

Abstract Selection

The Journal is again pleased to thank the Editors, parent associations and publishers of the following journals for so kindly allowing a selection of their abstracts to be published in the past year. Without their kind permission and co-operation this service would not be possible—this is very gratefully acknowledged and appreciated.

- Acta Neurologica Scandinavica (Munksgaard International Publishers)
Acta Oncologica (Italian Society for the Prevention and Diagnosis of Tumors, and Italian Society for the Treatment of Tumors)
Acta Paediatrica Scandinavica
Advances in Neurology (Raven Press)
Allergy (Munksgaard International Publishers Limited)
American Dental Association Journal (American Dental Association)
American Geriatrics Society Journal
American Journal of Diseases of Children (American Medical Association)
American Journal of Gastroenterology (Official Journal of the American College of Gastroenterology) (Williams and Wilkins)
American Journal of Hematology (Alan R. Liss, Inc., Publishers)
American Journal of Human Genetics (University of Chicago Press)
American Journal of Industrial Medicine (Wiley-Liss, Publishers)
American Journal of Medical Genetics (Alan R. Liss Inc., Publishers)
American Journal of Medicine (Cahners Publishing Company)
American Journal of Neuro-Radiology (Williams and Wilkins)
American Journal of Orthodontics and Dento-Facial Orthopedics (The C. V. Mosby Co.)
American Journal of Physiology (The American Physiological Society)
American Journal of Roentgenology (Williams & Wilkins) (American Roentgen Ray Society)
American Journal of Surgery (Cahners Publishing Co. Inc. Medical-Health Care Group)
American Journal of Surgical Pathology (Arthur Purdy Stout Society of Surgical Pathologists) (Raven Press)
American Review of Respiratory Disorders (American Thoracic Society, Medical Section of the American Lung Association)
Anaesthesia (Journal of the Association of Anaesthetists of Great Britain and Ireland)
Anesthesia and Analgesia (International Anesthesia Research Society) (Elsevier Science Publishing Co. Inc.)
Anesthesiology (J.B. Lippincott Co.)
Annals of Allergy (American College of Allergists)
Annals of Emergency Medicine (American College of Emergency Physicians and the Society for Academic Emergency Medicine)
Annals of Neurology (Official Journal of the American Neurological Association and the Child Neurology Society) (Little, Brown & Company)
Annals of the New York Academy of Sciences
Annals of Pharmacotherapy (Harvey A. K. Whitney)
Annals of Plastic Surgery
Annals of Thoracic Surgery (Official Journal of the Society of Thoracic Surgeons and Southern Thoracic Surgical Association) (Elsevier Science Publishing)
Archives of Environmental Health (Heldref Publications)
Archives of Internal Medicine (American Medical Association)
Archives of Ophthalmology (American Medical Association)
Archives of Pathology and Laboratory Medicine (American Medical Association)
Archives of Surgery (American Medical Association)
Audiology (Journal of Auditory Communication—Official Organ of the International Society of Audiology)—S. Karger
Australasian Radiology (Royal Australasian College of Radiologists)
Aviation, Space and Environmental Medicine (Aerospace Medical Association)
Brain Research (Elsevier Science Publications)
British Journal of Cancer (Cancer Research Campaign)
British Journal of Disorders of Communication (College of Speech Therapists)
British Journal of Industrial Medicine (British Medical Association)
British Journal of Oral and Maxillofacial Surgery (Churchill Livingstone Medical Journals)
British Journal of Plastic Surgery (British Association of Plastic Surgeons) (Churchill Livingstone Medical Journals)
British Journal of Radiology (British Institute of Radiology)
British Journal of Surgery (Butterworth Scientific Limited)
Cancer (J.B. Lippincott Co.)
Cancer Treatment Reviews (Academic Press Inc. [London] Ltd.)
Chest (American College of Chest Physicians)
Cleft Palate Journal (American Cleft Palate Association)
Clinical and Experimental Allergy (Blackwell Scientific Publications Ltd.)
Clinical Genetics (Munksgaard International Publishers Ltd.)
Clinical Nephrology (Dustri-Verlag)
Clinical Neurology and Neurosurgery (Journal of the Netherlands Society of Neurology, The Netherlands Society of Neurosurgeons, and the Flemish Society of Neuro-Psychiatry)
Clinical Nuclear Medicine (J.B. Lippincott Co.)
Clinical Orthopaedics and Related Research (J.B. Lippincott & Co.)
Clinics in Plastic Surgery (W.B. Saunders Co.)
Clinical Radiology (Journal of the Royal College of Radiologists)
Clinical Science (The Medical Research Society & The Biochemical Society) (Portland Press)
Critical Care Medicine (Society of Critical Care Medicine) Williams and Wilkins
Current Opinion in Radiology (Current Science)
Dentomaxillofacial Radiology (International Association of Dento Maxillo Facial Radiology) (Butterworth Scientific)
Developmental Medicine & Child Neurology (Spastics Society) (MacKeith Press; Distributed by Blackwell Scientific Publications Ltd., Oxford)
Drug Intelligence and Clinical Pharmacology
Drug Research (Arzneimittel-Forschung)
Dysphagia (Springer-Verlag)
Ear and Hearing (American Auditory Society) (Williams and Wilkins)
Electroencephalography and Clinical Neurophysiology (Official Organ of the International Federation of Clinical Neurophysiology) (Elsevier Science Publishers)
European Journal of Surgical Oncology (European Society of Surgical Oncology and British Association of Surgical Oncology) (Academic Press Inc. [London] Ltd.)
Experimental Lung Research (Hemisphere Publishing Corporation)
Gastroenterology (American Gastroenterological Association) (W. B. Saunders & Co.)
Genomics (Academic Press Inc)
Gut (Journal of the British Society of Gastroenterology) (British Medical Association)
Hearing Research (Elsevier Biomedical Press)
Human Genetics
Human Pathology (W. B. Saunders Co.)
Indian Journal of Leprosy (Quarterly Scientific Journal of the Hindu Kush Nivaran Sangh (A Quarterly Scientific Journal))
Indian Journal of Medical Research (Monthly Journal of the Indian Council of Medical Research, New Delhi)
Indian Journal of Pathology and Microbiology (Indian Association of Pathologists and Microbiologists)

- Infection (MMV Medizin Verlag)
 Immunology (British Society for Immunology) (Blackwell Scientific Publications Ltd)
 International Anesthesiology Clinics (Little Brown & Company)
 International Journal of Clinical Pharmacology Research (Bio-science Ediprint Inc.)
 International Journal of Pediatric Otorhinolaryngology (Elsevier Science Publishers)
 International Journal of Radiation Oncology, Biology and Physics (Pergamon Press Limited)
 Israel Journal of Medical Sciences (Israeli Medical Association)
 Japanese Journal of Clinical Oncology (Foundation of Clinical Oncology—National Cancer Centre)
 Journal of the Acoustical Society of America (American Institute of Physics)
 Journal of Allergy and Clinical Immunology (American Academy of Allergy and Immunology)—C. V. Mosby Co.
 Journal of the American Geriatric Society (Elsevier Science Publications)
 Journal of the American Medical Association (J.A.M.A.)
 Journal of Applied Physiology (American Physiology Society)
 Journal of the Autonomic Nervous System (Elsevier Science Publishers)
 Journal of Biomedical Engineering (Biology Engineering Society) (Butterworth Scientific Ltd)
 Journal of Bone & Joint Surgery—British Volume (British Editorial Society of Bone and Joint Surgery)
 Journal of Burns Care and Rehabilitation (The C. V. Mosby Co.)
 Journal of Clinical Microbiology (Society of General Microbiology)
 Journal of Clinical Neuro-Ophthalmology (Raven Press)
 Journal of Clinical Pathology Journal of the Association of Clinical Pathologists (British Medical Association)
 Journal of Comparative Physiology (Springer-Verlag)
 Journal of Cranio-Maxillo-Facial Surgery (European Association for Maxillo-Facial Surgery) (Georg Thieme Verlag)
 Journal of Dermatologic Surgery and Oncology—Journal Publishing Group
 Journal of Endocrinological Investigation (Italian Society of Endocrinology) (Editrice Kurtis)
 Journal of General Virology (Society for General Microbiology)
 Journal of Infectious Diseases (Infectious Diseases Society of America) (University of Chicago Press)
 Journal of International Medical Research (Cambridge Medical Publications Ltd)
 Journal of Medical Engineering and Technology (Taylor and Francis Ltd.)
 Journal of Medical Genetics (British Medical Association)
 Journal of Medical Virology (Alan R. Liss Inc)
 Journal of Neurological Sciences (Elsevier Science Publishers)
 Journal of Neurology, Neurosurgery and Psychiatry (British Medical Association)
 Journal of Neuroradiology (Société de Publication de Periodiques Internationaux et Français)
 Journal of Neurosurgery (American Association of Neurological Surgeons)
 Journal of Neurosurgical Sciences (Edizioni Minerva Medica)
 Journal of Occupational Medicine
 Journal of Oral & Maxillofacial Surgery (W.B. Saunders Co.)
 Journal of Pediatric Psychology (Society of Pediatric Psychology) (Plenum Publishing Corporation)
 Journal of Pediatrics (The C.V. Mosby Co.)
 Journal of Pharmacology and Therapeutics (American Society for Pharmacology and Experimental Therapeutics) (Williams & Wilkins)
 Journal of Prosthetic Dentistry (The C.V. Mosby Co.)
 Journal of Psychosomatic Research (Pergamon Journals)
 Journal of Radiology/Journale de Neuroradiologie (Société de Publication de Periodique Internationaux a Français)
 Journal of The Royal Navy Medical Service (Institute of Naval Medicine)
 Journal of Speech and Hearing Research (American Speech-Language-Hearing Association)
 Journal of Tropical Paediatrics
 Journal of Trauma (Williams & Wilkins)
 Journal of Tropical Medicine and Hygiene (Blackwell Scientific Publications Ltd.)
 Journal of Tropical Paediatrics
 Laboratory Investigation (United States & Canadian Academy of Pathology) (Williams and Wilkins)
- Life Sciences (Pergamon Press)
 Medical Journal of Australia (Journal of the Australian Medical Association)
 Neurologic Clinics of North America (W. B. Saunders Co.)
 Neurosurgery (Journal of the Congress of Neurological Surgeons) (Williams and Wilkins)
 New England Journal of Medicine (Massachusetts Medical Society)
 New York State Journal of Medicine (Medical Society of the State of New York)
 Ophthalmology (Journal of the American Academy of Ophthalmology)
 Oral Surgery, Oral Medicine, Oral Pathology (C.V. Mosby Co.)
 Pediatrics (American Academy of Pediatrics)
 Pediatric Emergency Care (Williams and Wilkins)
 Pediatric Infectious Diseases (Williams and Wilkins)
 Perceptual and Motor Skills
 Pharmatherapeutica (Clayton-Wrey Publications Ltd.)
 Physiologist (American Physiological Society)
 Postgraduate Medical Journal (Fellowship of Postgraduate Medicine)—Macmillan Press Ltd.
 Public Health Reports (Journal of the US Public Health Services)
 Radiographics (Radiological Society of North America)
 Radiology (Radiological Society of North America)
 Respiration Physiology
 Retina (Journal of Retinal and Vitreous Diseases)—J.B. Lippincott Co.
 Reviews of Infectious Diseases (Infectious Diseases Society of America)—University of Chicago Press
 Scandinavian Audiology (Scandinavian Audiological Society) (Almqvist and Wiksell International)
 Science (American Association for the Advancement of Science)
 South African Journal of Communicative Disorders (South African Speech-Language-Hearing Association)
 South African Medical Journal (Medical Association of South Africa)
 Southern Medical Journal (Southern Medical Association)
 Spine (J. B. Lippincott & Co)
 Thoracic & Cardiovascular Surgery (Georg Thieme, Verlag)
 Thorax
 Toxicology (Elsevier)
 Tropical Doctor (Royal Society of Medicine)
 Ultrastructural Pathology (Hemisphere Publishing Corporation)
 West Indian Medical Journal (University of the West Indies)
- The following journals have been excluded as it is anticipated that subscribers/readers will already have access to them and will consult them regularly.
- ACTA OTO-RHINO-LARYNGOLOGICA BELGICA
 ACTA OTO-LARYNGOLOGICA (*Stockholm*)
 ADVANCES IN OTO-RHINO-LARYNGOLOGY
 AMERICAN JOURNAL OF OTOTOLOGY
 AMERICAN JOURNAL OF OTOLARYNGOLOGY
 ANNALES D'OTO-LARYNGOLOGIE
 ANNALS OF OTOTOLOGY, RHINOLOGY AND LARYNGOLOGY
 ARCHIVES OF OTOLARYNGOLOGY—HEAD AND NECK SURGERY
 ARCHIVES OF OTORHINOLOGARYNGOLOGY
 AURIS, NASUS, LARYNX
 BRITISH JOURNAL OF AUDIOLOGY
 CLINICAL OTOLARYNGOLOGY
 EAR, NOSE AND THROAT JOURNAL
 H.N.O.
 IL VALSALVA
 INDIAN JOURNAL OF OTOLARYNGOLOGY
 JOURNAL OF OTOLARYNGOLOGY
 LARYNGOLOGIE, RHINOLOGIE, OTOLOGIE
 LARYNGOSCOPE
 OTOLARYNGOLOGY—HEAD AND NECK SURGERY
 OTOLARYNGOLOGIC CLINICS OF NORTH AMERICA
 ORL—JOURNAL OF OTO-RHINO-LARYNGOLOGY AND ITS RELATED SPECIALITIES
 PAKISTAN JOURNAL OF OTOLARYNGOLOGY
 REVUE DE LARYNGOLOGIE, OTOLOGIE ET RHINOLOGIE
 RHINOLOGY
 VESTNIK OTORINOLARYNGOLOGII
- Nasal blood flow.** Druce, H. M. Department of Internal Medicine, St. Louis University School of Medicine, Missouri. *Annals of Allergy* (1993) September, Vol. 71 (3), pp. 288–91.
 Although the assessment of allergic reactions was subjective for

many years, it is now possible to evaluate nasal blockage objectively by measuring nasal airway resistance. To explore the pathophysiology of nasal blockage, however, it is necessary to analyze the separate components of obstruction, including secretions, cellular infiltrates, and microcirculatory parameters. The preferred techniques for measuring nasal mucosal blood flow are laser-Doppler velocimetry and radioactive xenon washout. Laser-Doppler velocimetry allows the measurement not only of blood flow but also of blood volume, red blood cell speed, and pulsatility of flow. It also permits continuous measurement of microcirculatory parameters over time. This technique has been used to assess the nasal microvascular response to neurohormones, antigenic challenge, and histamine challenge with and without antihistamine pretreatment. Author.

Videothoracoscopy in the treatment of spontaneous pneumothorax: an initial experience. Waller, D. A., Yoruk, Y., Morrill, G. N., Forty, J., Dark, J. H. Department of Cardiothoracic Surgery, Freeman Hospital, Newcastle upon Tyne. *Annals of the Royal College of Surgeons of England* (1993) July, Vol. 75 (4), pp. 237–40.

We report an initial experience with the new and potentially advantageous technique of videothoracoscopy in the treatment of pneumothorax. A series of 18 consecutive patients (14 male, 4 female) presenting with spontaneous pneumothorax over a 4-month period underwent surgical treatment by this method. The indication for surgery was recurrent pneumothorax in nine patients and persistent air leak in the remainder (median duration 15 days, range 5–28 days). Stapled apical bullectomy with apical parietal pleurectomy was performed in 14 patients, bullectomy alone was performed in one patient and pleurectomy alone in three patients. Additional talc pleurodesis was carried out in three of these patients. Median duration of operation was 53.5 min (range 35–120 min). The median postoperative drainage was 300 ml in 24 h (range 50–580 ml). The median duration of intercostal drainage was 48 h (range 24–384 h) and of postoperative hospital stay four days (range 3–18 days). The mean postoperative analgesic requirement was 1.3 mg morphine/h. Three complications required reoperation. In two patients a large air leak persisted after operation; one proceeded to thoracotomy for suturing of the air leak and in the other this was accomplished by videothoracoscopy. A further patient re-presented at two weeks with recurrent pneumothorax which was treated at thoracotomy. At a median follow-up of 68.5 days (range 10–124 days) this is the only recurrence. These complications were caused by errors in surgical technique early in our series. This initial experience of videothoracoscopic pleurectomy suggests it is an effective, well-tolerated treatment of spontaneous pneumothorax. Author.

The effective use of magnetic resonance imaging in the diagnosis of acoustic neuromas. Renowden, S. A., Anslow, P. Radcliffe Infirmary, Oxford. *Clinical Radiology* (1993) July, Vol. 48 (1), pp. 25–8. The diagnostic approach to acoustic neuromas is complex but these tumours are infrequent in patients even with a suggestive clinical picture. Easy access to an efficient, reliable and cost effective investigation is desirable. Magnetic resonance imaging is now the imaging modality of choice and this paper shows that it may be used effectively as the sole investigation. T2-weighted (T2W) fast spin echo axial images taking 1 min 37 s to acquire were compared with T1-weighted (T1W) gadolinium-enhanced axial images, taking 5 min 11 s to acquire, in 157 patients. The T2W images were satisfactory alone in 43 per cent of patients and allowed confident diagnosis of seven of the nine acoustic neuromas. Partial volume artefact and CSF flow artefact resulted in equivocal examinations in the remaining patients. Using both sequences in every patient, imaging time was 7 min 41 s and at least 40 patients could be examined in one day, thus ensuring efficient patient throughput. We suggest that T2W fast spin echo axial images be routinely obtained and that only when they are equivocal should T1W gadolinium-enhanced axial sequences be employed. Author.

Auditory brainstem responses in ferrets following unilateral cochlear removal. Moore, D. R. University Laboratory of Physiology, Oxford, UK. *Hearing Research* (1993) June, Vol. 68 (1), pp. 28–34.

To examine the effect of unilateral or asymmetric hearing loss on the developing brain, ferrets had the right cochlea removed at postnatal day (P)5, P25, P40 or P90. Auditory brainstem responses (ABR) to free-field click stimulation were obtained before and after cochlear removal in the P40 and P90 groups, and from P28 in the other

groups. Acute cochlear removal did not lead to any change in the morphology of the ABR waveform or to any change in the ABR threshold in response to stimulation on the side of the intact ear. There was a small, progressive increase in the latency of the four main waves of the ABR. Long-term survival following cochlear removal did not lead to any change in ABR waveform or threshold, or to any further change in wave latency, regardless of age at the time of removal or survival time (up to 1–2 years). In contrast to initial expectations based on previous single-unit studies, these results suggest that cochlear removal in infancy does not produce any large compensatory change in the functional organization of the auditory brainstem. Author.

Binaural auditory processing in multiple sclerosis subjects. Levine, R. A., Gardner, J. C., Stufflebeam, S. M., Fullerton, B. C., Carlisle, E. W., Furst, M., Rosen, B. R., Kiang, N. Y. Massachusetts Eye and Ear Infirmary, Boston 02114.

Hearing Research (1993) June, Vol. 68 (1), pp. 59–72.

In order to relate human auditory processing to physiological and anatomical experimental animal data, we have examined the interrelationships between behavioural, electrophysiological and anatomical data obtained from human subjects with focal brainstem lesions. Thirty-eight subjects with multiple sclerosis were studied with tests of interaural time and level discrimination (just noticeable differences or jnds), brainstem auditory evoked potentials and magnetic resonance (MR) imaging. Interaural testing used two types of stimuli, high-pass (> 4000 Hz) and low-pass (<1000 Hz) noise bursts. Abnormal time jnds (Tjnd) were far more common than abnormal level jnds (70 per cent vs 11 per cent); especially for the high-pass (Hp) noise (70 per cent abnormal vs 40 per cent abnormal for low-pass (Lp) noise). The Hp Tjnd could be abnormal with no other abnormalities; however, whenever the BAEPs, LpTjnd and/or level jnds were abnormal HpTjnd was always abnormal. Abnormal wave III amplitude was associated with abnormalities in both time jnds, but abnormal wave III latency with only abnormal HpTjnds. Abnormal wave V amplitude, when unilateral, was associated with a major HpTjnd abnormality, and, when bilateral, with both HpTjnd and LpTjnd major abnormalities. Sixteen of the subjects had their MR scans obtained with a uniform protocol and could be analyzed with objective criteria. In all four subjects with lesions involving the pontine auditory pathway, the BAEPs and both time jnds were abnormal. Of the twelve subjects with no lesions involving the pontine auditory pathway, all had normal BAEPs and level jnds, ten had normal LpTjnds, but only five had normal HpTjnds. We conclude that interaural time discrimination is closely related to the BAEPs and is dependent upon the stimulus spectrum. Redundant encoding of low-frequency sounds in the discharge patterns of auditory neurons, may explain why the HpTjnd is a better indicator of neural desynchrony than the LpTjnd. Encroachment of MS lesions upon the pontine auditory pathway always is associated with abnormal BAEPs and abnormal interaural time discrimination but may have normal interaural level discrimination. Our data provide one of the most direct demonstrations in humans of relationships among auditory performance, evoked potentials and anatomy. We present a model showing that many of these interrelationships can be readily interpreted using ideas developed from work on animals, even though these relationships could not have been predicted with confidence beforehand. This work provides a clear advance in our understanding of human auditory processing and should serve as a basis for future studies. Author.

Effects of multiple sclerosis brainstem lesions on sound lateralization and brainstem auditory evoked potentials. Levine, R. A., Gardner, J. C., Fullerton, B. C., Stufflebeam, S. M., Carlisle, E. W., Furst, M., Rosen, B. R., Kiang, N. Y. Massachusetts Eye and Ear Infirmary, Boston 02114. *Hearing Research* (1993) June, Vol. 68 (1), pp. 73–88.

Magnetic resonance (MR) imaging, brainstem auditory evoked potentials (BAEPs), and tests of interaural time and level discrimination were performed on 16 subjects with multiple sclerosis (MS). Objective criteria were used to define MR lesions. Of the 11 subjects in whom no pontine lesions were detected and the one subject who had pontine lesions that did not encroach upon the auditory pathways, all had normal BAEPs and interaural level discrimination, although a few had abnormal interaural time discrimination. Of four subjects with lesions involving the pontine auditory pathway, all had both abnormal BAEPs and abnormal interaural time discrimination; one also had abnormal interaural level discrimination. Analysis of the data suggest the following: waves I and II are generated periph-

eral to the middle of the ventral acoustic stria (VAS); wave III is generated ipsilaterally in the region of the rostral VAS, caudal superior olivary complex (SOC) and trapezoid body (TB); and waves V and L are generated contralaterally, rostral to the SOC-TB. The region of the ipsilateral rostral SOC-TB is implicated as part of the pathway involved in the generation of waves V and L. Interaural time discrimination of both high and low frequency stimuli were affected by all brainstem lesions that encroached on auditory pathways. A unilateral lesion in the region of the LL affected interaural time discrimination for low-frequency stimuli less severely than bilateral lesions of the LL or a unilateral lesion of the VAS. The only interaural level discrimination abnormality occurred for a subject with a unilateral lesion involving the entire rostral VAS. It appears that detailed analysis of lesion locations coupled with electrophysiological and psychophysical data holds promise for testing hypotheses concerning the function of various human auditory brainstem structures. Author.

20-year experience in childhood craniopharyngioma. Hetelekidis, Stella^{1,2}, Barnes, P. D.,^{1,3} Tao, May L.,² Fischer, E. G.,⁴ Schneider, Lindsey² Scott, R. M.^{1,4} and Tarbell, Nancy J.^{1,2}. ¹The Brain Tumour Centre, Children's Hospital, Brigham and Women's Hospital, and Joint Centre for Radiation Therapy, and the Departments of ²Radiation Oncology, ³Radiology, and ⁴Neurosurgery, Harvard Medical School. *International Journal of Radiation, Oncology, Biology and Physics* (1993) Vol. 27, pp. 189–195.

PURPOSE: The management of craniopharyngioma is controversial, and surgery alone is frequently advocated. The purpose of this study was to assess the long-term impact of various treatments in childhood craniopharyngioma. **METHODS AND MATERIALS:** Sixty-one children ≤ 21 years of age at diagnosis were treated for craniopharyngioma at Children's Hospital and the Joint Centre for Radiation Therapy in Boston from 1970 to 1990. The median age was 7.5 years (range 10 months to 21 years). There were 33 females and 28 males. The median follow-up was 10 years (range 2–20.5 years). Neuroimaging was available for detailed review in 53. Nine children were treated with radiotherapy alone, 15 were treated with surgery alone, and 37 were treated with both surgery and radiotherapy. All patients in the radiotherapy and surgery plus radiotherapy groups were treated with megavoltage radiation with a median dose of 5464 cGy. **RESULTS:** All nine of the children treated with radiation therapy alone are alive; none have recurred. Nine of the 15 children treated with surgery alone have recurred ($p = 0.007$ Fisher exact test). Two are alive with disease, and seven are alive without disease after treatment at relapse with radiation therapy, surgery, or both. Seven of the 37 patients treated with surgery plus radiotherapy have recurred. Three of the seven patients are dead of disease, three patients are alive with disease, and one patient is alive without disease after further treatment. The 10-year actuarial overall survival was 91 per cent for all patients. The 10-year actuarial freedom from progression for the surgery group was 31 per cent compared with 100 per cent for patients treated with radiation therapy only (log rank $p = 0.01$), and 86 per cent for patients treated with surgery plus radiotherapy at diagnosis ($p = 0.001$). There were two treatment related deaths, both in the surgery plus radiotherapy group. A higher incidence of visual loss and diabetes insipidus was associated with the use of aggressive surgery. The size of the tumour at presentation correlated with an increased risk of recurrence; five of six patients with tumours ≥ 5 cm experienced recurrences while only 6 of 30 recurred when the tumour was < 5 cm. **CONCLUSIONS:** Overall survival in childhood craniopharyngioma is excellent. However, patients treated with surgery alone have a significantly worse freedom from progression when compared to patients treated with surgery and radiation therapy alone.

Final results of a study of escalating doses of hyperfractionated radiotherapy in brain stem tumours in children: a pediatric oncology group study. Freeman, Carolyn R.,¹ Krischer, J. P.,² Sanford, A. R.,³ Cohen, M. E.,⁴ Burger, P. C.,⁵ del Carpio, Raquel,¹ Halperin, E. C.,⁵ Munoz, Louis,⁶ Friedman, H. S.⁵ and Kun, L. E.³ ¹McGill University, Montreal, Canada; ²Pediatric Oncology Group Statistical Office, University of Florida, Gainesville, FL; ³St Jude Children's Research Hospital and the University of Tennessee College of Medicine, Memphis, TN; ⁴Roswell Park Memorial Institute, Buffalo, NY; ⁵Duke University Medical Centre, Durham, NC; and ⁶Southwestern Medical School, Dallas, TX. *International Journal of Radiation, Oncology, Biology and Physics* (1993) Vol. 27, pp. 197–206.

PURPOSE: In September 1984, the Pediatric Oncology Group

began accrual to a Phase I/II study designed to assess the efficacy and toxicity of sequentially escalated doses of hyperfractionated (twice daily) radiotherapy in children with poor-prognosis brain stem tumours. Pediatric Oncology Group Study # 8495 closed in June 1990 with a total of 136 patients on study. We report here the outcome of patients treated at the third and final dose level (75.6 Gy), and compare the results to those obtained at the 66 and 70.2 Gy dose levels. **METHODS AND MATERIALS:** Patients eligible for study were those between 3 and 21 years of age with previously untreated tumours arising in the midbrain, pons or medulla. Histological confirmation of diagnosis was not mandatory provided that the clinical and radiological findings were typical for brain stem glioma. Treatment consisted of radiotherapy delivered to local fields. At the third dose level, fraction sizes of 1.26 Gy were given twice daily, with a minimum interfraction interval of 6 h to a dose of 75.6 Gy in 60 fractions over six weeks. Between 5/89 and 6/90, 41 patients were accrued to the study. Two were excluded from analysis leaving 39 evaluable patients, 21 male and 19 female, whose ages ranged from three to 15 years (median 7.5 years). **RESULTS:** Following treatment, neurological improvement was reported in 30/39 (77 per cent) of the patients. On central review of imaging studies in 29 patients, one patient was found to have had a complete response to radiotherapy, five a partial (> 50 per cent response), and only three had non-responding or progressive disease. The median time to disease progression was seven months; median survival time was 10 months; survival at one year was 39.9 per cent (SE 8.3 per cent) and at two years, seven per cent (SE 4.8 per cent). The pattern of failure was local in all patients; in addition six had evidence of leptomeningeal seeding. Morbidity of treatment included an enhanced skin reaction (21 per cent), otitis media and/or externa (26 per cent), and steroid use > 3 months (62 per cent). Intraleisional necrosis was a frequent finding (45 per cent) on imaging studies performed at a median time of six weeks post treatment. **CONCLUSION:** The results of treatment in terms of progression-free survival and overall survival are not significantly different (at $p = 0.55$ and $p = 0.46$, respectively) from those obtained at the two previous dose levels. There is no evidence that higher doses of hyperfractionated radiotherapy given as in this study improve the outlook of patients with poor-risk brain stem gliomas.

Iododeoxyuridine (IUDR) combined with radiation in the treatment of malignant glioma: a comparison of short versus long intravenous dose schedules (RTOG 86-12). Urtasun, R. C.,¹ Cosmatos, D.,² DelRowe, J.,³ Kinsella, T. J.,⁴ Lester, S.,⁵ Wasserman, T.,⁶ and Fulton, D. S.¹ ¹University of Alberta, Cross Cancer Institute; ²Radiation Therapy Oncology Group, Statistical Unit; ³Montefiore Medical Centre; ⁴University of Wisconsin; ⁵Ochsner CCOP; and ⁶Washington University. *International Journal of Radiation, Oncology, Biology and Physics* (1993) Vol. 27, pp. 207–214.

PURPOSE: To evaluate the toxicity and tumour efficacy of the halopyrimidine IUDR (NSC # 39661, IND 22475) as a chemical modifier of radiation response when used in a high dose short time infusion versus the acceptable four day infusion. **METHODS AND MATERIALS:** In August 1987 we initiated a prospective study in patients with newly diagnosed anaplastic astrocytoma and glioblastoma. The study was designed to have a fixed dose of radiation (60.16 Gy = 1.88 Gy in 32 fractions in 6.5 weeks) but varying the dose schedule of IUDR, keeping the total dose between 21 and 24 g/m². IUDR was delivered in a 96, 48, or 24 h continuous intravenous infusion per week for 6.5 weeks during radiation treatment. **RESULTS:** the study was closed for patient accrual on 1 October, 1991. Twenty-two patients were treated on the 96 h, 32 on the 48 h and 25 on the 24 h schedules. The incidence of glioblastoma ranged between 68 and 75 per cent in the three arms. Seventy per cent of the patients had a Karnofsky of 80–90 per cent at the onset of treatment. Over 50 per cent of the patient population were under age 55. Drug tolerance was related to the duration of the IUDR infusion. Toxicities were most pronounced in the 96 h IUDR infusion schedule were 27.4 per cent of the patients reported a grade three drug toxicity. No fatal or grade 4 toxicities were observed. More patients on the 24 and 48 h schedule received at least 80 per cent of the IUDR dose specified per protocol. We did not observe a trend in acute normal tissue radiation reactions in any of the three arms. The median survivals calculated from the Kaplan-Meier plot are 13.4, 10.5, and 11 months, respectively, for the 96, 48, and 24 h infusions. The Cox Proportional Hazards model showed that any difference in survival can be attributed to histological grade, type of previous surgery and, to some extent, age of the patient. Dose schedule was not a significant predictor of survival, although statistically non significant trend toward longer

survival is seen in those patients with glioblastoma treated in the 'long' four day schedule. **CONCLUSION:** Overall, our treatment combination, particularly for patients with glioblastoma, has not shown convincing evidence of an improvement in survival. Of interest, however, it is the two year survival rate of 68 per cent for patients with anaplastic astrocytoma. In our experience, the administration of IUDR is laborious, time consuming and with bothersome acute gastrointestinal and hematological toxicities.

Neutron versus photon irradiation for unresectable salivary gland tumours: final report of an RTOG-MRC randomized clinical trial. Laramore, G. E.,¹ Krall, J. M.,² Griffin, T. W., Duncan, W.,³ Richter, M. P.,⁴ Kurubarahalli, R. S.,⁵ Maor, M. H.,⁶ and Davis, L. W.⁷

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PURPOSE: To compare the efficacy of fast neutron radiotherapy versus conventional photon and/or electron radiotherapy for unresectable, malignant salivary gland tumours a randomized clinical trial comparing was sponsored by the Radiation Therapy Oncology Group in the United States and the Medical Research Council in Great Britain. **METHODS AND MATERIALS:** Eligibility criteria included either inoperable primary or recurrent major or minor salivary gland tumours. Patients were stratified by surgical status (primary vs. recurrent), tumour size (less than or greater than 5 cm), and histology (squamous or malignant mixed versus other). After a total of 32 patients were entered onto this study, it appeared that the group receiving fast neutron radiotherapy had a significantly improved local/regional control rate and also a borderline improvement in survival and the study was stopped earlier than planned for ethical reasons. Twenty-five patients were study-eligible and analyzable. **RESULTS:** Ten-year follow-up data for this study is presented. On an actuarial basis, there continues to be a statistically-significant improvement in local/regional control for the neutron group (56 per cent vs. 17 per cent, $p = 0.009$) but there is no improvement in overall survival (15 per cent vs 25 per cent, $p = n.s.$). Patterns of failure are analyzed and it is shown that distant metastases account for the majority of failures on the neutron arm and local/regional failures account for the majority of failures on the photon arm. Long-term, treatment-related morbidity is analyzed and while the incidence of morbidity graded 'severe' was greater on the neutron arm, there was no significant difference in 'life-threatening' complications. This work is placed in the context of other series of malignant salivary gland tumours treated with definitive radiotherapy. **CONCLUSIONS:** Fast neutron radiotherapy appears to be the treatment-of-choice for patients with inoperable primary or recurrent malignant salivary gland tumours.

Finite element simulation of glottal flow and pressure. Guo, C. G., Scherer, R. C. National Centre for Voice and Speech, Denver Centre for the Performing Arts, Colorado 80204. *Journal of the Acoustical Society of America* (1993) August, Vol. 94 (2 Pt 1), pp. 688–700.

Computational studies of laryngeal aerodynamics should help clarify the relationships among configuration, air flow, surface pressure, and vocal fold movement within the larynx, and the acoustic consequences of the output glottal air flow. The penalty finite element method (S. W. Kim, *Comput. Fluids* 16 (4), 429–444 (1988a); NASA CR-179357 (1988b); S. W. Kim and R. A. Decker, *Int. J. Num. Meth. Fluids* 9, 43–57 (1989)) was adopted to simulate steady air flow and air pressure through the larynx. A total of 133 conditions of different glottal configurations and inflow rates were studied. The computational results were compared to empirical data from earlier experiments. Two cases are reported (1) constant glottal divergence (42 degrees) but variable diameter and (2) constant glottal diameter (0.04 cm) but variable glottal angle. For case (1), the average discrepancy for translaryngeal pressure drop between the computational results and empirical data was 6.8 per cent for pressures between 3 and 15 cm H₂O. Flow separation occurred just downstream of the minimal glottal diameter. For case (2), the com-

putational results for translaryngeal pressure drop differed from the empirically derived Scherer-Guo (S-G) equation predictions by an average of 8.9 per cent for pressure between 3 and 13 cm H₂O. Pressure recovery in the glottis suggested that the optimal glottal diffuser angle was near 10 degrees. Results suggest that the computational method should be sufficient to study glottal aerodynamics (assuming quasisteady flow). Author.

Comparison of the Gen-Probe Group A streptococcus Direct Test with culture and a rapid streptococcal antigen detection assay for diagnosis of streptococcal pharyngitis. Heiter, B. J., Bourbeau, P. P. Department of Laboratory Medicine, Geisinger Medical Centre, Danville, Pennsylvania 17822. *Journal of Clinical Microbiology* (1993) August, Vol. 31 (8), pp. 2070–3.

The Gen-Probe Group A Streptococcus Direct Test (GP-ST) is a new assay which utilizes a nucleic acid probe to detect group A streptococci directly from pharyngeal swabs. In this study, 1,103 specimens were cultured and tested by GP-ST. The sensitivities and specificities were as follows: culture, 98.8 and 100 per cent; GP-ST, 92.4 and 99.6 per cent. Of the 1,103 specimens, 808 were also tested with the Test Pack Strep A assay. For the specimens tested by all three methods, the sensitivities and specificities were as follows: culture, 99.5 and 100 per cent; Test Pack Strep A assay, 76.3 and 99.7 per cent; GP-ST, 93.5 and 99.7 per cent. The GP-ST is a very user-friendly assay which has the potential to replace culture for the diagnosis of streptococcal pharyngitis. Author.

A prospective evaluation of mycobacterium avium complex colonization of the respiratory and gastrointestinal tracts of persons with human immunodeficiency virus infection. Havlik, J. A., Jr., Metchock, B., Thompson, S. E., Barrett, K., Rimland, D., Horsburgh, C. R. Jr. Department of Medicine, Grady Memorial Hospital, Atlanta, Georgia. *Journal of Infectious Diseases* (1993) October, Vol. 168 (4), pp. 1045–8.

To describe the natural history of Mycobacterium avium complex (MAC) in the respiratory or gastrointestinal tract of persons with human immunodeficiency virus (HIV) infection. 67 HIV-infected patients with CD4+ cell counts <200/mm³ and initial negative MAC blood cultures were followed prospectively. Patients were screened every three months with cultures and smears of sputum, rectal swab, and blood for mycobacteria. Fourteen patients (20.9 per cent) developed positive blood cultures for MAC (23.4 per cent/year). Sputum cultures revealed MAC in three (21 per cent) of the 14 patients at one, two and eight months before dissemination; no smears were positive. No rectal swab cultures or smears were positive before dissemination. Colonization of the respiratory and gastrointestinal tracts in persons with HIV infection and < 200/mm³ CD4+ cells is infrequently detected with currently available techniques. Screening cultures and smears of sputum and stool do not appear to be sensitive methods for detection of early MAC infection. Author.

Modelling adenovirus type 1-induced otitis media in the chinchilla: effect on ciliary activity and fluid transport function of eustachian tube mucosal epithelium. Bakaletz, L.O., Daniels, R. L., Lim, D. J. Otological Research Laboratories, Ohio State University College of Medicine, Columbus. *Journal of Infectious Diseases* (1993) October, Vol. 168 (4), pp. 865–72.

Previous studies have shown that viral upper respiratory tract (URT) infection predisposes to the development of bacterial otitis media (OM). The mechanisms underlying this phenomenon have been well defined for influenza A virus in the chinchilla model of experimental OM but have not been for adenovirus because of the heretofore lack of an appropriate model. In this study, chinchillas were inoculated intranasally or transbullarily with type 1 adenovirus to assess whether or not the chinchilla could serve as a suitable model for future investigation of adenovirus predisposition to bacterial OM. Data indicated that the chinchilla readily supported an active infection by and responded serologically to this agent and that route of inoculation markedly influenced otoscopic findings, elicitation of middle ear fluids, onset and location of histopathology, and progression of disease. The time course of disease onset and recovery and an assessment of the effect of this virus isolate on the mucosal epithelial integrity and on both the ciliary activity and transport function of the eustachian tube epithelium for both routes of inoculation are presented. Author.

Detection of laryngeal cancer—the case for early specialist assessment. Hoare, T. J., Thomson, H. G., Proops, D. W. ENT Department, Queen Elizabeth Hospital, Birmingham. *Journal of the Royal Society of Medicine* (1993) July, Vol. 86 (7), pp. 390–2.

The first 300 patients referred from 11 participating general practices (GPs) to the Hoarse Voice Clinic, Queen Elizabeth Hospital, Birmingham, were studied prospectively to estimate the accuracy of GPs' diagnosis of laryngeal symptoms and to assess whether the provision of a direct referral immediate access service for the assessment of persistent laryngeal symptoms is an effective way of ensuring early referral and detection of laryngeal cancer. The GPs' assessment of laryngeal symptoms was inaccurate. Diagnosis after the initial clinic visit was accurate, predicting all histological cases of cancer. Laryngoscopy was possible in all patients at the first clinic visit. Disease requiring admission for direct laryngoscopy and biopsy was found in 39 patients (14 per cent). Ten (3.3 per cent) were found to have laryngeal cancer, of which eight were early lesions. When seen in the clinic 102 (34 per cent) had normal voices and larynxes. A hoarse voice is a symptom requiring specialist assessment. By using the flexible fiberoptic nasendoscope all patients larynxes can be seen in clinic, an accurate diagnosis quickly made and the appropriate management instigated. It is feasible to offer this service without appointments to patients with persistent hoarseness. Author.

Hearing impairment and hearing aid use in women over 65 years of age. Cross-sectional study of women in a large urban community. Ward, J. A., Lord, S. R., Williams, P., Anstey, K. Aged Care Services, Prince of Wales Hospital, Randwick, NSW. *Medical Journal of Australia* (1993) September 20, Vol. 159 (6), pp. 382-4. **OBJECTIVES:** (i) To describe the prevalence of self-reported hearing impairment and level of hearing aid use in women aged 65 years and over living in the community; (ii) to provide comparison findings from the National Health Survey and the Survey of Disability and Ageing undertaken by the Australian Bureau of Statistics. **DESIGN:** Cross-sectional study of a large community population. **SETTING:** Conducted as part of the Randwick Falls and Fractures Study, in Randwick a suburban area in eastern Sydney. **PARTICIPANTS:** 496 women aged between 65 and 99 years (mean age, 74.6 years) took part in the study. The sample was representative of the population from which it was drawn. **RESULTS:** We found a higher level of hearing difficulty than the levels reported in the Australian Bureau of Statistics surveys for women of comparative ages, which may reflect differences in the questions posed. The proportions with a hearing aid in the Randwick study and the Survey of Disability and

Ageing were very similar (7.1 per cent and 7.3 per cent respectively). Of the one-third of the Randwick sample who reported a hearing difficulty, only half had been referred for audiometry and a quarter had been prescribed an aid. Only slightly more than a third of those who received an aid were regularly wearing it. Among the women with hearing difficulties, not using an aid was not associated with age, cognitive status or subjective health. There was a trend suggesting that those who did not use an aid had increased use of community support services. Women who had not received assistance with their hearing impairment had more difficulty shopping and relied more on family members. **CONCLUSION:** Almost two-thirds of people prescribed a hearing aid were not wearing it regularly, denying themselves proven benefits in communication, social involvement and life satisfaction. The prescribing of these unused aids represents a huge waste of health resources. A program to increase hearing aid use by hearing impaired people may reduce the waste of health resources and the need for community support services. Such a program may greatly increase the life satisfaction for this very large group of disabled older people. author.

Endolymphatic sac tumours: radiologic appearance. Lo, W. W., Applegate, L. J., Carberry, J. N., Solti-Bohman, L. G., House, J. W., Brackmann, D. E., Waluch, V., Li, J. C. Department of Radiology, St Vincent Medical Centre, Los Angeles, CA 90057. *Radiology* (1993) October, Vol. 189 (1), pp. 199-204.

PURPOSE: To evaluate the radiologic appearance of endolymphatic sac tumours (ELSTs). **MATERIALS AND METHODS:** Four patients with ELST underwent computed tomography (CT), and two of the four also underwent magnetic resonance (MR) imaging. Their radiologic studies were reviewed for characteristic findings of ELST. **RESULTS:** Retrolabyrinthine bone destruction was centred at the external aperture of the vestibular aqueduct in all four patients. CT showed irregular bone margins and prominent intratumoral bone in all four patients. At MR imaging, one tumour was almost homogeneous and isointense to gray matter with T1 weighting, and the other was heterogeneous and contained hyper-, hypo-, and isointense foci with T1 and T2 weighting. **CONCLUSION:** These radiologic changes may help distinguish ELSTs from other tumours of the temporal bone and posterior fossa. Author.