

that changes in osmolality during nebulisation could have led to bronchoconstriction is not borne out by the failure of nebulised saline control to cause any reduction in $\dot{V}_{\max}\text{FRC}$.

It is possible that the low pH of salbutamol solution could have induced bronchoconstriction. The pH of our normal saline ampoules is 6.0 and of salbutamol nebulisers is 4.0 (not 7.6 and 6.25, as found by Dr O'Callaghan). However, neither histamine solution in low concentrations (below that which induced bronchoconstriction—pH around 5) nor ipratropium bromide nebuliser solution (pH 4.0) have caused a significant decline in $\dot{V}_{\max}\text{FRC}$ in our studies.^{1,2} The hypothesis that the pH of the nebuliser solution is a critical factor therefore remains speculative. More research in infants is clearly required.

In answer to the comments of Dr Beasley and colleagues, the salbutamol respirator solution used in the study performed by O'Callaghan *et al* and the salbutamol "nebuliser" in our study contain benzalkonium chloride. Thus the reduction in $\dot{V}_{\max}\text{FRC}$ seen 15 minutes after salbutamol nebulisation could be preservative induced.

Book notices

Recent Advances in Respiratory Medicine. No. 4. Eds DC Flenley, T Petty. (Pp 285; £37.50, hardback) Edinburgh: Churchill Livingstone, 1986. ISBN 0-443-034117.

The difficulty about reviewing an anthology is that, almost always, the contributions are of varying standard, varying interest, and varying degrees of suitability for inclusion. There is no such problem here; all of the 16 chapters are well prepared, stimulating, and relevant to the practising clinician. This is the fourth volume of *Recent Advances in Respiratory Medicine* to appear after a regular interval of three years and many of the "plum" subjects for review have already been covered in earlier numbers. It is all the more remarkable that Professor Flenley and Dr Petty have managed to obtain such an interesting collection of informative reviews. Topics and authors are spread widely. The epidemiology of asthma is reviewed from New Zealand, airways responsiveness from Canada, and cell receptors and airway function in asthma from the United Kingdom. Pulmonary manifestations of AIDS are reviewed from the United States (San Francisco), the use of cephalosporins in lung disease from Italy, and the control and surveillance of tuberculosis from The Netherlands. It will be apparent already that this is a much more international collection than any of the previous volumes. Some of the contributions are condensed overall reviews of the subject rather than commentaries limited to recent advances and this is the case with the chapters on sarcoidosis, cryptogenic fibrosing alveolitis, pulmonary thromboembolism, and pleural effusion. The editors' particular interests are reflected in the next few chapters on the early pathogenesis and identification of chronic obstructive airways disease, various topics in chronic bronchitis and emphysema (diagnosis of emphysema, protease-antiprotease theory, pulmonary vasodilators, improving airflow limitation, inspiratory muscle training), domiciliary and ambulatory oxygen treatment in

We have performed a further study² of change in airway function in 17 wheezy infants after nebulised ipratropium bromide, which also contains benzalkonium chloride. At 15–20 minutes after nebulisation of 1 ml of ipratropium bromide in 1.5 ml 0.9% sodium chloride there was a significant reduction in specific airway resistance with no significant change in $\dot{V}_{\max}\text{FRC}$. Thus benzalkonium chloride, at least when present in nebulised ipratropium bromide, does not appear to induce bronchoconstriction in these infants.

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1 Prendiville A, Green S, Silverman M. Ipratropium bromide and airways function in wheezy infants. *Thorax* 1987;42:92–9.

2 Prendiville A, Green S, Silverman M. Ipratropium bromide and airways function in wheezy infants. *Arch Dis Child* 1987;62:397–400.

chronic respiratory insufficiency, and breathing during sleep in adults. There are two contributions on lung cancer—one on early identification and one on staging. Overall this is an excellent collection of reviews, which is well up to the standard of the previous volumes and which will be much thumbed over the next few years by clinicians with an interest in respiratory medicine.—RALB

Acute Lung Injury. Pathogenesis of adult respiratory distress syndrome. H Kazemi, AL Hyman, PJ Kadowitz. (Pp 270; £27.50, hardback.) Massachusetts: PSG Publishing Company, 1986. ISBN 0-88416-536-6.

This book summarises a symposium on the pathogenesis of the adult respiratory distress syndrome (ARDS) held in 1984 under the auspices of the Cardiopulmonary Council of the American Heart Association. In 19 chapters it reviews areas of lung injury research which shed light on the pathogenesis of ARDS. The authors, 43 in total, are a cross section of active researchers in ARDS in the United States. They give detailed and relatively up to date reviews of their own research and that of allied workers. There are good reviews of the pathology and pulmonary haemodynamics of human ARDS from the Boston group, but most of the chapters concentrate on experimental work in animal models or in vitro systems and have as yet little direct clinical application. The organisers of the symposium are to be congratulated for not allowing the role of the neutrophil to dominate, so that in this volume the neutrophil is viewed in the context of other mechanisms. There are two extremely good chapters on alveolar epithelial function, including active transport mechanisms and permeability and its assessment, which are balanced by chapters discussing the role of the pulmonary endothelium in vasodilatation and the generation of cyclic GMP by vascular smooth muscle, and others on the regulation of fluid balance in the lungs. Animal models of injury,

particularly the sheep, and their limitations by comparison with *in vitro* work and human ARDS, are discussed. There is an excellent review of thrombin induced injury in pulmonary embolus and good summaries of oxygen radical generation and resulting injury, as well as a chapter dealing with natural antioxidant mechanisms. Other reviews concentrate on prostaglandins, leukotrienes, and potential therapeutic agents and their modes of action. The book is well produced apart from a few typographical errors. It is well referenced and is a fine summary of a broad range of research in ARDS. Its readership is, however, probably limited to those active in the field, particularly in animal model and *in vitro* work, as there is little of direct relevance to the clinician in this book.

Biologic and Bioprosthetic Valves. Proceedings of the Third International Symposium. Eds Endre Bodnar, Magdi Yacoub. (Pp 888; \$125 in USA and \$130 elsewhere, hardback.) New York: Yorke Medical Books, 1986. ISBN 0-914316-49-4.

The elusive quest for the perfect replacement heart valve is two pronged, and directed to the development of either artificial devices or tissue valves. This book is the record of 96 papers and many hours of discussion at a symposium on tissue valves and bioprostheses. The three decades in the development of bioprostheses are admirably summarised in an invited lecture: the sixties were the decade of the "gifted amateur"; in the seventies the cottage industry was commercialised, thus making widely available the first generation of bioprostheses; in the eighties there is a new basic science endeavour, addressing the limitations of past tissue valves and producing a group of second generation valves. The early sections of the book document fully both the achievements and the limitations of the first generation of tissue valves, be they homograft, heterograft, or bovine pericardial valve. All have low, but not zero, thromboembolic potential and all have limited durability owing to primary tissue degeneration leading to valve failure, which commonly occurs 7-15 years after implantation. Subsequent sections deal with the causes and possible prevention of valve degeneration, the results of reoperation after valve failure, and the disputed need for anticoagulants to combat the low risk of thromboembolism. A section on the bioengineering and design of valves leads logically to the final section, which discusses some second generation tissue valves with a short follow up period of observation. Although this is an expensive book it must be in the libraries of cardiological and cardiac surgical departments, and should be on the personal shelves of those actively concerned with the evaluation and treatment of cardiac valvular disease.—JDW

The normal lung. 2nd ed. John F Murray. (Pp 377; £19.95, hardback.) Philadelphia: WB Saunders, 1986. ISBN 0 7216 6613 2.

Although this book is in essence an unusually well written account of the anatomy and physiology of the lung designed to be readily understandable by the relative novice, it is also likely to be of interest and value to anyone with a developed interest in any aspect of pulmonary medicine. The main reason for this is the outstanding and extensive collection of illustrations which Professor Murray has assembled. Most

of these are reproduced from the original sources so that, at one level, the book functions as a gallery of classic images and ideas. In addition to the usual subdivisions of anatomy and physiology there are chapters on metabolism, defence mechanisms, and aging. The clear, uncomplicated text is well linked to the illustrations, the essential concepts are well referenced, and recent work is adequately represented. Professor Murray is equally and impressively comfortable whether writing about structure or about function and one of the strengths of the book is the cohesion which results from having both dealt with by a single author. The binding and printing are of a quality usually associated with books costing twice as much.—RALB

Manual of Pulmonary Function Testing. 4th ed. Gregg Ruppel. (Pp 296; £16, paperback.) Oxford: Blackwell Scientific Publications, 1986. ISBN 0 8016 4695 2.

This is the fourth edition of a book which aims not only to describe the methodology and physiological principles behind common tests of pulmonary function but also to explain the clinical significance of test results in patients with pulmonary disease. The presentation is as in previous editions, each chapter being followed by self assessment questions and a list of key references. There are new chapters on the use of computers in the pulmonary function laboratory and another covering quality control. The manual is aimed at both practising physicians and pulmonary function technicians, and in general is written lucidly. The theory and practice of standard tests of pulmonary function and basic exercise testing are dealt with adequately. While it is difficult to cover every conceivable test there are a few surprising omissions, of which perhaps the most important is lack of a section covering investigation of pulmonary function during sleep. This is despite the fact that the recognition of sleep apnoea has provided one of the major stimuli to clinical investigation of respiratory function in the past decade. Less important omissions include use of partial flow volume curves in the section on mechanics and the radioisotope krypton-81m in the section on gas distribution. The chapter on computing, though fine on theory, is a little short on the basic practical details one would like to see in a manual. The index is less than comprehensive and the vexed problem of units also deserves a mention, with traditional rather than SI units dominating the text. In conclusion, although the book is largely successful as a basic laboratory manual, it is much less effective in handling the clinical application of pulmonary function testing, for which there are better books on the market.

Notice

Conference on pulmonary rehabilitation and home mechanical ventilation

The International Conference on Pulmonary Rehabilitation and Home Mechanical Ventilation will be held on 2-5 March 1988 in Denver, Colorado, sponsored by the Webb-Waring Lung Institute and the American Association for Respiratory Care. Details from Louise Nett, Webb-Waring Lung Institute, 4200 East 9th Avenue, Box C321, Denver Colorado 80262, USA.