Thorax 1992;47:138

LETTERS TO THE EDITOR

Diagnostic value of lung clearance of ^{99m}Tc DTPA compared with other non-invasive investigations in *Pneumocystis carinii* pneumonia in AIDS

We read with interest the paper by Dr D S Robinson and others (October 1991;46:722–6), which reported the finding of a biphasic or biexponential DTPA clearance curve and its use in the management of patients with HIV infection and pneumocystis pneumonia. We have found the test sensitive and useful.[1,2] There are, however, some issues raised by the method used that are worth exploring. The most crucial point is the lack of separation of the patients with pneumocystis pneumonia and those that are smokers without pneumocystis pneumonia. This observation makes the suggestion that an analysis of the first seven minutes of data acquisition is sufficiently reliable to separate those with pneumocystis pneumonia from others who smoke unlikely. The methods of data acquisition and processing described might explain the insensitivity of the method. There are several problems.

Firstly, the patients inhale aerosol for four minutes, and yet the half time of the clearance reported by others is between one and five minutes[1,3]; it is therefore likely that the initial fast component is at least partially obscured with this inhalation time.

Secondly, the aerosol inhalation was performed in the erect posture, which would result in reduced counts over the upper lobes (which also have faster transfer times than the lower). This would be a particular problem in sick patients who cannot remain still. Possibly this led to the reduced sensitivity in the measurements over the upper part of the lung.

Thirdly, the background radiactivity varies between the apex of the lung and the base[4,5] and in the paper by Langford *et al* was found to vary in non-smokers.[6] These variations have been found in "healthy" subjects when a bolus correction method was used. In patients with alveolitis, where perfusion will be altered as well as the amount of interstitial oedema, the background will be highly variable. Is the method that uses the interrenal area (with no bolus of DTPA) to correct for background radiactivity suitable in these patients (who have high renal activity and patchy lung oedema)?

The final point relates to the data analysis, which appears to show a longer first component time after curve stripping (table 2). We would be grateful for an explanation of how curve stripping results in a longer first component time than the raw data. Van der Wall *et al*[3] also performed the exercise of examining the first seven minutes after the peak and found this to be a poor discriminator in smokers with pneumocystis pneumonia. When adequate curve stripping (but no background correction) was performed a mean first component half time of 3·3 minutes was found, resulting in the separation of the two groups, which compares favourably with our own data after curve stripping.[1]

We believe that separation of the "alveolitic" group of patients can readily be achieved with DTPA aerosol, and this has been shown by another group[2] without background correction but with careful attention to the details of the scanning procedure and data analysis.

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1 O'Doherty MJ, Page CJ, Bradbeer CS, *et al.* The place of lung 99mTc DTPA aerosol transfer in the investigation of lung infections in HIV positive patients. *Respir Med* 1989; 83:395–401.
2 Leach R, Davidson C, O'Doherty MJ, Nayagam M, Tang A, Bateman N. Noninvasive management of fever and breathlessness in HIV positive patients. *Eur J Respir Med* 1991; 4:19–25.
3 Van der Wall H, Murray IPC, Jones PD, *et al.* Optimising technetium 99m diethylene triamine penta-acetate lung clearance in patients with the acquired immunodeficiency syndrome. *Eur J Nucl Med* 1991;18:235–40.
4 Dusser DJ, Minty BD, Collignon MA, Hinge D, Barritault LG, Huchon GJ. Regional respiratory clearance of aerosolized 99m-Tc-DTPA: posture and smoking effects. *J Appl Physiol* 1986;60:2000–6.
5 O'Doherty MJ, Page CJ, Croft DN, Bateman NT. Regional lung "leakiness" in smokers and nonsmokers. *Nucl Med Commun* 1985;6: 353–7.
6 Langford JA, Lewis CA, Gellert AR, Tolfree SEJ, Rudd RM. Pulmonary epithelial permeability: vascular background effects on whole lung and regional half-times values. *Nucl Med Commun* 1986;7:183–90.

AUTHOR'S REPLY The aim of our paper was to examine the suggestion that DTPA lung clearance might be a useful method of investigating HIV seropositive patients with respiratory symptoms. The future role of this investigation will depend on wider experience, from its application in different centres.

We note with interest the comments on methodological points. As we mentioned in our discussion, the main difference between our method and that used by O'Doherty and others stemmed from the faster flow rate they used and therefore presumably the smaller particle size. Possibly this would have a greater discriminatory value and, as we have said, we believe that this is an area for further investigation, though each centre is likely to have its own method until consensus is achieved. The seven minute clearance times for smokers did give significant separation in our study between those with and without pneumocystis pneumonia. Although differences were not as pronounced as for non-smokers, the important point was our finding that resolution did not appear to be improved by a longer scan time. We analysed upper and lower lung zones separately and did not find any difference between the two in discriminatory power for pneumocystis pneumonia; thus we did not detect any greater variability in upper than in lower lung zones. We would agree that sick patients might not tolerate the scan (in either erect or any other posture) but we think that DTPA scanning may not be an appropriate investigation in such patients. We have examined the effect of intravenous injection to determine background in some of our patients and this does not appear to improve our protocol significantly.

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Pleural abrasion: a new method of pleurodesis

The article by Dr UU Nkere and others (1991;46:586–8) made interesting reading. The title "a new method" was intriguing. We at St John's Medical College and Hospital, Bangalore, have used a similar method for many years with good results. Instead of the nylon scourer used by Dr Nkere and his colleagues we have used only dry gauze to abrade the pleural surfaces to the point of obtaining minute petechial haemorrhages. In addition, we resort to a form of "open chemical pleurodesis" by painting the opposing surfaces with a paste made of sterile talc powder and Betadine. We find that this helps to obtain a more complete and quicker pleurodesis. The rest of the technique is very similar to that of the authors. We agree with them that this is a safe and a simpler method of obtaining pleurodesis and avoids the complications associated with a standard pleurectomy.

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BOOK NOTICES

Complications in Cardiothoracic Surgery. Edited by John A Waldhausen, Mark B Orringer. (Pp 460; £78.) St Louis: Wolfe, 1990. ISBN 0 8151 9175 8.

The surgical mentality is essentially optimistic, and particularly so regarding the chest. Complications are consigned to small print when we are talking to either patients or colleagues and only with our current enthusiasm for audit are they the subject of frequent and detailed analysis. Few surgeons would wish to be regarded as an authority on their diagnosis or management! But Waldhausen and Orringer, with formidable conventional reputations in respectively cardiac and thoracic surgery, have edited an important and, in its scale, unique volume on this neglected area. The book covers the whole field, cardiac and thoracic, adult and paediatric. Introductory chapters include the complications of anaesthesia and of positions and incisions. They are followed by an extensive section on the general problems of cardiopulmonary bypass and myocardial preservation. There are then chapters devoted to individual procedures across the whole range of cardiac surgery. Thoracic surgery is perhaps less well served, having only a third of the whole book; but the chapters are well thought out and authoritative. The illustrations are excellent (as one would expect for the price) and frequently from definitive publications. The various contributors, entirely from North America, are to be particularly congratulated on the quality of the references following each chapter. Who will read this book? Senior surgeons who have "seen it all" will find much to learn from.

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Juniors, whether preparing for an audit meeting or revising for the Intercollegiate examination, will find it indispensable. This book should certainly be found in the library of every department of cardiac and thoracic surgery.—JHD

Lecture Notes on Respiratory Disease. 4th ed. R A L Brewis. (Pp 317; £12·95.) Oxford: Blackwell, 1991. ISBN 0-632-02777-0.

This book, which is a member of the popular "Lecture Notes" series, has been written as a concise introductory text to the essentials of respiratory medicine. It is into its fourth edition and there has been an obvious effort to keep the text up to date. The book is structured in a standard format. The first section discusses aspects of lung structure and function, and includes a clearly written review of respiratory physiology with effective use of models to explain some difficult concepts. This is followed by a section that focuses on diagnostic techniques. Chest radiology forms an integral part of respiratory medicine, and the author has provided a useful, simple description of the elements of chest radiographs as well as of computer tomograms of the thorax. The emphasis of this book is on practical aspects of the more common respiratory problems seen in clinical medicine and some new chapters have been added here, including chapters introducing the rapidly expanding areas of respiratory disease in patients with AIDS and the immunocompromised and of ventilatory failure and sleep apnoea. I was disappointed that there was not more discussion of the pharmacology of drugs used in the treatment of some respiratory disorders and perhaps a larger section on assisted ventilation. In addition, there are occasional irritating typesetting errors. Overall, however, this book is very well written in an easy to read, concise style and it is supplemented by many excellent illustrations. It has been primarily aimed at the medical student but it would also be a useful reference for the junior hospital doctor and the MRCP candidate. Priced at £12·95 it is good value for money.—CW

Atlas of Rare Chest Diseases in Children. J Rudnik, R Kurzawa. (Pp 192; no price given.) Rabka, Poland: National Research Institute of Mother and Child, 1991. ISBN 83-00-03293-2.

This atlas contains 56 reports of rarities, largely from the National Research Institute of Mother and Child in Rabka, Poland. I envy them their 640 beds for paediatric respiratory medicine and their wealth of clinical material. Clearly the investigative facilities as revealed here are not fully up to modern standards. The computed tomograms are scanty and there are no nuclear magnetic resonance images. In consequence, bronchography is performed far more often than in Western Europe. The planning of each report is good, and there are some interesting cases; there is a presentation, imaging studies, and pathological material. The illustrations are copious but tend to be poorly reproduced; and it is not easy to get used to reversed radiographs (black bones, white air). Latin is overused ("compressio trachea post destropositionem arteriae pulmonalis sinistrae" does not often trip off the tongue in my hospital). Unfortunately, no attempt is made to use these fascinomas to illustrate general principles. There is no mention of paediatric HIV. The use of fibreoptic bronchoscopy and transbronchial biopsy is not explored. The references are grouped alphabetically at the end of the book, rather than being attached to the case report to which they refer, and some are incomplete and outdated. But this is a very impressive attempt at producing a text of fascinating problems with limited funding and facilities. The authors are to be congratulated on their enterprise. This is mainly a book for the medical historian, possibly a book to skim but not one to buy for yourself.—AB

NOTICE

British Society for Allergy and Clinical Immunology conference

The society's 1992 annual conference will be held on 7–9 September at the University of Southampton. Further information from Amanda Barber, Conference Associates and Services Ltd, BSACI 1992, Congress House, 55 New Cavendish Street, London W1M 7RE (tel 071 486 0531, fax 071 935 7559).

CORRECTION

Cystic fibrosis: current survival and population estimates to the year 2000

In the paper by JS Elborn *et al* (December 1991;**46**:881) the address for reprint requests should be: Section of Respiratory Medicine, University of Wales College of Medicine, Llandough Hospital, Penarth, South Glamorgan CF6 1XX.

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