefully. Author.

Inadvertent loss of bronchoscopy instruments in the tracheobronchial tree. Roach, J. M., Ripple, G., Dillard, T. A. Department of Medicine, Walter Reed Army Medical Centre, Washington, D.C. *Chest* (1992) Feb, Vol. 101 (2), pp. 568–9. Equipment malfunction is a rare complication of flexible fiberoptic bronchoscopy. We report an unusual example of equipment failure resulting in the inadvertent introduction of a foreign body (the tip of a cleaning brush) into the bronchial tree of a patient during FFB. In addition, we review several other cases in which problems have been caused by malfunction of accessory equipment. Careful inspection of all cleaning and biopsy utensils should reduce the chance of iatrogenically introducing a foreign body from the bronchoscope channel into the patient's airway. We suggest that biopsy forceps are the best retrieval instrument to use when the foreign body involved is a brush or a piece of wire. Author.

Infratemporal pneumatocele arising from maxillary sinus. Chan, F. L., Chow, S. K., Sham, J. S. Diagnostic Radiology Division, Queen Mary Hospital, Hong Kong. *Clinical Radiology* (1992) Jan, Vol. 45 (1), pp. 27–30.

Pneumatocele of the infratemporal fossa caused by herniation of air through a break in the wall of the aerated maxillary sinus is rare. Two cases are reported: one arising from a maxillary pneumatocele with a defect in the wall of the zygomatic recess and one associated with maxillary radionecrosis with pathological fracture complicated by infection. Computed tomography can clearly demonstrate the extent of the pneumatocele, and can show the maxillary pathology and the causative bony defect in the sinus. Treatment depends on the clinical conditions of the patient, the pathology and the size of the bony defect. Author.

Chiari malformation type I in a child with velopharyngeal insufficiency. Gerard, C. L., Dugas, M., Narcy, P., Hertz-Pannier, J. Service de Medecine de Reeducation, Hopital Robert Debre, Paris, France. *Developmental Medicine and Child Neurology* (1992) Feb, Vol. 34 (2), pp. 174–6.

A five-year-old girl was referred for chronic and stable velopharyngeal insufficiency. Pharyngoplasty was performed, without significant improvement, and further neurological investigation was undertaken. Clinical examination and electromyography led to a suspicion of denervation of the IX, X and XI cranial nerves. Magnetic resonance imaging revealed a type I Chiari malformation. Author.

Hearing-impaired autistic children. Jure, R., Rapin, I., Tuchman, R. F. Saul R. Korey Department of Neurology, Rose F. Kennedy Centre for Research in Mental Retardation and Human Development, Albert Einstein College of Medicine, Bronx, NY. *Developmental Medicine and Child Neurology* (1991) Dec, Vol. 33 (12), pp. 1062–72.

The charts of 46 children diagnosed as deaf and autistic were reviewed. Nearly one-fifth had normal or near-normal non-verbal intelligence and only one-fifth had severe mental deficiency. The severity of the autistic behaviour was related to the severity of the mental deficiency, but not to that of the hearing loss. In 11 of the 46 children, autism went unrecognized for over four years after the diagnosis of hearing loss, and in 10 the hearing loss went unrecognized for several years after the diagnosis of autism. The educational experience of some children was generally disastrous because of the frequently late and incorrect diagnoses and the lack of specialized facilities for hearing-impaired autistic children. Author.

Hearing in the elderly—the Framingham cohort, 1983–1985: Part II. Prevalence of central auditory processing disorders.

Cooper, J. C. Jr., Gates, G. A. Department of Otolaryngology—Head and Neck Surgery, University of Texas Health Science Centre, San Antonio. *Ear and Hearing* (1991) Oct, Vol. 12 (5), pp. 304–11. The relation between central auditory processing disorders (CAPD) and age has been described in selected subjects. However, the prevalence of CAPD in the general population has not been established. We tested 1026, 64- to 93-year-old members of the Framingham Heart Study cohort with Central Institute for the Deaf W-22 lists (CID W-22) in quiet, the Synthetic Sentence Identification test with ipsilateral competing message (SSI-ICM), and the Staggered Spondaic Word test. The presence or absence of CAPD could be established with at least one of three indices in 1018 subjects. The CID W-22 performance-intensity function rollover index was greater than 0.20 in 1.4 per cent of 1009 subjects. The difference between maximum CID W-22 and SSI-ICM (0 dB message-to-competition ratio) scores was greater than 20 per cent in 18.2 per cent of 816 subjects. The Staggered Spondaic Word category was moderately, severely, over-corrected moderately, or over-corrected severely abnormal in 10.7 per cent of 941 subjects (using 12–59-year-olds' norms and adjusting scores when appropriate). Abnormal results on any one index occurred in 22.6 per cent of the subjects. Thus, we conclude that the prevalence of CAPD in the elderly is less common than previous studies would suggest. Furthermore, although the rate of CAPD increased with age, age accounted for no more than 15 per cent of the variability of any of the three indices. Therefore, its presence is dominated by factors other than chronological age. Author.

Nonverbal play interaction between hearing mothers and young deaf children. Pratt, S. R. Department of Communicative Disorders, University of Wisconsin-Madison. *Ear and Hearing* (1991) Oct, Vol. 12 (5), pp. 328–6.

The following preliminary study assessed the nonverbal play interactions of two hearing mothers and their profoundly hearing-impaired infants using a nonverbal coding scheme adapted from descriptors used by Fein (1979) and Bruner (1975a, b). The goal also was to describe the nonverbal components of their interactions during play relative to normally hearing mother-child dyads. More specifically, the goal was to determine if the behavioural patterns exhibited by the hearing mothers and their hearing impaired children were consistent with patterns that have been reported for verbal components of play interactions. The nature of the behavioural patterns were in agreement with much of the previous literature on verbal and social interactions between hearing mothers and hearing-impaired children, but some notable differences were observed. Author.

Prevalence of hearing loss in adults with sickle cell disease. Crawford, M. R., Gould, H. J., Smith, W. R., Beckford, N., Gibson, W. R., Bobo, L. Memphis State University, Tennessee. *Ear and Hearing* (1991) Oct, Vol. 12 (5), pp. 349–51.

Hearing status in 75 adult subjects with sickle cell disease was examined. Thirty-one (or 41 per cent) of the subjects failed the hear-

ing screening. When examined by hemoglobin type, it was found that persons with sickle cell disease had the greatest incidence of hearing loss, although all subject groups exhibited greater prevalence rates than the general population. The results suggest that routine audiologic assessment be incorporated into the regular medical examination for adults with sickle cell disease. Author.

Hearing disorders in sickle cell disease: cochlear and retro-cochlear findings. Gould, H.J., Crawford, M. R., Smith, W. R., Beckford, N., Gibson, W. R., Pettit, L., Bobo, L. Memphis State University, Tennessee. *Ear and Hearing* (1991) Oct, Vol. 12 (5), pp. 352–4.

The auditory system was assessed in 34 adult subjects with sickle cell disease using standard audiometric test techniques. The study results indicate that patients with sickle cell disease are at risk for retro-cochlear as well as cochlear dysfunction of the auditory system. However, there is no consistent audiometric pattern that is pathognomonic of sickle cell disease. The test results indicate that auditory status should be carefully monitored in all adult patients with sickle cell disease. Author.

Vector analysis of brain-stem auditory evoked potentials in patients with multiple sclerosis and subtentorial tumours. Coutin-Churchman, P., Oramas, S., Balmaseda-Conde, A. Department of Clinical Neurophysiology, National Institute of Neurology and Neurosurgery, Havana, Cuba. *Electroencephalography and Clinical Neurophysiology* (1992) Feb, Vol. 82 (2), pp. 139–44.

Vector analysis of BAEPs was done in 10 patients with posterior fossa tumours and 14 patients with MS. Latency abnormalities were found in both groups without significant differences. However, deviations of wave V vectors from its normal orientation were observed in tumour cases, correlated with tumour size and latency increase. It is concluded that vector deviations may indicate distortion of auditory pathways in the brain-stem. Author.

A multipedigree linkage study of X-linked deafness: linkage to Xq13-q21 and evidence for genetic heterogeneity. Reardon, W., Middleton-Price, H. R., Sandkuijl, L., Phelps, P., Bellman, S., Luxon, L., Pembrey, M. E., Malcolm, S. Mothercare Department of Paediatric Genetics, Institute of Child Health, London, United Kingdom. *Genomics* (1991) Dec, Vol. 11 (4), pp. 885–94.

A locus for X-linked nonsyndromic deafness has previously been allocated to the Xq13-q21 region based on linkage studies in two separate pedigrees. This has been substantiated by the observation of deafness as a clinical feature of male patients with cytogenetically detectable deletions across the region. The question of a second locus for deafness in this chromosomal region has been raised by the audiologically distinct nature of the deafness in some of the deleted patients compared to that observed in those patients upon whom the linkage data are based. We have performed detailed clinical evaluation and linkage studies on seven pedigrees with nonsyndromic X-linked deafness and conclude that there is evidence for at least two loci for this form of deafness, including one in the Xq13-q21 region. We have observed different radiological features among the pedigrees which map to Xq13-q21, suggesting that even among these pedigrees the deafness is due to different pathological processes. Given these findings, we suggest that the classification of nonsyndromic X-linked deafness based solely on audiological criteria may need to be reviewed. Author.

Middle-ear transmission: acoustic versus ossicular coupling in cat and human. Peake, W. T., Rosowski, J. J., Lynch, T. J. Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge 02139. *Hearing Research* (1992) Jan, Vol. 57 (2), pp. 245–68.

Otologic surgeons consider the action of sound pressure on the cochlear windows to be of major importance in certain cases of middle-ear pathology, yet previously published network models of mammalian middle ears do not include such a mechanism. A unified middle-ear model is developed in which it is assumed that the difference of acoustic pressures acting on the windows adds to the ossicular chain pressure to produce cochlear input. From a network model of the cat middle-ear cavities we estimate the contributions of pressures on the cochlear windows for both normal and abnormal cat ears. For the human ear we use the model of Kringleboth (1988) and measurements of Bekesy (1947). We determine that the pressure difference across the cochlear windows is negligibly small in normal cat and human ears. Thus, it is a reasonable approximation to ignore this mechanism in normal ears. For ears with a drastically altered

tympanic membrane and/or ossicular chain, acoustic coupling to the cochlear windows can—to a considerable extent—explain residual hearing in human. The model predicts hearing levels for type IV tympanoplastic reconstructions that agree with the best results obtained surgically. Author.

First analysis of tumour regression for the European randomized trial of etanidazole combined with radiotherapy in head and neck carcinomas. Chassagne, D., Charreau, I., Sancho-Garnier, H., Eschwege, F., Malaise, E. P. Radiotherapy Department, Institut Gustave-Roussy, Villejuif, France. *International Journal of Radiation, Oncology, Biology and Physics* (1992) Vol. 22 (3), pp. 581–4.

From July 1987 to July 1990, 374 patients were randomized in a multicentre trial coordinated by the Gustave-Roussy Institute. Patients were treated either by radiotherapy alone (RT) or by combined etanidazole with radiotherapy (ETA). The same radiotherapy protocol was used in both arms. Major deviations from the protocol occurred in 16 per cent of the patients. Etanidazole was given at a dose of 2 g/m², three times per week, for a total of 30–34 g/m². Seventeen per cent of the patients received less than 14 injections (4 per cent refused, 12 per cent presented a toxicity, one per cent died before beginning). The rate of neuropathy was 28 per cent in the ETA arm and 3 per cent in the RT arm. Acute radiotherapy reactions occurred in similar proportions in both arms. The three-month rates of complete regression are presently 75.3 per cent in the RT alone group and 77.6 per cent in the ETA group; this difference is not significant. No definitive results are presently available and we must wait for the two-year survival results. In addition, if a meta-analysis could be performed with the parallel RTOG study, the results would be more valid. Author.

Effect of carboxyhemoglobin on tumour oxygen unloading capacity in patients with squamous cell carcinoma of the head and neck. Overgaard, J., Nielsen, J. E., Grau, C. Danish Cancer Society, Department of Experimental Clinical Oncology and Clinical Research, Radiumstationen, Aarhus. *International Journal of Radiation, Oncology, Biology, and Physics* (1992) Vol. 22 (3), pp. 407–10.

Hemoglobin and blood gas parameters, with special attention to the influence of carboxyhemoglobin, were studied in 115 head and neck cancer patients undergoing radiotherapy. In 712 weekly blood samples, the values of total hemoglobin, carboxyhemoglobin (CO-Hb), and p50 were measured and the total oxygen content in the arterial and tumour venous blood was estimated. The difference between these values express the tumour oxygen unloading capacity (t-OU). CO-Hb ranged from 0–12 per cent and showed a significant inverse relationship with t-OU. This was caused by a reduced amount of effective hemoglobin combined with a left shift of the oxyhemoglobin dissociation curve (reduced p50). Overall, the tumour oxygen utilization decreased from 70 per cent to 52 per cent as a function of an increase in CO-Hb from 0 to 12 per cent. Author.

Vocal quality factors: analysis, synthesis, and perception. Childers, D. G., Lee, C. K. Department of Electrical Engineering, University of Florida, Gainesville 32611-2024. *Journal of the Acoustical Society of America* (1991) Nov, Vol. 90 (5), pp. 2394–410.

The purpose of this study was to examine several factors of vocal quality that might be affected by changes in vocal fold vibratory patterns. Four voice types were examined: modal, vocal fry, falsetto, and breathy. Three categories of analysis techniques were developed to extract source-related features from speech and electroglottographic (EGG) signals. Four factors were found to be important for characterizing the glottal excitations for the four voice types: the glottal pulse width, the glottal pulse skewness, the abruptness of glottal closure, and the turbulent noise component. The significance of these factors for voice synthesis was studied and a new voice source model that accounted for certain physiological aspects of vocal fold motion was developed and tested using speech synthesis. Perceptual listening tests were conducted to evaluate the auditory effects of the source model parameters upon synthesized speech. The effects of the spectral slope of the source excitation, the shape of the glottal excitation pulse, and the characteristics of the turbulent noise source were considered. Applications for these research results include synthesis of natural sounding speech, synthesis and modeling of vocal disorders, and the development of speaker independent (or adaptive) speech recognition systems. Author.

Lipreading sentences with vibrotactile vocoders: performance of normal-hearing and hearing-impaired subjects. Bernstein, L. E., Demorest, M. E., Coulter, D. C., O'Connell, M. P. Centre for Auditory and Speech Sciences, Gallaudet University, Washington, DC 20002. *Journal of the Acoustical Society of America* (1991) Dec, Vol. 90 (6), pp. 2971–84.

Three vibrotactile vocoders were compared in a training study involving several different speech perception tasks. Vocoders were: (1) the Central Institute for the Deaf version of the Queen's University vocoder, with 1/3-oct filter spacing and logarithmic output scaling (CIDLog) (Engebretson and O'Connell, *IEEE Trans. Biomed. Eng.* BME-33, 712–716 (1986)); (2) the same vocoder with linear output scaling (CIDLin); and (3) the Gallaudet University vocoder designed with greater resolution in the second formant region, relative to the CID vocoders, and linear output scaling (GULin). Four normal-hearing subjects were assigned to either of two control groups, visual-only control and vocoder control, for which they received the CIDLog vocoder. Five normal-hearing and four hearing-impaired subjects were assigned to the linear vocoders. Results showed that the three vocoders provided equivalent information in word-initial and word-final tactile-only consonant identification. However, GULin was the only vocoder significantly effective in enhancing lipreading of isolated prerecorded sentences. Individual subject analyses showed significantly enhanced lipreading by the three normal-hearing and two hearing-impaired subjects who received the GULin vocoder. Over the entire training period of the experiment, the mean difference between aided and unaided lipreading of sentences by the GULin aided hearing-impaired subjects was approximately 6 per cent words correct. Possible explanations for failure to confirm previous success with the CIDLog vocoder (Weisenberger *et al.*, *Journal of the Acoustical Society of America*, **86**, 1764–1775 (1989)) are discussed. Author.

Risk factors for hearing loss at different frequencies in a population of 47,388 noise-exposed workers. Bauer, P., Korpert, K., Neuberger, M., Raber, A., Schwetz, F. Institute of Medical Statistics and Documentation, University Cologne, Germany. *Journal of the Acoustical Society of America* (1991) Dec, Vol. 90 (6), pp. 3086–98.

Weighted regression analysis was applied to determine the dependence of the hearing thresholds of 47,388 noise-exposed workers on age, sex, noise emission level, ear disease, head injury, tinnitus, hearing protector usage, and audiometric frequency in the range from 0.5 to 6 kHz. It could be shown that the hearing thresholds at any frequency are dominated by the age of the worker and that women, after equivalent exposure conditions, hear better than men. The relative effects of sex, noise emission level, ear diseases, tinnitus, and hearing protector usage are related to the audiometric frequency. Users of hearing protectors at the last audiometric investigation hear worse than non-users. Hearing protector usage is strongly related to the hearing threshold in the low-frequency range. The noise emission level does not noticeably affect the hearing threshold below 3 kHz. The most important frequency of the noise emission level is as expected 4 kHz. For 4 kHz, it was shown that the variable age, noise emission level, tinnitus, head injuries, and ear diseases act in a good approximation additively on the pure-tone hearing threshold. Author.

Hearing loss from gun and railroad noise—relations with ISO standard 1999. Kryter, K. D. San Diego State University, College of Health and Human Services, California 92182. *Journal of the Acoustical Society of America* (1991) Dec, Vol. 90 (6), pp. 3180–95.

Pure-tone hearing thresholds and anamnestic data pertaining to nosocosis and exposure to gun noise were analyzed for 9778 male railroad train-crew workers. A major portion of losses in hearing sensitivity due to railroad noise are obscured in comparisons of hearing levels of trainmen with the hearing levels of the unscreened samples of United States males given in Annex B, ISO 1999 (ISO 1999 (1990), 'Acoustics—Determination of occupational noise exposure and estimation of noise-induced hearing impairment' (International Organization for Standardization, Geneva.)). Comparisons of the hearing levels, adjusted for nosocosis, of trainmen who had used no guns, with the hearing levels of otologically and noise screened males (Annex A, ISO 1999) reveal significant losses due to railroad noise. Additional losses were found at high frequencies in trainmen who had used guns. It appears that the effective Leq8h exposure level of trainmen to railroad noise is about 92 dBA, and 87–89 dBA to gun noise. These results are in general agreement with those of study of railway workers by Prosser *et al.* (*British*

Journal of Audiology **22**, 85–91 (1988)). Asymmetries in losses between the two ears, effects of ear protection, losses from nosocosis, and losses from sport, as compared to military, gun noise exposures, are examined. Author.

Hearing protection against high-level shooting impulses in relation to hearing damage risk criteria. Pekkarinen, J. O., Starck, J. P., Ylikoski, J. S. Institute of Occupational Health, Laajaniityntie 1, Vantaa, Finland. *Journal of the Acoustical Society of America* (1992) Jan, Vol. 91 (1), pp. 196–202.

The earmuff attenuation of acoustic impulses produced by large-caliber weapons was measured with a high-speed microcomputer controlled unit. The estimated accuracy was ± 1 dB in peak sound-pressure level measurements. The peak levels outside earmuffs were 184 dB for the heavy bazooka and 172 dB for the hand-held bazooka (re: 20 microPa). Heavy bazooka impulse peak levels were attenuated from 7 to 19 dB by the earmuffs depending on the mass and volume of the measured three types of earmuffs. Hand-held bazooka impulse peak levels were attenuated by the earmuffs from 9 to 15 dB. The risk limits for hearing loss from a single impulse were exceeded in spite of the use of earmuffs when the criteria of CHABA (USA) or Pfander (Germany) were applied. The unexpectedly low attenuation was due to the low-frequency waveform of the high-level impulses. The earmuffs were found to prolong the impulse duration, which may reduce the benefit otherwise achieved by attenuation of the peak levels. Author.

Comparison of human nasal mucosal secretion in vivo and in vitro. Mullol, J., Raphael, G. D., Lundgren, J. D., Baraniuk, J. N., Merida, M., Shelhamer, J. H., Kaliner, M. A. Allergic Diseases Section, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD 20892. *Journal of Allergy and Clinical Immunology* (1992) Feb, Vol. 89 (2), pp. 584–92.

The secretion of proteins from the human nasal mucosa induced by histamine, alpha-adrenergic, beta-adrenergic, and cholinergic agonists was studied *in vivo* and *in vitro*. Glandular secretion of lactoferrin, lysozyme (*in vivo* only), and respiratory glycoconjugates (RGCs) was measured. Vascular permeability was determined *in vivo* by albumin secretion in relationship to the other proteins. Muscarinic stimulation by methacholine induced significant glandular secretion (lactoferrin, lysozyme and/or RGCs) both *in vivo* and *in vitro*, confirming that muscarinic receptors are stimulated directly. Histamine induced predominantly vascular permeability *in vivo* but caused some glandular secretion as well. However, *in vitro*, histamine had no effect on glandular secretion, suggesting that histamine acts predominantly on the nasal vascular bed and only affects glandular secretion through reflex actions. Phenylephrine, an alpha-adrenergic agonist, selectively stimulated lysozyme release *in vivo*, and both RGCs and lactoferrin release *in vitro*. Thus, alpha-adrenergic stimulation has some direct, albeit minimal, capacity to stimulate mucosal glands. Beta-adrenergic agonists had no effect on glandular secretion or vascular permeability either *in vivo* or *in vitro*. Therefore, glandular secretion is directly stimulated by alpha-adrenergic and cholinergic agonists, but not by beta-adrenergic agonists. The stimulation of glandular secretion by histamine is indirect and mediated through the action of neural reflexes. Author.

Influence of nasal airflow temperature and pressure on alae nasi electrical activity. Wheatley, J. R., Amis, T. C., Engel, L. A. Thoracic Medicine Unit, Westmead Hospital, Sydney, New South Wales, Australia. *Journal of Applied Physiology* (1991) Dec, Vol. 71 (6), pp. 2283–91.

The influence of nasal airflow, temperature, and pressure on upper airway muscle electromyogram (EMG) was studied during steady-state exercise in five normal subjects. Alae nasi (AN) and genioglossus EMG activity was recorded together with nasal and oral airflows and pressures measured simultaneously by use of a partitioned face mask. At constant ventilations between 30 and 50 l/min, peak inspiratory AN activity during nasal breathing (7.2 ± 1.4 arbitrary units) was greater than that during oral breathing (1.0 ± 0.3 arbitrary units; p less than 0.005). In addition, the onset of AN EMG activity preceded inspiratory flow by 0.38 ± 0.03 s during nasal breathing but by only 0.17 ± 0.04 s during oral breathing (p less than 0.04). When the subject changed from nasal to oral breathing, both these differences were apparent on the first breath. However, peak AN activity during nasal breathing was uninfluenced by inspiration of hot saturated air (greater than 40 degrees C), by external inspiratory nasal resistance, or by changes in the expiratory route. The genioglossus activity did not differ between nasal and

oral breathing ($n = 2$). Our findings do not support reflex control of AN activity sensitive to nasal flow, temperature, or surface pressure. We propose a centrally controlled feedforward modulation of phasic inspiratory AN activity linked with the tonic drive to the muscles determining upper airway breathing route. Author.

Nasal and oral airway pressure-flow relationships. Wheatley, J. R., Amis, T. C., Engel, L. A. Thoracic Medicine Unit, Westmead Hospital, Sydney, New South Wales, Australia. *Journal of Applied Physiology* (1991) Dec, Vol. 71 (6), pp. 2317–24.

We examined the inspiratory and expiratory pressure-flow relationships of both the oral and nasal airways before and after exercise in normal upright subjects. With the use of a partitioned facemask, nasal resistance was measured using posterior rhinomanometry, and oral resistance was measured by recording transoral pressure during oral breathing. Both the nasal and oral pressure-flow relationships for inspiration and expiration were curvilinear, and were well described by a power function of the form $\Delta P = aV^b$ (where P is pressure, V is flow, a and b are constants) ($r^2 = 0.96 \pm 0.01$). The exponent b describes the curvilinearity of the pressure-flow curve and can be used to infer the flow regimen. At rest, the inspiratory nasal and oral curves suggested a similar degree of turbulence ($b = 1.77 \pm 0.06$ and 1.83 ± 0.04 , respectively). However, inspiratory flow regimens were inferred to be more turbulent than those during expiration both before and after exercise. After exercise, decreases in inspiratory nasal resistance at low flows were associated with a change in flow regimen from fully turbulent to orifice flow over the entire flow range. Thus the application of a power function to nasal and oral pressure-flow data permits representation of the whole relationship and allows insight into the nature of the flow regimens. Author.

The role of gentamicin iontophoresis in the treatment of burned ears. Desai, M. H., Rutan, R. L., Heggors, J. P., Alvarado, M. I., McElroy, K., Hendon, D. N. Shriners Burns Institute Galveston, TX 77550. *Journal of Burns Care and Rehabilitation* (1991) Nov-Dec, Vol. 12 (6), pp. 521–4.

Ear cartilage heals slowly, and limited vascularity in cartilage precludes use of systemic antibiotics. Iontophoresis electrically induces drugs in solution to migrate into target tissues. Fifteen patients were randomized to receive gentamicin iontophoresis ($n = 7$) plus dressing changes every six hours and cleaning or routine care alone ($n = 8$) for treatment of ear burns. There were no differences between the groups in incidence of chondritis (43 per cent versus 50 per cent) or cartilage loss (11 per cent versus 16 per cent). However, gentamicin-resistant organisms developed in 29 per cent of the patients who received iontophoresis, but in none of the patients in the control group (p less than 0.05). To identify the etiology of the resistant organisms, 10 New Zealand white rabbits receive 7 cm^2 contact burns to each ear. Gentamicin iontophoresis was performed on one ear, and the other ear served as the control. Serum gentamicin levels were always subtherapeutic. Additionally, gentamicin tissue levels in both the treated and control ears were subtherapeutic. Gentamicin iontophoresis appears to offer no additional salutary effects beyond those that are provided by routine care and may encourage the development of antibiotic resistance. Author.

Human papillomavirus 16/18 and nasopharyngeal carcinoma. Dickens, P., Srivastava, G., Liu, Y. T. Department of Pathology, University of Hong Kong. *Journal of Clinical Pathology* (1992) Jan, Vol. 45 (1), pp. 81–2.

Sixteen cases of nasopharyngeal carcinoma (eight anaplastic and eight well differentiated squamous types) were examined for the presence of human papillomavirus types 16 and 18 genomes using the polymerase chain reaction on paraffin wax embedded biopsy specimens. Although nasopharyngeal carcinoma, particularly the anaplastic type, is strongly associated with Epstein-Barr virus, other factors may be involved in its pathogenesis. No DNA of either human papillomavirus subtype was detected. It is concluded, therefore, that these two 'high risk' types of human papillomavirus are not implicated in the pathogenesis of nasopharyngeal carcinoma. The number of cases in this series was small, however, and further studies are warranted using fresh biopsy material and including other viral subtypes. Author.

Phototherapy and the brain-stem auditory evoked responses in neonatal hyperbilirubinemia. Tan, K. L., Skurr, B. A., Yip, Y. Y. Department of Neonatology, National University Hospital, Republic of Singapore. *Journal of Pediatrics* (1992) Feb, Vol. 120 (2 Pt 1), pp. 306–8.

The latencies of peak V and interpeaks I–V and III–V in the brain-stem auditory evoked response of infants with hyperbilirubinemia before phototherapy were significantly greater than those in a control group of infants. These values of the brain stem auditory-evoked response improved significantly during phototherapy and correlated significantly with the declining bilirubin levels. Improvement continued after phototherapy, despite a rebound of serum bilirubin concentrations. Author.

Carbon dioxide laser cordectomy in the management of bilateral vocal cord paralysis. Lannigan, F. J., Robb, P. J., Alderson, D. J., Shaheen, O. H. Department of ENT Surgery, Guy's Hospital, London, UK. *Journal of the Royal College of Surgeons of Edinburgh* (1991) Dec, Vol. 36 (6), pp. 378–80.

Bilateral vocal cord paralysis is a rare but major complication of thyroid surgery. Since 1983, patients with bilateral cord paralysis have been managed in this department using the carbon dioxide laser. Six patients with bilateral cord paralysis secondary to thyroid surgery underwent partial cordectomy and arytenoidectomy. Two patients were operated on with tracheostomy tubes in situ, and both were successfully decannulated. In the remaining four patients, ventilation was maintained during anaesthesia using a Venturi jet ventilation system. None of these patients required a perioperative tracheostomy. Adequate airway improvement and satisfactory voice quality were achieved. Follow-up ranged from 6 to 17 months. Author.

Cadaver studies of the anatomy of arterial supply to the inferior turbinates. Padgham, N., Vaughan-Jones, R. University Department of Otolaryngology, Ninewells Hospital and Medical School, Dundee. *Journal of the Royal Society of Medicine* (1991) Dec, Vol. 84 (12), pp. 728–30.

The anatomy of the arterial supply of the inferior turbinate was studied by dissection and serial histological sections. The arrangement was found to be constant, with a single main descending branch of the sphenopalatine artery entering its substance from above, 1–1.5 cm from its posterior border. This artery branches as it passes forwards within the turbinate, remaining close to the bone. As close to or within the bone, with the main artery increasing in diameter. The implications of these findings are discussed in a surgical context. Author.

Cytodiagnosis of rhinosporidiosis. Jaiswal, V., Kumar, M., Gupta, S., Kherdekar, M., Mahore, M. N. Department of Pathology, Banaras Hindu University, Varanasi, India. *Journal of Tropical Medicine and Hygiene* (1992) Feb, Vol. 95 (1), pp. 71–2.

Two clinically suspected cases of nasal rhinosporidiosis were studied cytologically using a wipe out technique. The smears showed the typical spores of the fungus and the cytological diagnosis of rhinosporidiosis was confirmed by excisional biopsy. The smear is recommended as a routine preliminary screening technique in the diagnosis of suspected cases of rhinosporidiosis. Author.

Prospective randomized double-blind study comparing L-epinephrine and racemic epinephrine aerosols in the treatment of laryngotracheitis (croup). Waisman, Y., Klein, B. L., Boenning, D. A., Young, G. M., Chamberlain, J. M., O'Donnell, R., Ochsen-schlager, D. W. Emergency Medical Trauma Centre, Children's National Medical Centre, Washington, D.C. *Pediatrics* (1992) Feb, Vol. 89 (2), pp. 302–6.

Aerosolized racemic epinephrine, but not L-epinephrine, is commonly used in treating croup. The efficacy and adverse effects of nebulized racemic and L-epinephrine in the treatment of laryngotracheitis were compared. Children six months to six years of age with a croup score of six or above were assigned in a randomized double-blind fashion to receive either racemic ($n = 16$) or L-epinephrine ($n = 15$) aerosols. Croup score, heart rate, blood pressure, respiratory rate, fraction of inspired oxygen, and oxygen saturation were recorded before treatment and at 5, 15, 30, 60, 90, and 120 mins after the aerosol. Patients in both groups showed significant transient reduction of the croup score and respiratory rate following the aerosol (p less than 0.001), but there were no differences between treatment groups when croup score, heart rate, blood pressure, and respiratory rate were assessed over time. It is concluded that L-epinephrine is at least as effective as racemic epinephrine in the treatment of laryngotracheitis and does not carry the risk of additional adverse effects. L-epinephrine is also more readily available worldwide, is less expensive, and can be recommended for this purpose. Author.

Central nodal necrosis and extracapsular neoplastic spread in

cervical lymph nodes: MR imaging versus CT. Yousem, D. M., Som, P. M., Hackney, D. B., Schwaibold, F., Hendrix, R. A. Department of Radiology, Hospital of the University of Pennsylvania, Philadelphia 19104. *Radiology* (1992) Mar, Vol. 182 (3), pp. 753–9.

Computed tomographic (CT) scans and magnetic resonance (MR) images obtained in 24 patients with cervical lymphadenopathy were retrospectively and blindly evaluated by two readers for the presence of central nodal necrosis (CNN) and extracapsular nodal spread (ENS). The CT studies were all enhanced, and the MR images were obtained with short repetition time (TR)/echo time (TE), long TR/double echo, and enhanced short TR/TE fat-suppressed sequences. Each MR imaging sequence was interpreted separately and then collectively. Sixty lymph nodes were identified with CT. Sensitivity for CNN was 16–67 per cent with the unenhanced MR pulse sequences, 50 per cent with enhanced sequences, and 83–100 per cent with CT. The most accurate reading of MR images for CNN was with the unenhanced T1-weighted and T2-weighted images (86–87 per cent); the accuracy of CT was 91–96 per cent. The accuracy of MR imaging for detecting ENS was maximal with T1-weighted images (78–90 per cent). Gadolinium-enhanced, fat-suppressed images did not improve accuracy in evaluating CNN or ENS. CT is currently more accurate than unenhanced or enhanced MR imaging in detecting CNN or ENS. Author.

Stages 1 and 2 epidermoid carcinoma of the glottic larynx: involvement of the anterior commissure. Stevenson, J. M., Juillard, G. J., Selch, M. T. Department of Radiation Oncology, University of California, Los Angeles 90024–6951. *Radiology* (1992) Mar, Vol. 182 (3), pp. 797–9.

Data on 55 patients with stages 1 and 2 epidermoid carcinoma of the glottic larynx treated from 1978 to 1988 were retrospectively reviewed. Twenty-six patients had involvement of the anterior commissure (AC). Local and ultimate local control rates achieved, respectively, with mean follow-up of 41 months (range, 6–120 months), were as follows: 92 per cent and 100 per cent for patients without AC involvement and stage T1a lesions, 60 per cent and 80 per cent for patients with AC involvement and stage T2 lesions, 100% and 100% for patients with AC involvement and stage T1a lesions, 100 per cent and 100 per cent for patients with AC involvement and stage T1b lesions, and 75 per cent and 100 per cent for patients with AC involvement and stage T2 lesions. There was no correlation between the degree of response at completion of treatment and local control. There was no difference in the local control rate of patients with and without involvement of the AC. Factors associated with a decreased local control rate include extensive subglottic extension and use of a single lateral field technique. Surgical salvage after failure of radiation therapy is effective and can be performed with acceptable morbidity. Author.